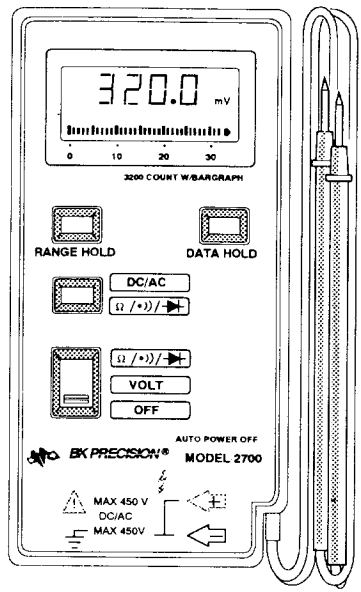
BK PRECISION®

POCKET DMM
3-1/2 DIGIT
MODEL 2700

ACCESSORIES SUPPLIED

- Pocket Carrying Case
- Instruction Manual
- Test Leads



BK PRECISION®

6470 West Cortland Street
Chicago, Illinois 60635

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SPECIFICATIONS

DC VOLTS (auto and manual ranging)

Range	Resolution	Accuracy	Overvoltage Protection
300 mV	100 µV	± (1.3% + 2)	500 V DC + AC Peak
3 V	1 mV	± (0.7% + 2)	
30 V	10 mV	± (1.3% + 2)	
300 V	100 mV		
450 V	1 V		

Input Impedance ..... >10 MΩ

AC VOLTS (auto and manual ranging, average rms)

Range	Resolution	50/60 Hz	Overvoltage Protection
3 V	1 mV	± (2.3% +5)	500 V DC + AC Peak
30 V	10 mV		
300 V	100 mV		
450 V	1 V		

Input Impedance ..... >10 MΩ

DIODE CHECK

Range	Resolution	Accuracy	Test Current	Max. Open Ckt. Volts
3 V	1 mV	± (10% +2)	0.6 mA (Vf=0.6 V)	3.2 V

Note: Measures forward voltage drop of diode or semiconductor in mV

Overload Protection ..... 500 V DC + AC Peak

SPECIFICATIONS

RESISTANCE (auto and manual ranging)

Range	Resolution	Accuracy	Max. Open Circuit Voltage
300 Ω	0.1 Ω	± (2.0% +3)	1.3 V
3 kΩ	1 Ω		
30 kΩ	10 Ω		
300 kΩ	100 Ω		
3 MΩ	1 kΩ	± (6.0% +3)	0.65 V
30 MΩ	10 kΩ	± (10% +5)	

Overload Protection ..... 500 V DC + AC Peak

CONTINUITY CHECK

Range	300 Ω
Buzzer Threshold, Approx.	20 Ω
Response Time, Approx.	150 ms
Overload Protection	500 V DC + AC Peak

NOTE:
Accuracy specifications apply from +18 to +28 °C at relative humidity up to 70% unless otherwise indicated.

Accuracy stated as ±(% of reading + number of counts).

CE

MAINTENANCE

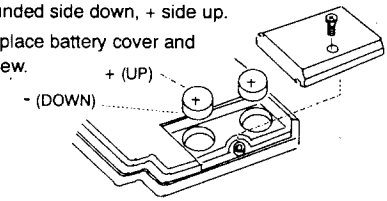
WARNING

Disconnect test leads from voltage source before changing batteries or performing any maintenance.

BATTERY REPLACEMENT

Replace batteries when the low battery symbol B is displayed. Two fresh NEDA 1166A button-type batteries are needed.

1. Disconnect test leads from circuit.
2. Switch function selector to OFF.
3. At rear of case, remove Phillips screw and then slide off battery cover.
4. Remove old batteries and install fresh batteries; rounded side down, + side up.
5. Replace battery cover and screw.



BATTERY COMPARTMENT, COVER REMOVED

LIMITED ONE YEAR WARRANTY

MAXTEC INTERNATIONAL CORPORATION warrants to the original purchaser that its ***BK Precision*** product, and the component parts thereof, will be free from defects in workmanship and materials for a period of one year from the date of purchase.

MAXTEC will, without charge, repair or replace, at its option, defective product or component parts upon delivery to an authorized ***BK Precision*** service contractor or to the factory service department, accompanied by proof of the purchase date in the form of a sales receipt.

Exclusions: This warranty does not apply in the event of misuse or abuse of the product or as a result of unauthorized alterations or repairs. It is void if the serial number is altered, defaced or removed.

MAXTEC shall not be liable for any consequential damages, including without limitation damages resulting from loss of use. Some states do not allow limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty gives you specific rights and you may have other rights which vary from state-to-state.

For your convenience, we suggest you contact your ***BK Precision*** distributor, who may be authorized to make repairs or can refer you to the nearest service contractor.

If warranty cannot be obtained locally, please send the unit to ***BK Precision*** Service Department, 6470 West Cortland Street, Chicago, Illinois 60635, properly packaged to avoid damage in shipment.

BK Precision Test Instruments only warrants products sold in the U.S.A and its overseas territories. In other countries, each distributor warrants the ***BK Precision*** products which it sells.

SPECIFICATIONS

OPERATING CHARACTERISTICS

Display:

3 1/2 digit liquid crystal (LCD) with a maximum reading of 3200. Analog bargraph with 32 segments.

Polarity Selection:

Automatic, negative (-) polarity indicated, positive (+) assumed.

Low Battery Indication:

Character "B" displayed for low battery voltage.

Overrange Indication:

"OL" displayed.

Sample Rate:

2 measurements/second, nominal.

Auto Power Off:

Automatic shut down after about 10 minutes of no activity.

PHYSICAL DATA

Temperature:

Full Operation: 0 to 40 °C at <70% relative humidity.

Storage: -20 to 60 °C at <80% relative humidity (battery removed).

Power Requirements:

Two 1.5 V button-type batteries, NEDA #1166A or equivalent.

Battery Life:

250 hours.

SPECIFICATIONS (Cont.)

PHYSICAL DATA (Cont.)

Dimensions, Instrument Only, H x W x D:

4.4" x 2.2" x 0.4" (115 x 56 x 10.5 mm)

Dimensions, w/Pocket Case, H x W x D:

4.9" x 3" x 0.6 (124 x 76 x 16 mm)

Weight:

About 3 oz (86 g) w/batteries and pocket case.

SAFETY

WARNING

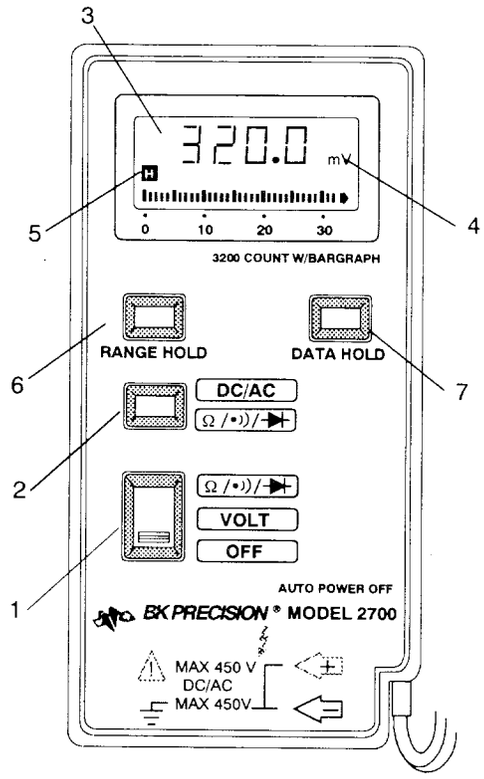
An electrical shock causing 10 milliamps of current to pass through the heart will stop most human heartbeats. Voltage as low as 35 volts dc or ac rms should be considered dangerous and hazardous since it can produce a lethal current under certain conditions. Higher currents are even more dangerous. Observe the following safety precautions:

1. Never apply input voltages greater than 450 V. Personal injury and/or damage to the instrument may occur. This meter is not recommended for high voltage industrial use.
2. When testing ac powered equipment, remember that ac line voltage may be present on some power input circuits (for example, at on-off switch, fuses, transformer, etc.), any time the equipment is connected to an ac outlet, even if it is turned off.
3. If possible, familiarize yourself with the equipment being tested and the location of its high voltage points. However, remember that high voltage may appear at unexpected points in defective equipment.
4. Before replacing batteries, make sure that the input leads are disconnected from any voltage points.
5. Use the time proven "one hand in the pocket" technique while handling an instrument probe. Be particularly careful to avoid contacting a nearby metal object that could provide a good ground return path.
6. When using a probe, touch only the insulated portion. Never touch the exposed tip.

SAFETY (Cont.)

7. Use an insulated floor material or a large, insulated floor mat to stand on, and an insulated work surface on which to place equipment; make certain such surfaces are not damp or wet.
8. Some equipment with a two-wire ac power cord, including some with a polarized power plug, is the "hot chassis" type. This includes most recent television receivers and audio equipment. A plastic or wooden cabinet insulates the chassis to protect the customer. When the cabinet is removed for servicing, a serious shock hazard exists if the chassis is touched. Additionally, in many test instruments, the ground lead is connected directly to earth ground via the third prong of the power plug. Equipment damage and/or personal injury may occur if a "hot chassis" is shorted to earth ground through the ground lead of such a test instrument. To make measurements in "hot chassis" equipment, always connect an isolation transformer between the ac outlet and the equipment under test. The ***B&K Precision*** Model TR-110 or 1604 Isolation Transformer, or Model 1653 or 1655 AC Power Supply is suitable for most applications. To be on the safe side, treat all two-wire ac powered equipment as "hot chassis" unless you are sure it has an isolated or earth ground chassis.
9. Never work alone. Someone should be nearby to render aid if necessary. Training in CPR (cardio-pulmonary resuscitation) first aid is highly recommended.

CONTROLS AND DISPLAY



CONTROLS AND DISPLAY

1. **Function selector**, 3 position:
   - Select **OFF** to turn instrument off and reset any reading on HOLD.
   - Select **VOLT** for DC and AC voltage measurements.
   - Select Ω /•))/⊣◀ for resistance, continuity and diode checks.
2. **Mode pushbutton**. Choose mode of function selection. Switch between AC and DC in VOLTS selection and between resistance (Ω), continuity (•)) and diode check (⊣◀) in Ω/•))/⊣◀ selection.
3. **Display**. 3-1/2 digit (3200 maximum) readout with automatic decimal point, minus (-) sign (+ assumed), analog bargraph and annunciators for function and unit of measurement.
4. **Annunciators, right side**: resistance (Ω, kΩ, MΩ), volts (mV, V), low battery (B)and manual ranging(⊙).
5. **Annunciators, left side**: diode check (⊣◀), hold (H), volts (**AC** displayed, **DC** implied when **AC** is off) and continuity (•)) .
6. **RANGE HOLD.** Manual range selector; press button to select. Press and hold for at least two seconds to return to auto range. The "⊙" indicates manual ranging.
7. **DATA HOLD.** Press to switch in and out of hold mode. DATA HOLD freezes present display reading.

OPERATING INSTRUCTIONS

RANGE SELECTION

The RANGE HOLD push button allows you to switch between manual and autoranging. When the meter is turned on, autoranging is automatically selected.

In autoranging the decimal point is automatically selected which will provide the best resolution for the measurement being made. In manual ranging, you select the range (resolution) desired.

When you press RANGE HOLD the first time, you go into manual ranging and your present range is held. The next time this button is pressed, you get the next higher range. Each successive time this button is pressed you step up until the highest range is reached. If you press this button again, you now get the lowest range and the step up procedure is started again.

You can go back into autoranging at any time; to return, press and hold RANGE HOLD for at least two seconds. Present mode is shown at the annunciator: manual, ⊙; auto, absence of symbol.

1. When the meter is first turned on, autoranging is automatically selected.
2. Press RANGE HOLD to change to manual ranging.
3. To step from your present range to the next higher range, press RANGE HOLD for each step.
4. To return to autoranging without turning the meter OFF, press RANGE HOLD and hold it down for at least two seconds.

OPERATING INSTRUCTIONS (Cont.)

VOLTAGE MEASUREMENTS

WARNING

Never try to measure voltages greater than 450 V.

1. Set function selector to VOLT position.
2. Select DC or AC voltage with mode switch.
3. Touch probes to the test points. Range is selected automatically displaying input voltage with best resolution.
4. Note that value shown in display window is the actual level with the decimal point correctly located. The annunciator shows whether the reading indicates millivolts (mV) or volts (V).
5. Set function selector to OFF when not in use to conserve power.

DATA HOLD

When DATA HOLD is pressed, it freezes the present reading and the H symbol is displayed at the lower left side of the display window. Test leads can now be disconnected from the test source without affecting the reading at the display. Press this button again to reset the meter and clear the reading on hold.

OPERATING INSTRUCTIONS (Cont.)

RESISTANCE MEASUREMENTS

CAUTION

Verify that power is off in circuit under test and that electrolytic capacitors are discharged.

1. Set function selector to Ω /•))/⊣◀ position.
2. Press mode switch until you see Ω displayed.
3. Touch probes to the test points. Range is selected automatically giving actual resistance value with best resolution.
4. Annunciator shows reading as ohms (Ω), kilohms (kΩ) or megohms (MΩ).
5. Set function selector to OFF when not in use to conserve power.

CONTINUITY TEST

1. Set function selector to Ω /•))/⊣◀ position.
2. Press mode switch until you see •)) displayed.
3. Touch probes to test points. Audible beeper sounds when resistance is less than about 20 ohms.
4. Set function selector to OFF when not in use to conserve power.

OPERATING INSTRUCTIONS (Cont.)

DIODE TEST

1. Set function selector to Ω /•))/⊣◀ position.
2. Press mode switch until you see ⊣◀ displayed.
3. To check forward voltage drop of diode, touch red test lead to anode (+) and black test lead to cathode (-). Typical forward voltage drops are as follows:
   - Good silicon diode, 0.5 V to 0.65 V.
   - Good germanium diode, 0.2 to 0.4 V.
   - Good LED (T1 type), 1.4 V to 1.6 V.
4. Reverse leads to diode. Reading should be the same as an open circuit, OL displayed.
5. Set function selector to OFF when not in use to conserve power.

AUTO POWER OFF

1. The meter will automatically shut off if there is no activity for about 10 minutes.
2. To restore operation, momentarily set function switch to OFF, then to the desired function.

USE OF ANALOG BARGRAPH

The analog bargraph displays the relative magnitude of the input on the selected range. It updates 10 times as often as the numerical display. This makes it useful for indicating the direction of change of a varying quantity (adjusting for a peak reading for example).