

KAISE

OPERATING INSTRUCTIONS

FOR

MODEL SK-160

30,000 Ohms per Volt DC

10,000 Ohms per Volt AC



0.01624548

*Meter Movement Protected by dual silicon diodes

*Double-jewelled meter movement
Provided with 12A AC & DC ranges

*±1% temperature-stabilized film resistors

SPECIFICATIONS

| | |
|--------------|--|
| DC Volts: | 0.3, 3, 12, 60, 300, 600V (30,000 Ω /V), 3,000V (3,333 Ω /V) |
| AC Volts: | 6, 30, 120, 300, 600, 1,200V (10,000 Ω /V) |
| DC Current: | 30 μ A, 0.3mA, 6mA, 60mA, 600mA, 12A |
| AC Current: | 12A |
| Resistance: | 6k Ω , 600k Ω , 6M Ω , 60M Ω |
| Decibels: | -20~+17, 31, 43, 51, 57dB |
| Capacitance: | 0.0001~0.01 μ F (AC120V) 0.002 ~0.2 μ F (AC 6V) |
| Accuracy: | DC \pm 3%, AC \pm 4% (of full scale) |
| Batteries: | 1.5V (UM-3) x 1 15V (BL-W10) x 1 |

OPERATIONS

A. BATTERY

One 1.5V battery and one 15V battery are installed in this instrument. Remove back case by unscrewing the two mounting screws to make certain that the batteries are firmly set in proper polarity.

B. ZERO ADJUSTMENT

Before measurement, confirm the pointer of the meter to be exactly on the zero line at the left extremity of the scales. If off the zero line, it is adjusted by turning right and left the Zero Adjust Screw at middle bottom of window. This adjustment is not necessary to be repeated at every measurement, but the pointer may shift due to change of mechanical conditions.

1. HOW TO MEASURE DC VOLTAGE

- Turn Range Switch to a suitable DC.V range.
- Insert banana plugs of test leads into (-)COM and (+)V terminals.
- Usually, as a habit, insert black test lead into (-)COM terminal and red test lead into (+)V terminal.
- Observing polarity, apply test prods of test leads in parallel with the circuit to be measured.
- Read the voltage on the third black arc down, marked DC.
- Note:** To measure 0.3VDC, set Range Switch to 0.3V range and use (-)COM and 0.3V terminals.
- Note:** To measure 3,000VDC, set Range Switch to 600V&UP range and use (-)COM and DC 3 KV terminals.

2. HOW TO MEASURE AC VOLTAGE

- Turn Range Switch to a suitable AC.V range.
- Insert test leads into (-)COM and (+)V terminals.
- Apply test leads in parallel with the circuit to be measured.
- Read the voltage on the second red arc down, marked AC.
- Note:** To measure 1200V AC, turn Range Switch to 600V&UP range and use (-)COM and AC1.2KV terminals.

3. HOW TO MEASURE DC CURRENT

- Turn Range Switch to a suitable DCmA range.
- Insert test leads into (-)COM and (+)V- Ω -mA terminals.
- Open one side of the circuit to be measured.
- Observing polarity, apply test leads in series with the opened circuit.
- Read on the third black arc down, marked DC.
- Note:** To measure 12A DC, turn Range Switch to 600mA & 12A range and use (-)COM and AC.+DC12A terminals.

4. HOW TO MEASURE AC CURRENT

- a. Turn Range Switch to 30V & 12A AC range.
- b. Insert test leads into (-)COM and AC.+DC12A terminals.
- c. Open one side of the circuit to be measured.
- d. Apply test leads in series with the opened circuit.
- e. Read on the second red arc down, marked AC.

5. HOW TO MEASURE RESISTANCE

- a. Turn Range Switch to a suitable Ω range, Rx1, Rx100, Rx1K or Rx10K.
- b. Insert test leads into (-)COM and (+)V- Ω -mA terminals.
- c. Short test prods of test leads together and adjust Ω ADJ. knob until the pointer is exactly on the Zero line of the first black arc down, marked Ω .
Zero Line on this arc is at extreme right.
- d. Unshort the test leads and apply across the circuit to be measured.
- e. Read on the first black arc down and multiply by the selected Ω range multiplier (x1, x100, x1K or x10K) to obtain the value in ohms.

6. HOW TO MEASURE DECIBELS

- a. Turn Range Switch to a suitable AC.V range.
- b. Use (-)COM and OUT terminals.
- c. Read on the forth red arc, marked DB by using DB table on the scale.

Note: Unless input-output comparison measurement is being made on the device presenting both a 600Ω input impedance and a 600Ω output impedance, only differences in dB scale readings are significant and then only for voltage levels comparison.

Across 600Ω , the readings are in dBm, which are actual power values. (The zero reference level used for the dB scale is 1mw or 0.775 volt across 600Ω)

7. HOW TO MEASURE CAPACITANCE

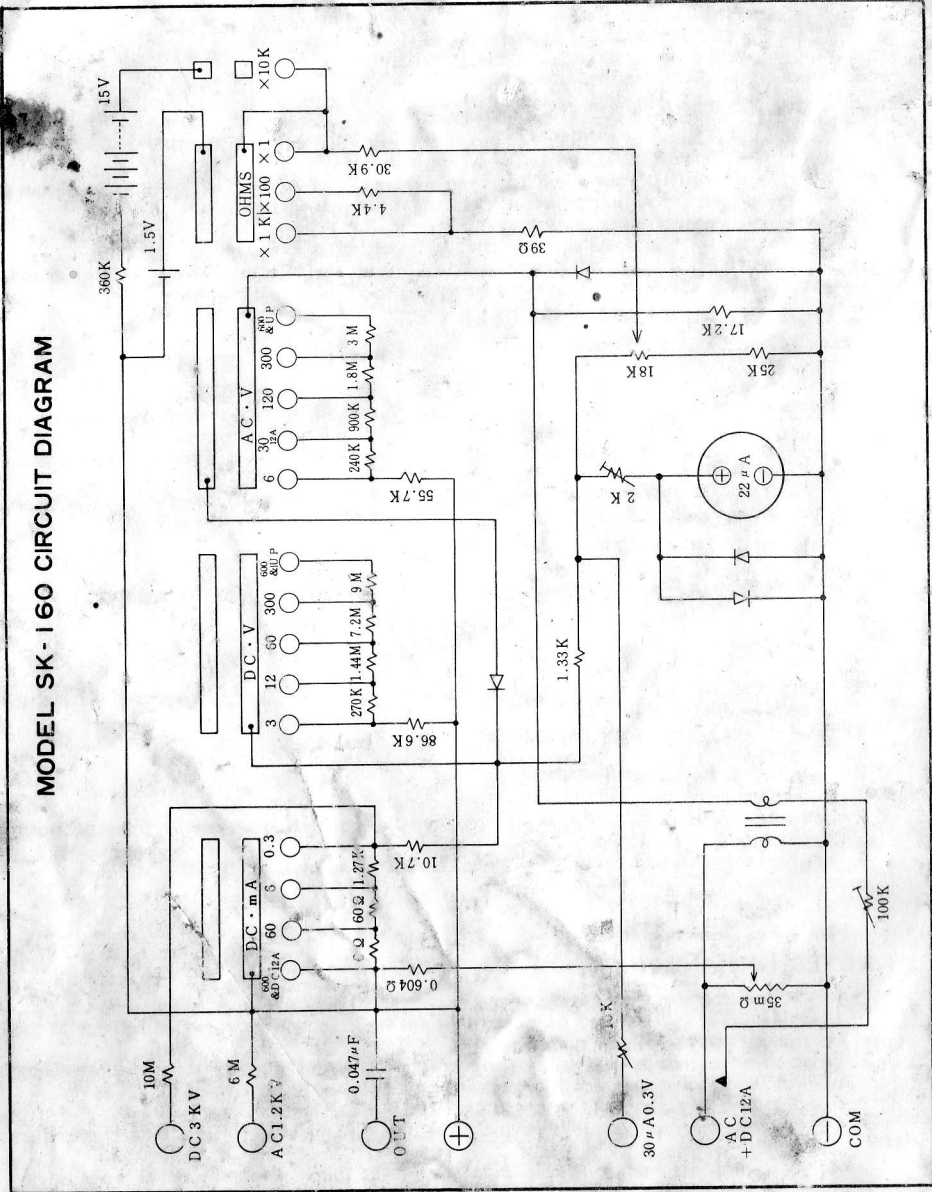
For capacitance measurements, an external AC power source is required.

- a. To measure capacitance between $0.0001\mu\text{F}$ and $0.01\mu\text{F}$.
 1. Turn Range Switch to the 120V & CX1 AC range.
 2. Insert test leads into (-)COM and (+)V terminals.
 3. Using external 120V AC power source, connect the test leads in series with the capacitor to be measured.
 4. Read on the fifth or sixth black arc, marked C- μF .
- b. To measure capacitance between $0.002\mu\text{F}$ and $0.2\mu\text{F}$.
 1. Turn Range Switch to the 6V & Cx20 AC range.
 2. Insert test leads into (-)COM and (+)V terminals.
 3. Using external 6V AC power source, connect the test leads in series with the capacitor to be measured.
 4. Read on the fifth or sixth black arc, marked C- μF , and multiply by 20.

NOTES IN HANDLING

1. Before use, confirm the position of the Range Switch and the range to be used.
If high voltage is measured on current or resistance range by mistake, resistor in this instrument can possibly be damaged.
2. When to measure unknown voltage or current, start with the highest range for safety and work down to lower ranges until the pointer reads in the upper half of the scale.
For best accuracy, the pointer should read in the upper half of the scale.
3. DO NOT check resistance in a circuit while power is on, or before circuit capacitors are discharged.
4. Avoid severe mechanical shock or vibration, extreme temperature or very strong magnetic fields.
5. DO NOT polish the window, or attempt to clean it with any cleaning fluid, gasoline, benzine, etc. If necessary use silicon oil or other suitable.
6. Battery removal is the safest procedure when not in use for an extended time.

MODEL SK-160 CIRCUIT DIAGRAM



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