



# DIGITAL PROBE TESTER

## Instruction Manual

SK-6597  
SK-6598

KAISE CORPORATION

### FOR SAFETY MEASUREMENTS!!

To prevent an electrical shock hazard to the operator and/or damage to the instruments, read this instruction manual carefully before using the instrument. **WARNINGS** with the symbol  $\Delta$  on the instrument and this instruction manual are highly important.

**WARNING** The symbol in this manual advises the user of an electrical shock hazard that could result in serious injury or even death.

**CAUTION** The symbol in this manual advises the user of an electrical shock hazard that could cause injury or material damages.

### WARNING

Do not measure High Power Line (High Energy Circuits) that might exceed 6kVA. High Power Line is very dangerous and sometimes includes High Surge Voltage that could cause explosive short in the instrument and could result in serious injury to the operator. For dangerous voltage measurement, always keep the instrument away from your body without holding it in your hands. Do not touch the instrument, test lead, and any part of the circuit.

## INTRODUCTION

Thank you for purchasing "DIGITAL PROBE TESTER SK-6597/6598". To obtain the maximum performance of this instrument, read this Instruction Manual carefully, and take safe measurement.

## 1. UNPACKING AND INSPECTIONS

Confirm if the following items are contained in the package in good condition. If there is any damage or missing items, ask your local dealer for replacement.

- Digital Probe Tester 1 pce.
- 100-68 Test Lead (Black) 1 pce.
- 780 Red Insulation Cap 1 pce.
- 781 Test Lead Insulation Cap (Black) 1 pce.
- 1.5V LR44 Battery 2 pcs.
- Instruction Manual 1 pce.

## 2. FEATURES

- AC/DC current measurement.
- Penlight and backlight LCD (SK-6597).
- True RMS AC/DC conversion (SK-6598).
- Up to 30kHz Frequency in AC Voltage (SK-6598).
- Easy-to-read Large LCD.

## 3. SPECIFICATIONS

### 1. GENERAL SPECIFICATIONS

- DISPLAY (LCD)**
    - Numerical Display : 4050 count, 12mm high
    - Units and Symbols : AUTO, -, =, ~, BAT, mV, V,  $\Omega$ , k $\Omega$ , M $\Omega$ , Hz, kHz, %,  $\mu$ , nF,  $\mu$ F, mA and decimal point
  - OPERATING PRINCIPLE** :  $\Sigma \Delta$  conversion
  - AC/DC CONVERSION** : Average Rectification (SK-6597), True RMS (SK-6598)
  - RANGE SELECTION** : SK-6597 : Auto  
SK-6598 : Auto/Manual
- NOTE** : Single range for Continuity, Diode test and Duty Cycle
- POLARITY** : Auto polarity ("-" sign when minus)
  - OVERLOAD INDICATION** : "OL" display when exceeding 4000 count (1V in diode test)
  - BATTERY WARNING** : "BAT" indication at approx. 2.4V or less
  - OPERATING POWER SUPPLY VOLTAGE** : approx. 2.4V or more or 3.6V or less
  - SAMPLING RATE** : 3 times/second (except for Frequency, Duty Cycle and Capacitance measurement)
  - DISPLAY HOLD** : Hold indicating values by DH Key
  - DIFFERENCE MEASUREMENT** : Measurable by DIFF Key for 1 second or more
  - ZERO ADJUSTMENT** : Zero adjustable by DIFF Key in Capacitance measurement
  - DIELECTRIC STRENGTH** : AC 5.55kVrms (50Hz/60Hz) for 1 minute between input terminals and cases

- OPERATING TEMPERATURE & HUMIDITY** : 0°C to 40°C, less than 80%RH in non-condensing
- STORAGE TEMPERATURE & HUMIDITY** : -20°C to 60°C, less than 70%RH in non-condensing
- TEMPERATURE COEFFICIENT** : Accuracy at 23°C  $\pm$  5°C  $\times$  0.1/°C
- POWER SUPPLY** : 1.5V LR44  $\times$  2
- FUSE** : F22 0.5A/600V ( $\phi$  6.3 $\times$ 32mm)  $\times$  1
- POWER CONSUMPTION** : SK-6597: approx. 2.5mA typ, approx. 8.5mA when lights up Penlight and LCD Backlight, approx. 23mA when buzzer sounds  
SK-6598: approx. 4.5mA typ, approx. 25mA when buzzer sounds
- AUTO POWER OFF** : Power turns off automatically after approx. 12 minutes (cancelable)
- CONTINUOUS OPERATING TIME** : approx. 40 hours (SK-6597) approx. 20 hours (SK-6598)
- DIMENSIONS** : 209mm(H) $\times$ 38mm(W) $\times$ 32mm(D)
- WEIGHT** : Approx. 110g (include battery)
- ACCESSORIES** : 100-68 Test Lead (Black), 780 Red Insulation Cap, 781 Test Lead Insulation Cap (Black), LR44 1.5V Battery  $\times$  2, Instruction Manual
- OPTIONAL ACCESSORIES** : 940 Alligator Clips, 792R Straight Test Pin (Red), 793 Coil-Type Contact Pin, 1026 Carrying Case

## 2. MEASUREMENT SPECIFICATION

(23°C  $\pm$  5°C, <80%RH in non-condensing)

### 2-1. $\overline{\sim}$ V / Hz / %

#### a. DC Voltage ( $\overline{\sim}$ V)

Range	Accuracy	Resolution	Input Impedance	Maximum Input	Range Selection	Overload Protection
400.0mV		0.1mV	$\geq$ 100M $\Omega$	600V DC	Auto (SK-6597) Auto/Manual (SK-6598)	900Vrms for 1 minute
4.000V	$\pm$ 0.5%rdg $\pm$ 3dgt	1mV	$\approx$ 11M $\Omega$			
40.00V		10mV				
400.0V		100mV	$\approx$ 10M $\Omega$			
600V	$\pm$ 1.0%rdg $\pm$ 3dgt	1V				

Average Rectification (SK-6597)  
True RMS Conversion (SK-6598)

#### b. AC Voltage ( $\sim$ V)

Range	Accuracy			Maximum Input	Range Selection	Overload Protection
	50Hz to 500Hz	500Hz to 1kHz	1kHz to 5kHz			
4.000V	$\pm$ 1.5%rdg $\pm$ 5dgt		$\pm$ 5.0%rdg $\pm$ 10dgt	600Vrms	Auto (SK-6597) Auto/Manual (SK-6598)	900Vrms for 1 minute
40.00V			$\pm$ 9.0%rdg $\pm$ 10dgt			
400.0V			$\pm$ 3.5%rdg $\pm$ 10dgt			
600V			$\pm$ 7.0%rdg $\pm$ 10dgt			
Not specified						

Range	Resolution	Input Impedance	Maximum Input	Range Selection	Overload Protection
4.000V	1mV	$\approx$ 11M $\Omega$	600Vrms	Auto (SK-6597) Auto/Manual (SK-6598)	900Vrms for 1 minute
40.00V	10mV				
400.0V	100mV	$\approx$ 10M $\Omega$			
600V	1V				

**NOTE** : SK-6597 is measurable in 50Hz to 500Hz.

**NOTE** : Accuracy is specified for the input that is higher than 5% of full scale of each ACV range.  
(In AC4.000V range, accuracy is specified for the input that is higher than 1V.)

#### c. Frequency (Hz)

Range	Accuracy	Resolution	Input Sensitivity	Maximum Input	Range Selection
1.000Hz to 100.0kHz	$\pm$ 0.2%rdg $\pm$ 2gt	0.001Hz to 100Hz	3Vrms	600Vrms or $2 \times 10^6$ Hz	Auto

**NOTE** : Press **SHIFT** Key in  $\overline{\sim}$ V or  $\sim$ V to enter Frequency (Hz) range.

#### d. Duty Cycle (%)

Range	Accuracy	Resolution	Input Sensitivity	Maximum Input	Frequency Range
0.0% to 99.9%	$\pm$ 0.5%rdg $\pm$ 5gt	0.1%	3Vrms	600Vrms	1Hz to 1kHz

**NOTE** : Press **SHIFT** Key twice in  $\overline{\sim}$ V or  $\sim$ V to enter Duty Cycle (%) range.

### 2-2. $\Omega$ / $\rightarrow$ / $\rightarrow$ / $\rightarrow$

#### a. Resistance ( $\Omega$ )

Range	Accuracy	Resolution	Test Current	Open Circuit Voltage	Range Selection	Overload Protection	
400.0 $\Omega$	$\pm$ 1.5%rdg $\pm$ 4dgt	0.1 $\Omega$	$\leq$ 0.2mA	$\approx$ 0.44V	Auto (SK-6597) Auto/Manual (SK-6598)	300Vrms	
4.000k $\Omega$		1 $\Omega$	$\leq$ 50 $\mu$ A				
40.00k $\Omega$		$\pm$ 1.0%rdg $\pm$ 3dgt	10 $\Omega$				$\leq$ 5 $\mu$ A
400.0k $\Omega$			100 $\Omega$				$\leq$ 0.5 $\mu$ A
4.000M $\Omega$	$\pm$ 5.0%rdg $\pm$ 3dgt	1k $\Omega$	$\leq$ 50nA				
40.00M $\Omega$	$\pm$ 7.0%rdg $\pm$ 3dgt	10k $\Omega$					

#### b. Continuity Test ( $\rightarrow$ )

Range	Buzzer Sound	Response Time	Open Circuit Voltage	Overload Protection
400.0 $\Omega$	less than 50 $\Omega$	1m sec.	$\approx$ 0.44V	300Vrms

**NOTE** : Press **SHIFT** Key in  $\Omega$  to enter Continuity Test ( $\rightarrow$ ).

#### c. Diode Test ( $\rightarrow$ )

Range	Accuracy	Test Current	Open Circuit Voltage	Overload Protection
1.000V	$\pm$ 5.0%rdg $\pm$ 3dgt	$\leq$ 0.7mA	$\leq$ 1.7V	300Vrms

**NOTE** : Press **SHIFT** Key twice in  $\Omega$  to enter Diode Test ( $\rightarrow$ ).

#### d. Capacitance ( $\rightarrow$ )

Range	Accuracy	Resolution	Response Time	Test Voltage	Range Selection	Overload Protection
50.00nF	$\pm$ 5.0%rdg $\pm$ 10dgt	10pF	$\leq$ 3sec.	$\leq$ 1.7V	Auto	300Vrms
500.0nF		100pF				
5.000 $\mu$ F		1nF				
50.00 $\mu$ F		10nF				
100.0 $\mu$ F		100nF	$\leq$ 10sec.			

**NOTE** : Press **SHIFT** Key in  $\Omega$  three times to enter Capacitance ( $\rightarrow$ ).

### 2-3. $\overline{\sim}$ A / Hz

#### a. DC Current ( $\overline{\sim}$ A)

Range	Accuracy	Resolution	Burden Voltage	Maximum Input	Range Selection	Overload Protection
40.00mA	$\pm$ 1.0%rdg $\pm$ 2dgt	10 $\mu$ A	<0.1V	400mA DC	Auto (SK-6597) Auto/Manual (SK-6598)	0.5A/600V fuse
400.0mA		100 $\mu$ A	<0.6V			

#### b. AC Current ( $\sim$ A)

Range	Accuracy (40Hz to 500Hz)	Resolution	Burden Voltage	Maximum Input	Range Selection	Overload Protection
40.00mA	$\pm$ 1.5%rdg $\pm$ 7dgt	10 $\mu$ A	<0.1V	400mA rms	Auto (SK-6597) Auto/Manual (SK-6598)	0.5A/600V fuse
400.0mA		100 $\mu$ A	<0.6V			

**NOTE** : Accuracy is specified for the input that is higher than 5% of full scale.

#### c. Frequency (Hz)

Range	Accuracy	Resolution	Input Sensitivity	Maximum Input	Range Selection
10.00Hz to 100.0kHz	$\pm$ 0.2%rdg $\pm$ 2gt	0.01Hz to 1Hz	20mArms	400mArms or $2 \times 10^6$ Hz	Auto

**NOTE** : Press **SHIFT** Key in  $\overline{\sim}$ A or  $\sim$ A to enter Frequency (Hz) range.

## 4. SAFETY PRECAUTIONS

### 4-1. WARNINGS

Correct knowledge of electric measurements is essential to avoid unexpected danger such as operator's injury or damage to the instrument. Read carefully and observe the following precautions for safety measurements.

#### $\Delta$ WARNING 1. Checks of Body and Test Lead

Before measurement, confirm the body of this instrument and handle insulators of the Test Lead have no cracks or any other damages. Dust, grease and moisture must be removed.

#### $\Delta$ WARNING 2. High Power Line Measurements is Prohibited

Do not measure High Power Line (High Energy Circuits) such as Distribution Transformers, Bus Bars and Large Motors. High Power Line sometimes includes High Surge Voltage that could cause explosive short in the instrument and could result in shock hazard. Generally, shock hazard could occur when the current between the circuit, that involves more than 33V rms or 46.7V DC or peak, and ground goes up to 0.5mA or more.

#### $\Delta$ WARNING 3. Warning for High Voltage Measurements

Even for Low Energy Circuits of electric/electronic appliances, such as heating elements, small motors, line cords and plugs, High Voltage Measurements are very dangerous. Do not touch any part of the circuit.

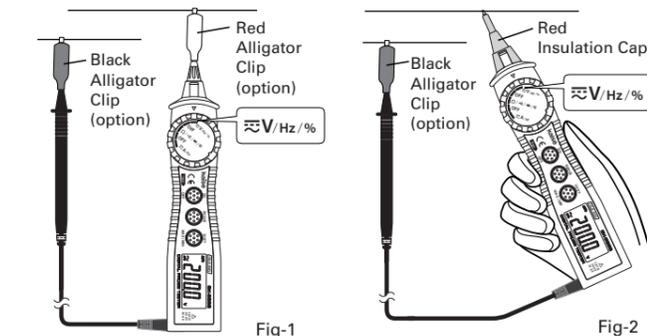
#### $\Delta$ WARNING 4. Dangerous Voltage Measurement Procedure

For dangerous voltage measurement, strictly observe the warnings below. (Refer to Fig-1)

- Do not hold Probe Tester in your hands.
- Keep safety distance from power source or circuit to be measured not to touch the dangerous voltage.
- Detach insulation caps from test prods and attach black and red alligator clips (option) to test prods.
- Turn off the power of the circuit to be measured when connecting test prods.
- After measurement, before detaching alligator clips (test prods), turn the circuit power off and discharge the all capacitors.

In case of live-line measurement, strictly observe the warnings below. (Refer to Fig-2)

- Keep safety distance from power source or circuit to be measured not to touch the dangerous voltage.
- Black test lead : Detach insulation cap and attach black alligator clip (option) and connect to - (earth) side of the circuit.
- Digital Probe Tester : Attach red insulation cap to test prod, set **FUNCTION Switch** to  $\overline{\sim}$ V/Hz/% and connect to + (positive) side of the circuit.



### 4-2. PREVENTION OF FAILURE

#### $\Delta$ WARNING 1. Correct Selection of Function Switch

Always confirm that **FUNCTION Switch** is set to the correct position. Do not measure voltage except at Voltage measurement function.

#### $\Delta$ WARNING 2. Maximum Input Observance

Do not measure anything that might exceed the specified maximum input values.

#### $\Delta$ WARNING 3. Test Lead Detachment

Detach Test Prods from measuring circuit before changing measurement functions or opening Battery Cover for battery or fuse replacement.

### 4-3. GENERAL WARNINGS AND CAUTIONS

- $\Delta$  **WARNING 1.** Children and the persons who do not have enough knowledge about electric measurements must not use this instrument.
- $\Delta$  **WARNING 2.** Do not measure the electricity naked or barefooted to protect yourself from electrical shock hazard.
- $\Delta$  **WARNING 3.** Be careful not to get hurt with the sharp test prod and test lead pins.
- $\Delta$  **CAUTION 1.** Away the instrument from hot and humid conditions like in the car. Do not apply hard mechanical shock or vibration.
- $\Delta$  **CAUTION 2.** Do not polish the case or attempt to clean it with any cleaning fluid like gasoline or benzine. If necessary, use silicon oil or antistatic fluid.
- $\Delta$  **CAUTION 3.** Remove the battery when the instrument is out of use for a long time. The exhausted battery might leak electrolyte and corrode the inside.

## 5. NAME ILLUSTRATION

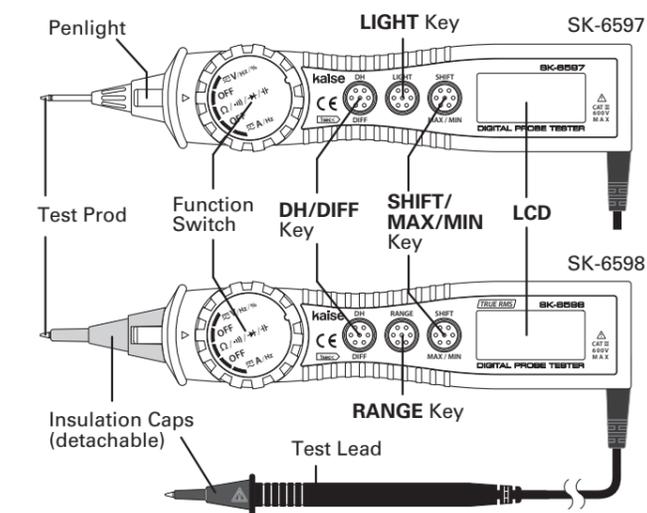


Fig-3

### 5-1. LCD

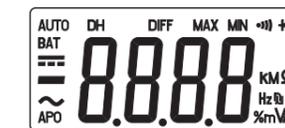


Fig-4

- BAT : Low battery warning
- $\sim$  : Alternative Current
- $\overline{\sim}$  : Direct Current
- : Minus
- AUTO : Auto-ranging
- APO : Auto power off
- DIFF : Difference measurement
- DH : Lights up in Display Hold function
- $\rightarrow$  : Diode test
- $\rightarrow$  : Continuity test
- $\Omega$ , k $\Omega$ , M $\Omega$  : Resistance measurement
- Hz : Frequency measurement
- % : Duty cycle measurement
- MAX, MIN : MAX/MIN measurement
- nF,  $\mu$ F : Capacitance measurement
- mV, V : Voltage measurement
- mA : Current measurement

### 5-2. FUNCTION Switch

The switch to turn on the instrument and to select measurement functions. After finishing the measurement, turn it to "OFF".

### 5-3. DH Key

Press this key to hold displayed value on LCD. ("DH" lights up).  
**To release it** : Press **DH** Key again.

### 5-4. DIFF Key

Press **DIFF** Key for 1 second or more to start difference measurement ("DIFF" lights up).  
Measurement value displayed on LCD is converted into 0 $\pm$ 1 digit, and the relative value is displayed.  
**To release it** : Press **DIFF** Key for 1 second or more again. Difference measurement is finished and returns to the normal measurement mode ("DIFF" disappears).  
**NOTE** : Difference Measurement is not available in Frequency, Duty Cycle, Continuity and Diode measurements.

### 5-5. LIGHT Key (SK-6597)

Press this key to turn on the Penlight and LCD backlight. The lights turn off automatically after approx. 10 seconds.

### 5-6. RANGE Key (SK-6598)

Manual-range measurement is possible by pressing this key during the auto-range measurement ("AUTO" disappears from LCD). To change the measurement range in manual-range, press **RANGE** Key. Check decimal point and select the suitable ranges.  
**To return to Auto-range** : Press **RANGE** Key for 1 second or more. ("AUTO" lights up).  
**NOTE** : **RANGE** Key works in DC/AC Voltage, resistance and DC/AC current measurements.

## 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)

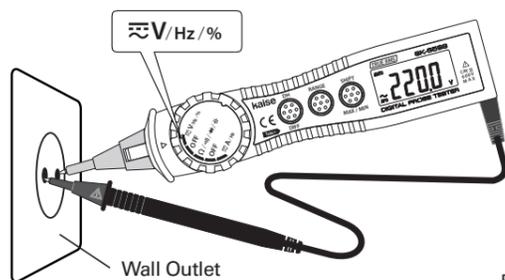


Fig-5

### 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

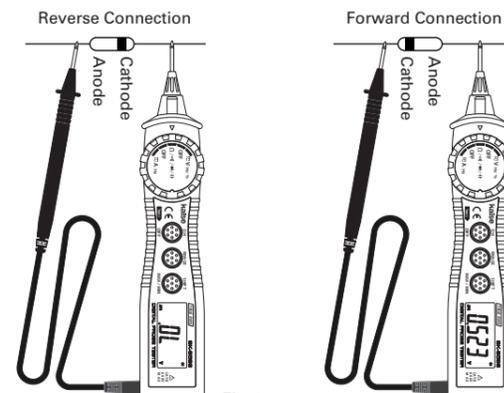


Fig-6

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.

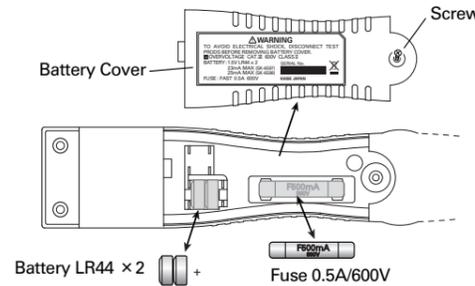


Fig-8

### 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

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