



## 5-7. SHIFT Key

Use this Key to select sub-measurement functions in the following measurement. Functions are changed as follows each time when the **SHIFT Key** is pressed.

- Voltage measurement :  $\overline{\sim}V \rightarrow \sim V \rightarrow Hz \rightarrow \% \rightarrow \overline{\sim}V$
- Current measurement :  $\overline{\sim}A \rightarrow \sim A \rightarrow Hz \rightarrow \overline{\sim}A$
- Resistance measurement :  $\Omega \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \Omega$

## 5-8. MAX/MIN Key

MAX/MIN measurement is possible by pressing this key for 1 second or more ("AUTO" disappears and "MAX MIN" lights up on LCD). Maximum value and minimum value can be displayed by pressing **MAX/MIN Key**.

**To return to normal measurement** : Press **MAX/MIN Key** for 1 second or more. ("MAX MIN" disappears and "AUTO" lights up).

**NOTE** : **MAX/MIN Key** works in DC/AC Voltage, resistance and DC/AC current measurements.

## 6. MEASUREMENT PROCEDURES

### 6-1. PREPARATION FOR USE

#### 1. INSTRUCTION MANUAL

Read Instruction Manual carefully to understand the specification and functions correctly. "4. SAFETY PRECAUTIONS" is very important for safety measurement.

#### 2. BATTERY

Put two 1.5V LR44 batteries into the instrument referring to "7-1. BATTERY AND FUSE REPLACEMENT".

#### 3. FUSE

0.5A/600V fuse are installed to protect current measurement functions. If the fuse is blown out, replace it referring to "7-1. BATTERY AND FUSE REPLACEMENT".

#### 4. DISPLAY FILM

Tear off the Display Film on LCD display when using this instrument for the first time.

#### 5. AUTO POWER OFF

Power turns off automatically after approx. 12 minutes of last operation.

**NOTE** : Small current consumption remains even in the auto power off condition.

Be sure to set **FUNCTION Switch** to "OFF" after finishing the measurement.

**To cancel it** : Turn on the instrument holding down **SHIFT Key**. Auto power off is disabled ("APO" disappeared from LCD).

### 6-2. DC/AC VOLTAGE MEASUREMENT ( $\overline{\sim}V/\sim V$ )

#### WARNING

- Do not measure High Power Line or high power circuit.
- Do not measure any voltage that might exceed maximum input value (DC 600V / AC 600Vrms).
- Confirm the **FUNCTION Switch** is set to the correct position.
- Read "4. SAFETY PRECAUTIONS" carefully to avoid electric shock hazard and serious damage to the instrument.

1. Insert black test lead to Input Terminal.
2. Set **FUNCTION Switch** to " $\overline{\sim}V/Hz/\%$ ".  
**NOTE** : Press **SHIFT Key** once to measure AC Voltage. " $\sim$ " appears on LCD.
3. Connect black test lead to  $-$  (earth) side of the circuit being measured and connect test prod to  $+$  (positive) side.  
**NOTE** : Connect the instrument **IN PARALLEL** to the circuit.
4. Read the measurement value on LCD.
5. After finishing the measurement, set **FUNCTION Switch** to "OFF".

**Available functions** : Display Hold, Max/Min measurement, Difference Measurement, Range Hold (SK-6598)

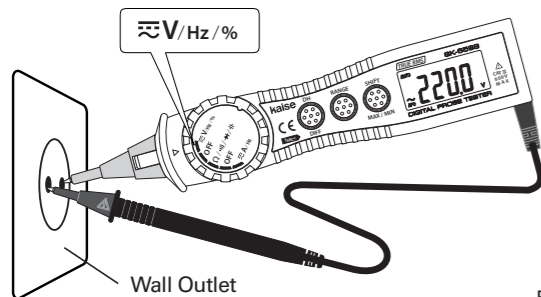


Fig-5

### 6-3. FREQUENCY MEASUREMENT ( Hz )

#### WARNING

- Do not measure High Power Line or high power circuit.
- Do not measure any voltage that might exceed maximum input value (AC 600Vrms or  $2 \times 10^6$ Hz).
- Confirm the **FUNCTION Switch** is set to the correct position.
- Read "4. SAFETY PRECAUTIONS" carefully to avoid electric shock hazard and serious damage to the instrument.

1. Insert black test lead to Input Terminal.
2. Set **FUNCTION Switch** to " $\overline{\sim}V/Hz/\%$ ".
3. Press **SHIFT Key** twice to select Frequency measurement function.
4. Connect black test lead to  $-$  (earth) side of the circuit being measured and connect test prod to  $+$  (positive) side.  
**NOTE** : Connect the instrument **IN PARALLEL** to the circuit.  
**NOTE** : Auto range only for Frequency measurement.
5. Read the measurement value on LCD.
6. After finishing the measurement, set **FUNCTION Switch** to "OFF".

**Available functions** : Display Hold

### 6-4. DUTY CYCLE MEASUREMENT ( % )

#### WARNING

- Do not measure High Power Line or high power circuit.
- Do not measure any voltage that might exceed maximum input value (AC 600Vrms).
- Confirm the **FUNCTION Switch** is set to the correct position.
- Read "4. SAFETY PRECAUTIONS" carefully to avoid electric shock hazard and serious damage to the instrument.

1. Insert black test lead to Input Terminal.
2. Set **FUNCTION Switch** to " $\overline{\sim}V/Hz/\%$ ".
3. Press **SHIFT Key** three times to select Duty Cycle measurement function.
4. Connect black test lead to  $-$  (earth) side of the circuit being measured and connect test prod to  $+$  (positive) side.  
**NOTE** : Connect the instrument **IN PARALLEL** to the circuit.  
**NOTE** : Single range only for Duty Cycle measurement.
5. Read the measurement value on LCD.
6. After finishing the measurement, set **FUNCTION Switch** to "OFF".

**Available functions** : Display Hold

### 6-5. RESISTANCE MEASUREMENT ( $\Omega$ )

#### WARNING

- Confirm the **FUNCTION Switch** is set to the correct position.
- Do not measure voltage in  $\Omega / \rightarrow / \rightarrow / \rightarrow$  position. This will cause electrical shock hazard to the operator and/or serious damage to the instrument.
- In case in-circuit resistance is measured, turn off the power to the circuit being measured and discharge the all capacitors.
- Read "4. SAFETY PRECAUTIONS" carefully before measurement.

1. Insert black test lead to Input Terminal.
2. Set **FUNCTION Switch** to " $\Omega / \rightarrow / \rightarrow / \rightarrow$ ".
3. If the resistor to be measured is connected in a circuit, turn off the circuit and discharge the all capacitors. Then, disconnect one side of the resistor.
4. Connect test lead and test prod to the resistor (or circuit) to be measured.
5. Read the measurement value on LCD.
6. After finishing the measurement, set **FUNCTION Switch** to "OFF".

**Available functions** : Display Hold, Max/Min measurement, Difference Measurement, Range Hold (SK-6598)

### 6-6. CONTINUITY TEST ( $\rightarrow$ )

#### WARNING

- Confirm the **FUNCTION Switch** is set to the correct position.
- Do not measure voltage in  $\Omega / \rightarrow / \rightarrow / \rightarrow$  position. This will cause electrical shock hazard to the operator and/or serious damage to the instrument.
- When measuring in-circuit continuity, turn off the power to the circuit being measured and discharge the all capacitors.
- Read "4. SAFETY PRECAUTIONS" carefully before measurement.

1. Insert black test lead to Input Terminal.
2. Set **FUNCTION Switch** to " $\Omega / \rightarrow / \rightarrow / \rightarrow$ ".
3. Press **SHIFT Key** once to display " $\rightarrow$ " on LCD.
4. If testing continuity in a circuit, turn off the circuit and discharge the all capacitors. Connect test lead and test prod to both side of the circuit to be measured.
5. Buzzer sounds when the circuit resistance is approx.  $50\Omega$  or lower.
6. After finishing the measurement, set **FUNCTION Switch** to "OFF".

**Available functions** : Display Hold

### 6-7. DIODE TEST ( $\rightarrow$ )

#### WARNING

- Confirm the **FUNCTION Switch** is set to the correct position.
- Do not measure voltage in  $\Omega / \rightarrow / \rightarrow / \rightarrow$  position. This will cause electrical shock hazard to the operator and/or serious damage to the instrument.
- If the diode is connected in a circuit, turn off the power to the circuit being measured and discharge the all capacitors.
- Read "4. SAFETY PRECAUTIONS" carefully before measurement.

1. Insert black test lead to Input Terminal.
2. Set **FUNCTION Switch** to " $\Omega / \rightarrow / \rightarrow / \rightarrow$ ".
3. Press **SHIFT Key** twice to display " $\rightarrow$ " on LCD.
4. If the diode is connected in a circuit, turn off the circuit and discharge the all capacitors. Disconnect one side of the diode.
5. Connect black test lead to Anode side and red test lead to Cathode side of the diode (Reverse connection). Confirm "OL" is displayed on LCD (see Fig-6).
6. Connect test leads to the opposite side of "5" (Forward Connection). Test results are good if the following voltage values are displayed on LCD (see Fig-7).
  - Silicon diodes : 0.4V to 0.7V
  - Germanium diodes : 0.1V to 0.4V

7. After finishing the measurement, set **FUNCTION Switch** to "OFF".

**Available functions** : Display Hold

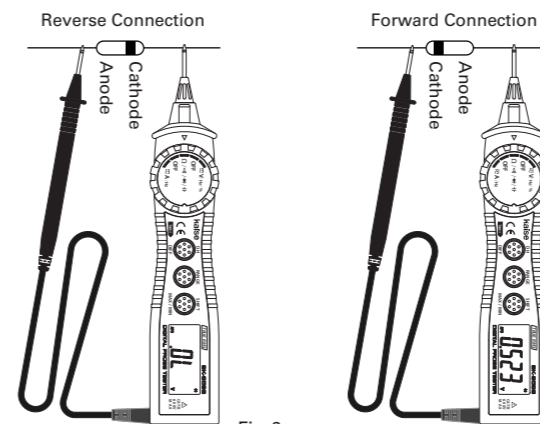


Fig-6

Fig-7

### 6-8. CAPACITANCE MEASUREMENT ( $\rightarrow$ )

#### WARNING

- Confirm the **FUNCTION Switch** is set to the correct position.
- Do not measure voltage in  $\Omega / \rightarrow / \rightarrow / \rightarrow$  position. This will cause electrical shock hazard to the operator and/or serious damage to the instrument.
- If the capacitor is connected in a circuit, turn off the power to the circuit being measured and discharge the all capacitors.
- Read "4. SAFETY PRECAUTIONS" carefully before measurement.

1. Insert black test lead to Input Terminal.
2. Set **FUNCTION Switch** to " $\Omega / \rightarrow / \rightarrow / \rightarrow$ ".
3. Press **SHIFT Key** three times to display the unit of "nF" on LCD.
4. Press **DIFF Key** for 1 second or more to reset the display into  $00.00nF \pm 1dgt$  if necessary.
5. If the capacitor is connected in a circuit, turn off the circuit and discharge the all capacitors. Then, disconnect one side of the capacitor.
6. Connect test lead to both side of the capacitor to be measured. Read the measurement value on LCD.

**NOTE** : Auto range only for Capacitance measurement.  
**NOTE** : High capacitance capacitor should be taken longer to get a measurement value.

7. After finishing the measurement, set **FUNCTION Switch** to "OFF".

**Available functions** : Display Hold, Difference measurement

### 6-9. DC/AC CURRENT MEASUREMENT ( $\overline{\sim}mA / \sim mA$ )

#### WARNING

- Do not measure High Power Line or high power circuit.
- Do not measure the current that exceeds the maximum input value (AC 400mA Arms or  $2 \times 10^6$ Hz).
- Confirm the **FUNCTION Switch** is set to the correct position.
- Do not measure voltage in  $\overline{\sim}A / Hz$  position. This will cause electrical shock hazard to the operator and/or damage to the instrument.
- Read "4. SAFETY PRECAUTIONS" carefully to avoid electric shock hazard and serious damage to the instrument.

1. Insert black test lead to Input Terminal.
2. Set **FUNCTION Switch** to " $\overline{\sim}A / Hz$ ".  
**NOTE** : Press **SHIFT Key** once to measure AC current. " $\sim$ " appears on LCD.
3. Turn off the circuit to be measured. Open the circuit after discharging the capacitors.
4. Connect black test lead to  $-$  (earth) side and connect test prod to  $+$  (positive) side of the circuit to be measured.  
**NOTE** : Connect the instrument **IN SERIES** to the circuit.
5. Turn on the circuit to be measured. Read the measurement value on LCD.
6. Turn off the circuit to be measured and discharge the all capacitors.
7. Set **FUNCTION Switch** to "OFF".

**Available functions** : Display Hold, Max/Min measurement, Difference Measurement, Range Hold (SK-6598)

### 6-10. FREQUENCY MEASUREMENT ( Hz )

#### WARNING

- Do not measure High Power Line or high power circuit.
- Do not measure any current that might exceed maximum input value (AC 400mA Arms or  $2 \times 10^6$ Hz).
- Confirm the **FUNCTION Switch** is set to the correct position.
- Do not measure voltage in  $\overline{\sim}A / Hz$  position. This will cause electrical shock hazard to the operator and/or damage to the instrument.
- Read "4. SAFETY PRECAUTIONS" carefully to avoid electric shock hazard and serious damage to the instrument.

1. Insert black test lead to Input Terminal.
2. Set **FUNCTION Switch** to " $\overline{\sim}A / Hz$ ".
3. Press **SHIFT Key** twice to select Frequency measurement function.
4. Turn off the circuit to be measured. Open the circuit after discharging the capacitors.
5. Connect black test lead to  $-$  (earth) side and connect test prod to  $+$  (positive) side of the circuit to be measured.  
**NOTE** : Connect the instrument **IN SERIES** to the circuit.
6. Turn on the circuit to be measured. Read the measurement value on LCD.
7. Turn off the circuit to be measured and discharge the all capacitors.
8. Set **FUNCTION Switch** to "OFF".

**Available functions** : Display Hold

## 7. MAINTENANCE

### 7-1. BATTERY AND FUSE REPLACEMENT

#### WARNING

- To avoid electrical shock, replace batteries and fuse after finishing measurement.
- Detach test lead and test prod from circuit and input terminals and set **FUNCTION Switch** to "OFF".
- Always use the specified fuse. Do not use this instrument shorting fuse holder or without using the fuse.

**FUSE SPECIFICATION** : 0.5A/600V ( $\phi 6.3 \times 32mm$ )

#### a. BATTERY REPLACEMENT

1. Detach test lead from input terminal and set **FUNCTION Switch** to "OFF".
2. Loosen a screw of battery cover and open it.
3. Remove the exhausted batteries and insert 2 pcs of new 1.5V LR44 batteries in the correct polarity.
4. Fix battery cover and tighten the screw.

**NOTE** : Remove the battery when the instrument is out of use for a long time. The exhausted battery might leak electrolyte and corrode the inside.

#### b. FUSE REPLACEMENT

1. Detach test lead from input terminal and set **FUNCTION Switch** to "OFF".
2. Loosen a screw of battery cover and open it.
3. Remove blown fuse from fuse holder and insert new one.
4. Fix battery cover and tighten the screw.

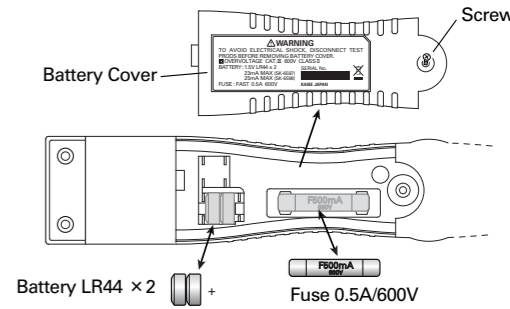


Fig-8

### 7-2. PERIODICAL CHECK AND CALIBRATION

Periodical check and calibration is necessary to make safety measurements and to maintain the specified accuracy. The recommended check and calibration term is once a year and after the repair service. This service is available at **KAISE AUTHORIZED SERVICE AGENCY** through your local dealer.

### 7-3. REPAIR

Repair service is available at **KAISE AUTHORIZED SERVICE AGENCY** through your local dealer. Pack the instrument securely with your name, address, telephone number and problem details, and ship prepaid to your local dealer.

Check the following items before asking repair service.

1. Check the battery connection, polarity, and capacity.
2. Check if the fuse does not blow out or not drop off from the fuse holder.
3. Confirm that the **FUNCTION Switch** is set correctly.
4. Confirm if the over input, exceeding the specified range value, is not applied.
5. Confirm that measured accuracy is adopted in the operating environment.
6. Confirm that the body of this instrument and test leads have no cracks or any other damages.
7. Check if the instrument is not affected by the strong noise generated from the equipment to be measured or measuring surroundings.

#### WARRANTY

SK-6597/SK-6598 are warranted in its entirety against any defects of material or workmanship under normal use and service within a period of one year from the date of purchase of the original purchaser. Warranty service is available at **KAISE AUTHORIZED SERVICE AGENCY** through your local dealer. Their obligation under this warranty is limited to repairing or replacing SK-6597/SK-6598 returned intact or in warrantable defect with proof of purchase and transport charges prepaid. **KAISE AUTHORIZED DEALER** and the manufacturer, **KAISE CORPORATION**, shall not be liable for any consequential damages, loss or otherwise. The foregoing warranty is exclusive and in lieu of all other warranties including any warranty of merchantability, whether expressed or implied.

This warranty shall not apply to any instrument or other article of equipment which shall have been repaired or altered outside of **KAISE AUTHORIZED SERVICE AGENCY**, nor which have been subject to misuse, negligence, accident, incorrect repair by users, or any installation or use not in accordance with instructions provided by the manufacturer.

KAISE AUTHORIZED DEALER

### KAISE CORPORATION

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Product specifications and appearance are subject to change without notice due to continual improvements.