SAFETY

An electrical shock causing 10 milliamperes of current to pass through the human heart will stop most human hearts. Voltage as low as 35 V dc or ac rms should be considered dangerous since it can produce a fatal current under certain conditions. Higher voltages are even more dangerous. Observe the following safety precautions:

1. Do not exceed the following input ratings. Personal injury or damage to the instrument may result.
   - DC VOLTS: 1.2 kV
   - AC VOLTS: 850 V rms
   - AC AMPS: 1000 A rms
   - OHMS: 250 V dc or 176 V ac rms

2. Never use the clamp meter unless the battery compartment is closed.

3. Remove test leads before replacing battery.

4. Always remove test leads when they are not in use. Dangling test leads can be dangerous.

5. Use only the safety type test leads supplied with the clamp meter.

6. Turn off equipment while making test connections in high voltage circuits. Discharge high voltage capacitors after removing power.

7. For the safest voltage measurement in high voltage equipment, do not touch equipment, meter, or test leads while power is applied.

8. If possible, familiarize yourself with the equipment or system being tested and the location of its high voltage areas. However, remember that high voltages may appear at unexpected points in defective equipment and systems.

9. Use an insulated floor material or floor mat to stand on. Make certain such surfaces are not damp or wet.

10. Keep “one hand in the pocket” while handling an instrument probe. Be particularly careful to avoid contacting a nearby metal object that could provide a good ground return path.

11. When using a probe, touch only the insulated portion. Never touch the exposed tip portion.

12. Never assume that connections designated as “neutral” are at ground potential.

13. Make certain that any ground is acceptable before relying on it.

14. Never assume circuit power is off until you are certain of it.

15. Never work alone. Someone should be nearby to render aid if necessary. Training in CPR (cardio-pulmonary resuscitation) first aid is highly recommended.

SYMBOLS

See instruction manual for further precautionary information.

- High voltage terminal; up to 1000 volts may be present if connected to high voltage.
- Volt/ohm - continuity input, diode test terminal.
- Common input terminal.
- Diode test.
- Continuity buzzer.
- Connect to earth ground or point not more than 500 V from earth ground.
- Maximum input rating of V-Ω terminal with respect to COM input terminal.

DIGITAL CLAMP METER

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480-677-9-001B
91-25481-4
INTRODUCTION

The B & K-Precision Model 350A Digital Clamp Meter is a practical, versatile instrument for measuring ac and dc voltage, ac current, and resistance. In addition, the meter also tests diode condition and checks continuity. The current clamp allows the user to measure ac current without connecting any wires. Test leads permit voltage and resistance measurements and continuity and diode tests. The meter displays a direct reading of current, voltage, or resistance on a 3-1/2 digit LCD readout. Three current ranges, two ac and dc voltage ranges, two resistance ranges, and a diode and continuity check feature allow accurate, versatile measurements.

Among the performance features of the meter are overload protection and unparalleled convenience. A wide selection of ranges and functions allows the user to perform measurements and tests on most electrical and electronic systems. The major convenience and time-saving features include an LCD digital readout for quick, easy readings, continuity buzzer, low-battery indication, and an overrange indicator on all functions and ranges.

Other special features include a data hold feature and a peak hold feature. The data hold feature allows the user to make a measurement and “lock” the reading on the display. The peak hold feature holds the highest voltage or current reading attained during the time of activation, allowing easy measurement of changing signals.

High performance and convenience make the Model 350A a truly portable, practical instrument for the electrician and service person. To gain the most value from this instrument, we recommend that you study the entire manual to fully understand all the capabilities of the instrument, and to familiarize yourself with all operating techniques.

SPECIFICATIONS

AC CURRENT

rms value of sine wave.

<table>
<thead>
<tr>
<th>RANGE</th>
<th>RESOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 A</td>
<td>0.01 A</td>
</tr>
<tr>
<td>200 A</td>
<td>0.1 A</td>
</tr>
<tr>
<td>1000 A</td>
<td>1 A</td>
</tr>
</tbody>
</table>

AC VOLTAGE

rms value of sine wave.

<table>
<thead>
<tr>
<th>RANGE</th>
<th>RESOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 V</td>
<td>0.1 V</td>
</tr>
<tr>
<td>750 V</td>
<td>1 V</td>
</tr>
</tbody>
</table>

DC VOLTAGE

<table>
<thead>
<tr>
<th>RANGE</th>
<th>RESOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 V</td>
<td>0.1 V</td>
</tr>
<tr>
<td>1000 V</td>
<td>1 V</td>
</tr>
</tbody>
</table>

RESISTANCE

<table>
<thead>
<tr>
<th>RANGE</th>
<th>RESOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 Ω</td>
<td>0.1 Ω</td>
</tr>
<tr>
<td>2 kΩ</td>
<td>1 Ω</td>
</tr>
</tbody>
</table>

ACCURACY

<table>
<thead>
<tr>
<th>RANGE</th>
<th>ACCURACY</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 A</td>
<td>±1.5% FS</td>
</tr>
<tr>
<td>200 A</td>
<td>±2.5% FS (750-1000 A) ±50 Hz-60 Hz</td>
</tr>
<tr>
<td>1000 A</td>
<td>±2.5% FS (750-1000 A) ±50 Hz-60 Hz</td>
</tr>
<tr>
<td>200 VAC</td>
<td>±1.2% rdg + 4 digits</td>
</tr>
<tr>
<td>750 VAC</td>
<td>±0.5% rdg + 4 digits</td>
</tr>
<tr>
<td>200 VDC</td>
<td>±1.2% rdg + 4 digits</td>
</tr>
<tr>
<td>1000 VDC</td>
<td>±2.5% rdg + 1 digit</td>
</tr>
<tr>
<td>200 Ω</td>
<td>±1.2% rdg + 4 digits</td>
</tr>
<tr>
<td>2 kΩ</td>
<td>±1.2% rdg + 1 digit</td>
</tr>
</tbody>
</table>

OPERATING TEMPERATURE RANGE:

0°C to 50°C, 0% - 70% RH

STORAGE TEMPERATURE RANGE:

-20°C to +60°C, 0% - 80% RH

Display:

3-1/2 digit LCD readout, maximum reading of 1999 counts.

Zero Adjust:

Automatic.

Overrange Indicator:

"11" displayed in leftmost position with no other digits present.

Polarity:

Automatic; negative polarity indicated by "-" display.

Readout Access Time:

2.5 seconds, nominal.

Continuity Test:

Audible tone for resistance below 100Ω.

Diode Test:

Standard resistance test; bias voltage sufficient for silicon junction forward biasing.

Test Connections:

Inductive current clamp, Dual-banana type vols/ohm test lead jacks.

Power Source:

One: 9 V battery (NEDA 1604).

BATTERY LIFE:

200 hours typical (alkaline battery). Low battery condition indicated by LO BAT displayed.

Dimensions:

290 mm x 76 mm x 35 mm (11 5/8" x 3" x 1 3/8").

Weight:

490 g (1 lb, 1 oz) without battery.

WARRANTY

LIMITED ONE-YEAR WARRANTY

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

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

To obtain warranty coverage in the U.S.A., this product must be registered by completing and mailing the enclosed warranty registration card to MAXTEC, B & K-Precision, 6470 West Cortland Street, Chicago, Illinois 60635 within fifteen (15) days from the date of purchase.

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 also have other rights which vary from state to state.

For your convenience we suggest you contact your B & K-Precision distributor, who may be authorized to make repairs or can refer you to the nearest service contractor. If warranty service cannot be obtained locally, please send the unit to B & K-Precision Service Department, 6470 West Cortland Street, Chicago, Illinois 60635, properly packaged to avoid damage in shipment.
**CONTROLS AND INDICATORS**

**USING CLAMP**

ACA (ac amperes)
- 20, 200, and 1000 amp ac current ranges with
  0.01, 0.1, and 1 A respective resolutions.

**USING TEST LEADS**

ACV (ac volts)
- 200 and 750 volt ac voltage ranges with 0.1 and 1 V respective resolutions.

DCV (dc volts)
- 200 and 1 kV dc voltage ranges with 0.1 and 1 V respective resolutions.

Ω (resistance)
- 2000 and 200 Ω resistance ranges with 0.1 and 1 Ω respective resolutions. Continuity alert sounds if resistance is less than 100 Ω.

- (diode test) Resistance range recommended for diode forward and reverse bias testing.

- (continuity check) buzzer sounds below 100Ω. Resistance simultaneously displayed.

**Current Clamp.** Allows current measurement without making connections in circuit. Simply open clamp and loop around conductor.

**V-Ω Jack.** Positive (red) test lead input for voltage, diode test and resistance/continuity functions.

**COM Jack.** Common, or negative (black) test lead input.

**LCD Readout.** 3½/2 digit LCD readout. Indicates current, voltage and resistance values. Automatic decimal point placement. Overrange indicated by a "-I" displayed at the leftmost digit while all other digits remain blank. A LO BAT and polarity indicator (+) are integral parts of the display.

**OPERATING INSTRUCTIONS**

**WARNING**

Refer to safety instructions contained in this manual before attempting any measurements.

**OPERATING PROCEDURE**

1. Although a battery is provided with the meter, it is not installed. Install the battery as instructed in the MAINTENANCE section of this manual.

2. Set POWER switch to ON position. The presence of any character on the LCD readout serves as a power on indicator.

3. The current clamp allows current measurement only. Use the test leads for other measurements and tests; red lead to V-Ω jack, black lead to COM jack.

4. An overrange condition using any function is indicated by a "-I" displayed on the readout with no other digits present.

5. Read measurements directly from the readout. The decimal point is automatically located.

6. For best resolution, select the range closest to an overrange indication.

**MEASURING CURRENT**

1. Open spring-loaded clamp by pressing trigger on right side of meter.

2. Position clamp around wire or conductor and release clamp trigger, making sure clamp is entirely closed.

3. For measurements of unknown current levels, set the range/function switch to ACA 20 A.

4. If an overrange is indicated, select a higher range until the overrange indication ceases.
OPERATING INSTRUCTIONS (Continued)

5. If the approximate range of current is known, select the appropriate range.
6. Read current level directly from LCD readout.

MEASURING VOLTAGE
1. Connect test leads to meter jacks.
2. To measure dc voltage, set the range/function switch to the proper DCV range.
3. To measure ac voltage, set the range/function switch to the proper ACV range.
4. Connect test leads across the desired points of measurement.
5. Read voltage level directly from LCD readout.

CHECKING CONTINUITY
1. Set the range/function switch to →
2. Connect the test leads as outlined above.
3. Buzzer sounds if resistance is under 100Ω. Resistance value displayed on readout.

TESTING DIODES
1. Set the range/function switch to →
2. Connect the test leads to the meter.
3. Connect the red test lead to the anode of the diode (P side of a semiconductor junction).
4. Connect the black test lead to the cathode of the diode (N side of a semiconductor junction).
5. Test should indicate a low resistance (less than approximately 700Ω).
6. Reverse test lead connection and repeat test. Resistance reading should now indicate open range. If resistance is low regardless of lead orientation, diode is shorted. If resistance is high regardless of lead orientation, diode is open.

USING DATA HOLD FEATURE
The data hold feature allows the user to "hold" (store) measurements. The following steps explain the usage of this feature:
1. Make measurements as outlined in previous steps.
2. When measurement is obtained, press DATA HOLD switch to the ON position. The readout will hold the reading, even after the clamp or test leads are removed from point of measurement.
3. To clear the readout, release DATA HOLD switch.

USING PEAK HOLD FEATURE:
1. Peak hold is used to measure the peak value of a short term changing voltage or current such as surge current when power is first applied to a load.
2. Make measurements as outlined in previous steps.
3. Activate feature by setting PEAK HOLD switch to ON position.
4. While active, the meter will only display the highest reading attained during a series of measurements.
5. Peak hold readings decay at about two digits per second. Therefore, use DATA HOLD to indefinitely hold a reading.
6. To disable the PEAK HOLD function, return the PEAK HOLD switch to the OFF position.

MAINTENANCE

WARNING
Remove test leads before changing batteries. Never operate instrument with battery compartment open.

CAUTION
Remove discharged disposable batteries immediately to prevent damage from battery leakage.

BATTERY REPLACEMENT
The presence of LO BAT on the readout indicates that the battery is near discharge. The meter may still be used for a short time afterwards. However, battery must be replaced as soon as possible. Open battery compartment cover by sliding cover away from unit while exerting slight downward pressure with thumb.

TEST LEADS
Use only the safety type test leads, like those supplied. Periodically inspect the test leads to ensure that the conductors are not intermittent, corroded, or broken. Keep the jack area of the meter free from dirt. Inspect the test leads for breaks in the insulation and replace as necessary.