

sanwa



CD750P

DIGITAL MULTIMETER

取扱説明書

INSTRUCTION MANUAL



[1] SAFETY PRECAUTIONS : Before use, read the following safety precautions

This instruction manual explains how to use your multimeter CD750P safely. Before use, please read this manual thoroughly. After reading it, keep it together with the product for reference to it when necessary.

The instruction given under the heading "**⚠WARNING**" "**⚠CAUTION**" must be followed to prevent accidental burn or electrical shock.

1-1 Explanation of Warning Symbols

The meaning of the symbols used in this manual and attached to the product is as follows.

⚠ : Very important instruction for safe use.

- The warning messages are intended to prevent accidents to operating personnel such as burn and electrical shock.
- The caution messages are intended to prevent damage to the instrument.

⚡ : Do not touch the parts marked with it which cautions high voltage is impressed.

\equiv : DC

\perp : Ground

\sim : AC

+ : Plus

Ω : Resistance

- : Minus

$\bullet \bullet \bullet$: Continuity

\boxminus : Fuse

$\rightarrow \vdash$: Diode

\boxplus : Double insulation

1-2 Warning Instruction for safe use

⚠ WARNING

To ensure that the meter is used safely, be sure to observe the instruction when using the instrument.

1. Pay special attention when measuring the voltage of AC 33Vrms (46.7 Vpeak) or DC 70V or more to avoid injury.
2. Never apply input signals exceeding the maximum rating input value.
3. Never use meter for measuring the line connected with equipment (i.e. motors) that generates induced or surge voltage since it may exceed the maximum allowable voltage.

4. Never use meter if the meter or test leads are damaged or broken.
5. Never use uncased meter.
6. Be sure to use a fuse of the specified rating or type. Never use a substitute of the fuse or never make a short circuit of the fuse.
7. Always keep your fingers behind the finger guards on the probe when making measurements.
8. Be sure to disconnect the test pins from the circuit when changing the function or range.
9. Be sure to disconnect the test pins from the circuit when changing the function or range.
10. Never use meter with wet hands or in a damp environment.
11. Never open tester case except when replacing batteries or fuse. Do not attempt any alteration of original specifications.
12. Do not use the device near an item of strong electromagnetic generation or a charged item.
13. To ensure safety and maintain accuracy, calibrate and check the tester at least once a year.
14. Indoor use

⚠ CAUTION

Be sure to return the Power/Function knob to OFF after measurement. There is a little battery draining even if the auto power save function is activated.

1-3 Maximum Overload Protection Input

Function	Input	Maximum rating input value	Maximum overload protection input
DCV ACV	V, COM	DC1000V AC750V	DC1000V, AC750V or PEAK MAX 1000V (1 minute continuous impression)
Ω / \rightarrow / \bullet / \circ / \circ / \circ	Ω / \rightarrow / \bullet / \circ / \circ / \circ , COM	⚠ Voltage and current input prohibited	

[2] APPLICATION AND FEATURES

2-1 Application

This device is a portable digital multimeter that includes and overcurrent prevention circuit and a fuse 1000V and 10kA with a large interrupting capacity for safe measurement of high-capacity circuit within the fuse rating.

2-2 Features

- The instrument has been designed in accordance with the safety standard IEC 61010-1.
- 4000 counts display.
- Data hold and range hold.
- Auto power save 30min.
- The $\Omega/\rightarrow/\bullet/\bullet$ measuring terminal has a safety cover to prevent erroneous insertion.
- AC Measurement is the True RMS.
- Main unit case and the circuit board is made of fire retarding materials.

[3] NAME OF COMPONENT UNITS

3-1 Multimeter, Test leads

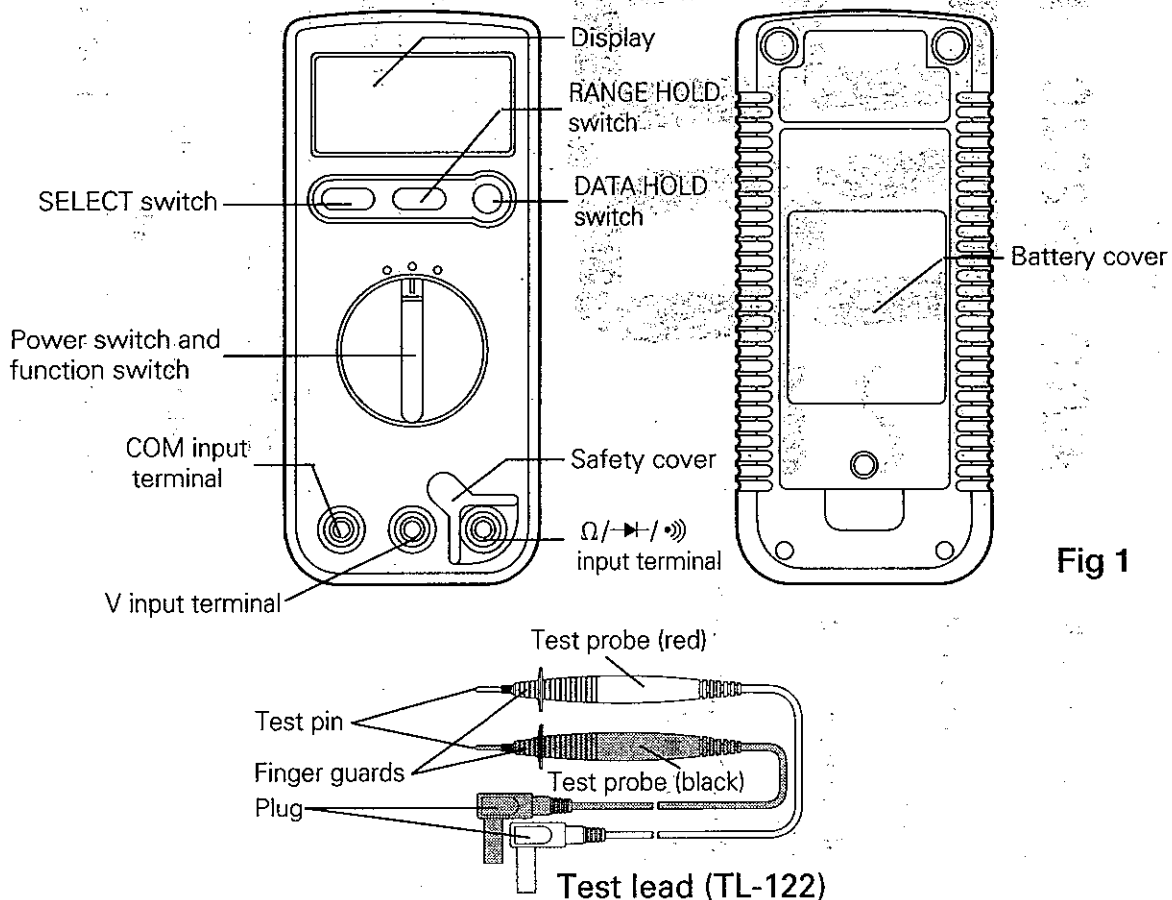


Fig 1

3-2 Display

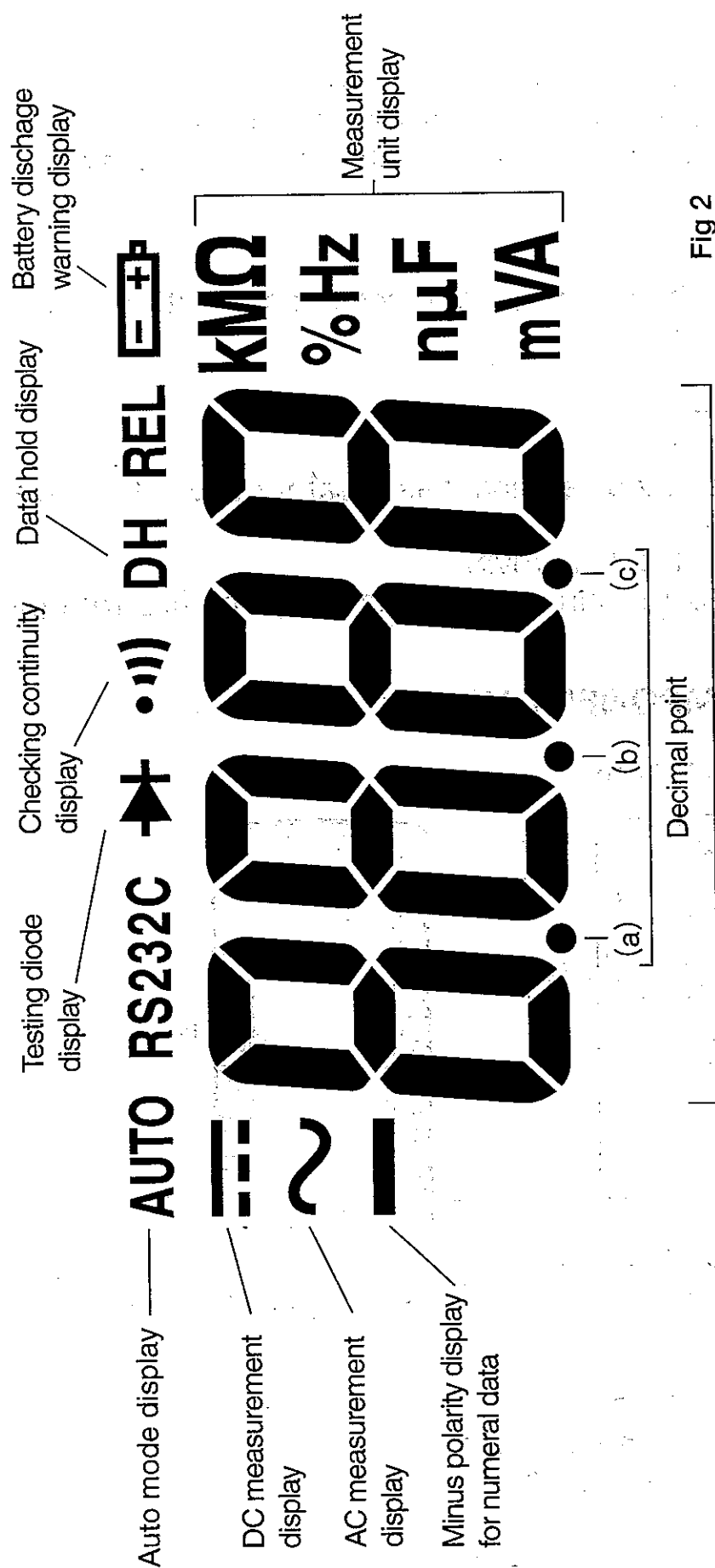


Fig 2

Decimal point	(a)	(b)	(c)
Range	4V 4kΩ, 4MΩ ➔	40V 40kΩ, 40MΩ	400mV, 400V 400Ω, 400kΩ •••
			750V, 1000V

※RS-232C, REL, %Hz, nμF, and A are not used on this device.

[4] DESCRIPTION OF FUNCTIONS

⚠ WARNING

In the case of action or cancel that function as follows, do not turn the function switch in the condition applied input.

○Power switch and function switch

Turn this switch to turn on and off the power and select the functions of V, Ω , \rightarrow , \bullet .

○SELECT switch

When this switch is pressed (\rightarrow), the modes change as follows.

- In the case of current function, the mode change as $\rightarrow \sim \rightarrow \rightarrow$.
- In the case of $\Omega/\rightarrow/\bullet$, the mode change as $\Omega \rightarrow \rightarrow \rightarrow \bullet$.

○RANGE HOLD switch (RANGE HOLD)

Use this switch to set a specific range for the voltage or resistance function. Pressing this switch sets a range and changes the device to Manual Mode. Since the range shifts each time the switch is pressed, select an appropriate range while noting the unit of the indicator and the position of the decimal point. To return to Auto Mode, hold the switch down for one second or longer. (AUTO lights on the indicator.)

○DATA HOLD switch (DATA HOLD)

When this switch is pressed, the data display at that time continues (DH lights on the display). When the measuring input changes, the display will not change.

When this switch is pressed again, the hold status is canceled and you can return to the measuring status. (DH on the display disappears.)

○Auto power save

This device incorporates auto-power-off function that turns off the display in about 30 minutes to save battery draining. There is a little battery draining even if the auto power save function is activated, therefore be sure to return the Power/Function knob to OFF after measurement. Press the data hold switch before the auto-power-save function is activated to use the device continuously. To deactivate the auto-power-save function, turn the meter ON while pressing the SELECT button.

○Over Limit (OL) indication

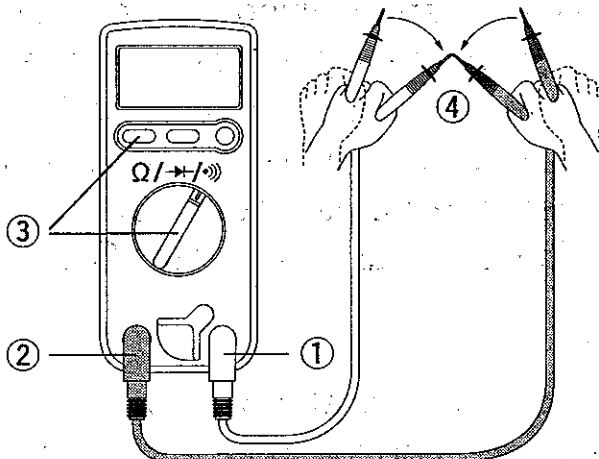
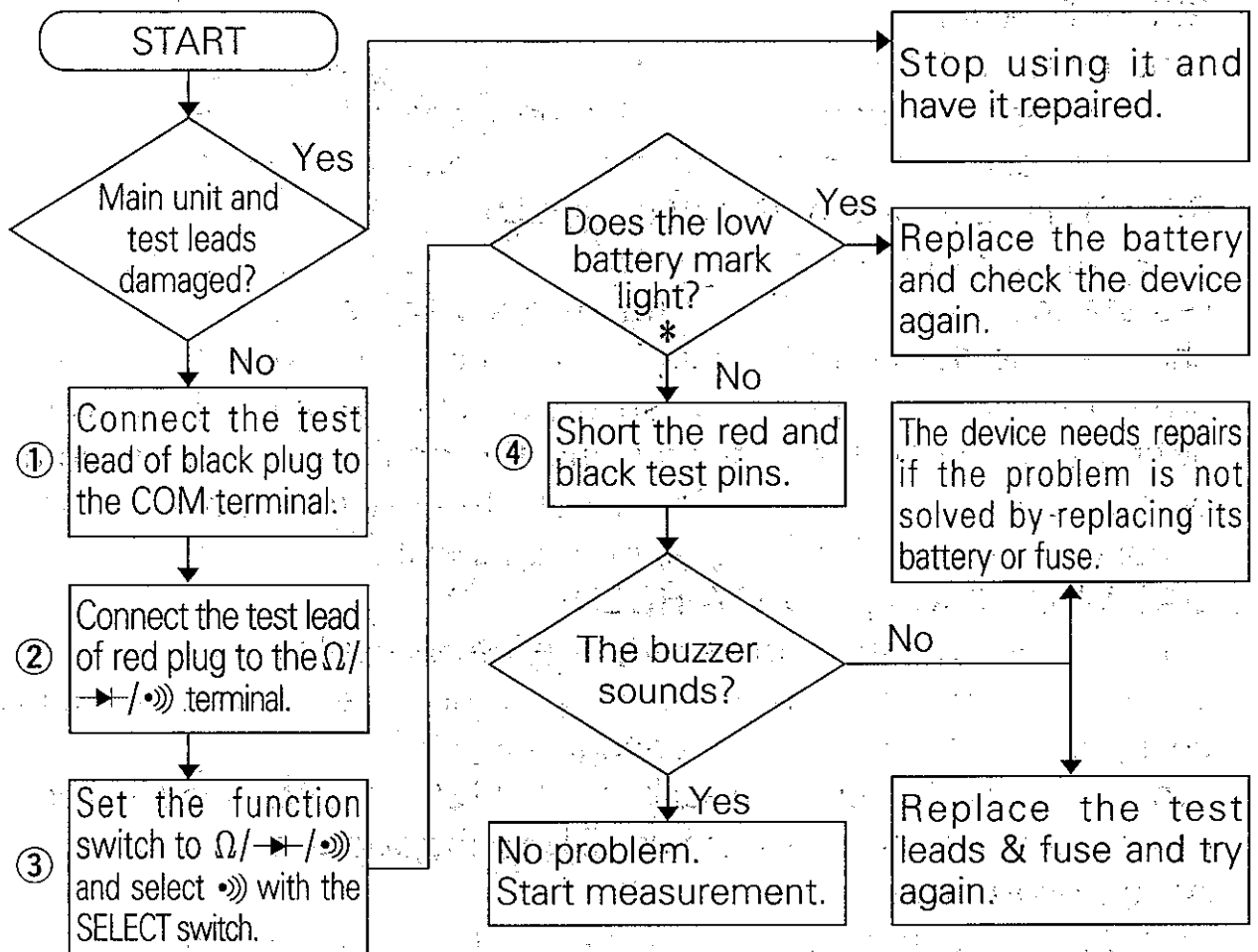
In case of excess input to this device, the indicator displays OL. If OL is displayed during the voltage function, stop the input immediately.

[5] MEASUREMENT PROCEDURE

5-1 Start-up Inspection

⚠ WARNING

1. Never use meter if the meter or test leads are damaged or broken.
2. Be sure that test leads or fuse are not broken or brown out.



*If the battery is about used up, nothing will be displayed.

Fig 3

5-2 Voltage Measurement

⚠ WARNING

1. Never apply input signals exceeding the maximum rating input value.
2. Be sure to disconnect the test pins from the circuit when changing the function.
3. Always keep your fingers behind the finger guards on the probe when making measurements.

5-2-1 DCV Measurement (—) Maximum measured voltage: 1000VDC

1) Applications

Measure batteries and DC circuits.

2) Measuring ranges

400mV~1000V (5 ranges)

3) Measuring method

- ① Insert the red plug of the test lead into the V terminal and the black plug into the COM terminal.
 - ② Set the function switch to V and select DC with the SELECT switch.
 - ③ Touch the negative potential side of the circuit under test with the black test pin and the positive potential side with the red pin. ("-" will be displayed in case of opposite connection.)
 - ④ Read the indicator.
 - ⑤ After measurement, release the black and red test pins from the circuit under test.
- When the test lead is open, the reading fluctuates. However, this is not abnormal.

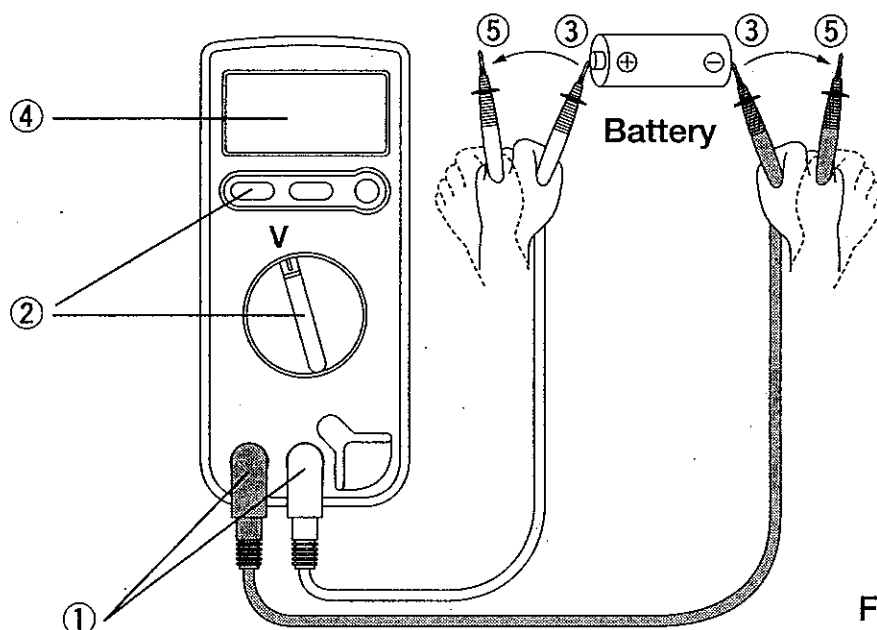


Fig 4

5-2-2 ACV Measurement (~) Maximum measured voltage: 750VAC

1) Applications

Measure sine-wave AC voltages such as lighting voltages.

2) Measuring ranges

4.0V~750V (4 ranges)

3) Measuring method

① Insert the red plug of the test lead into the V terminal and the black plug into the COM terminal.

② Set the function switch to V and select AC with the SELECT switch.

③ Touch the circuit under test with the black and red test pins.

④ Read the indicator.

⑤ After measurement, release the black and red test pins from the circuit under test.

● The AC400mV range is also available but the accuracy is not guaranteed.

● In the AC4V range, a count of about 1 to 9 is left at 0 input.

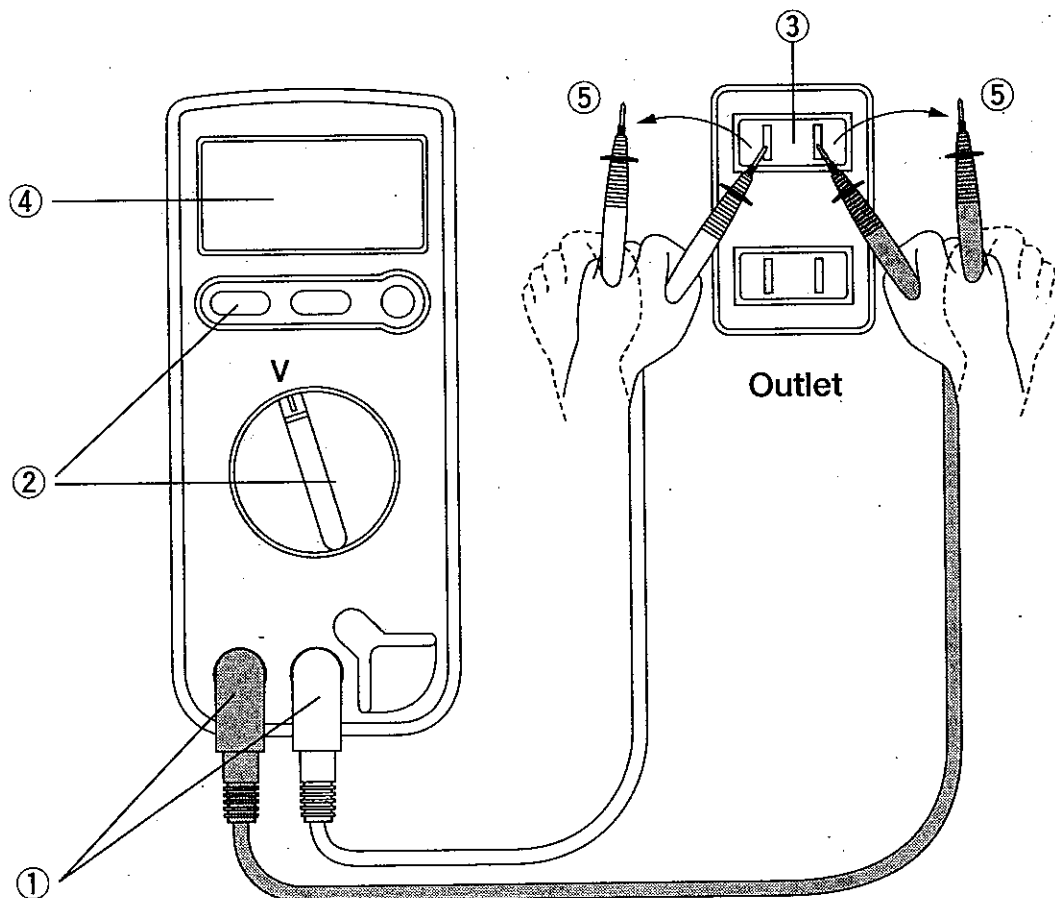


Fig 5

<Notes on alternating current (AC) measurement>

1) True root-mean-square(RMS)

In average detection RMS measurement, an input signal of distortion-free sinusoidal waveform can be measured with no error. If the input signal has a distorted sinusoidal waveform or non-sinusoidal waveform, it is difficult to convert the measured value into RMS. This causes a great error.

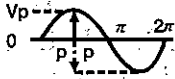
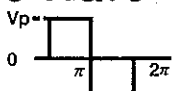
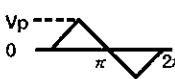

This device uses a true RMS circuit for the RMS measurement of an input signal having a sinusoidal waveform or non-sinusoidal (square or triangular) waveform.

2) Crest factor (CF)

For CF, the peak value of a signal is divided by the RMS value of the signal. The CF value is relatively low for a general waveform, such as sinusoidal or triangular, but high for a waveform similar to a pulse train of a low duty cycle. For the voltages and CF values of representative waveforms, see the table below:

CF:<3:1(full-scale) <6:1(half-scale)

(Accuracy-guaranteed frequency range:See 8-3)

Input Waveform	Peak V_p	RMS V_{rms}	Average V_{avg}	CF V_p/V_{rms}	Form Factor V_{rms}/V_{avg}
Sine Wave 	$V_{rms} \cdot \sqrt{2}$ $=1.414V_{rms}$	$\frac{V_p}{\sqrt{2}}$ $=0.707V_p$	$\frac{2V_p}{\pi}$ $=0.637V_p$	$\sqrt{2}$ $=1.414$	$\frac{\pi}{2\sqrt{2}}$ $=1.111$
Square Wave 	V_p	V_p	V_p	1	1
Triangular Wave 	$V_{rms} \cdot \sqrt{3}$ $=1.732V_{rms}$	$\frac{V_p}{\sqrt{3}}$ $=0.577V_p$	$\frac{V_p}{2}$ $=0.5V_p$	$\sqrt{3}$ $=1.732$	$\frac{2}{\sqrt{3}}$ $=1.155$
Puls 	V_p	$\sqrt{\frac{\tau}{2\pi}} \cdot V_p$	$\frac{\tau}{2\pi} \cdot V_p$	$\sqrt{\frac{2\pi}{\tau}}$	$\sqrt{\frac{2\pi}{\tau}}$

Voltages and Crest Factors of Various Waveforms

- This device uses AC coupling for AC measurement. DC components are removed from input signals.

5-3 Resistance Measurement (Ω) Maximum measured resistance: 40M Ω

⚠ WARNING

Never apply voltage to the input terminals.

1) Application

Resistance of resistors and circuits are measured.

2) Measuring ranges

400 Ω ~ 40M Ω (6 ranges)

3) Measuring method

① Insert the red plug of the test lead into the $\Omega / \rightarrow / \bullet$ measuring terminal and the black plug into the COM terminal.

② Set the function switch to $\Omega / \rightarrow / \bullet$ and select Ω with the SELECT switch.

③ Touch the circuit under test with the black and red test pins.

④ Read the indicator.

⑤ After measurement, release the black and red test pins from the circuit under test.

● The open-circuit voltage between the input terminals is about 0.4 V.

● If measurement is affected by noise, shield the circuit under test with the COM potential.

● In the 40 M Ω range, the device may not be able to measure the maximum resistance due to an error or noise of the circuit under test or that of this device.

● Resistance cannot be measured where voltage is imposed.

● Since this device has a fuse connected to COM, the correct value is the reading minus the fuse resistance of about 0.6 Ω .

● Value subtracted approx. 0.6 ohm from reading is correct.

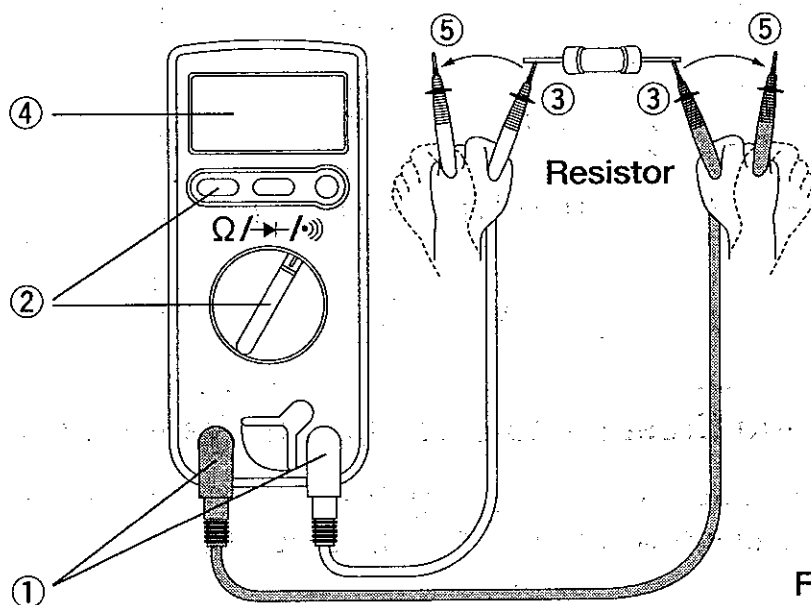


Fig 6

5-4 Testing Diode (→+)

⚠ WARNING

Never apply voltage to the input terminals.

1) Application

The quality of diodes is tested.

2) Measuring method

- ① Insert the red plug of the test lead into the $\Omega/\rightarrow+/ \bullet \bullet \bullet$ measuring terminal and the black plug into the COM terminal.
- ② Set the function switch to $\Omega/\rightarrow+/ \bullet \bullet \bullet$ and select $\rightarrow+$ with the SELECT switch.
- ③ Touch the cathode side of the diode with the black test pin and the anode side with the red test pin.
- ④ Check a forward voltage drop of the diode on the indicator.
- ⑤ Touch the cathode side of the diode with the red test pin and the anode side with the black test pin.
- ⑥ Check if the reading is the same as the one that is displayed when the test leads are opened (.OL).
- ⑦ After measurement, release the black and red test pins from the circuit under test.

*If ④ and ⑥ are true, the diode is normal.

● The open-circuit voltage between the input terminals is about 1.5 V.

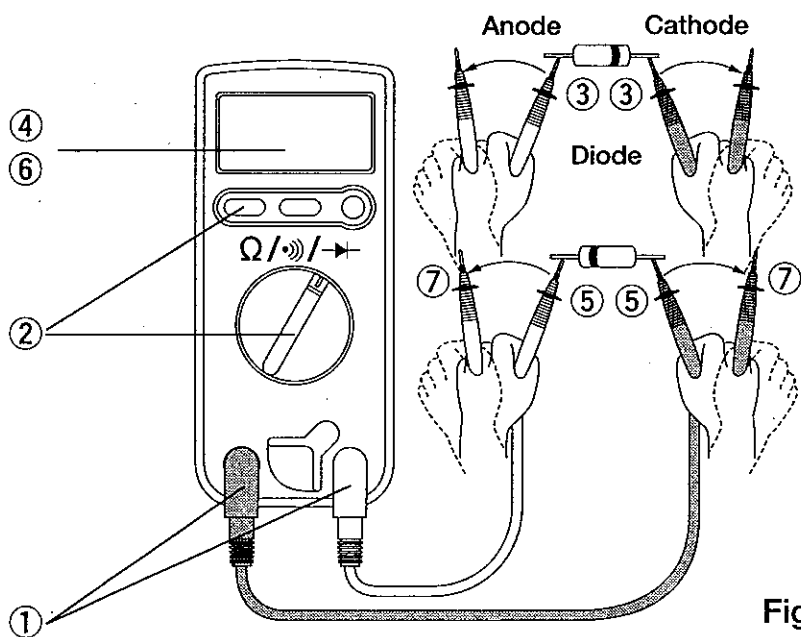


Fig 7

5-5 Checking Continuity (•)))

⚠ WARNING

Never apply voltage to the input terminals.

1) Application

Checking the continuity of wiring and selecting wires.

2) Measuring method

- ① Insert the red plug of the test lead into the $\Omega / \rightarrow / \bullet)))$ measuring terminal and the black plug into the COM terminal.
 - ② Set the function switch to $\Omega / \rightarrow / \bullet)))$ and select $\bullet)))$ with the SELECT switch.
 - ③ Touch the circuit under test or extension cord with the black and red test pins respectively for checking.
 - ④ Check that the buzzer sounds to indicate continuity.
- *If the reading is 400Ω or less, its value is displayed.
- ⑤ After measurement, release the black and red test pins from the circuit under test or extension cord.
- The open-circuit voltage between the input terminals is about 0.4 V.
 - The threshold level is 10 to 200Ω .
 - The device sounds but becomes silent momentarily. However, this is not abnormal.

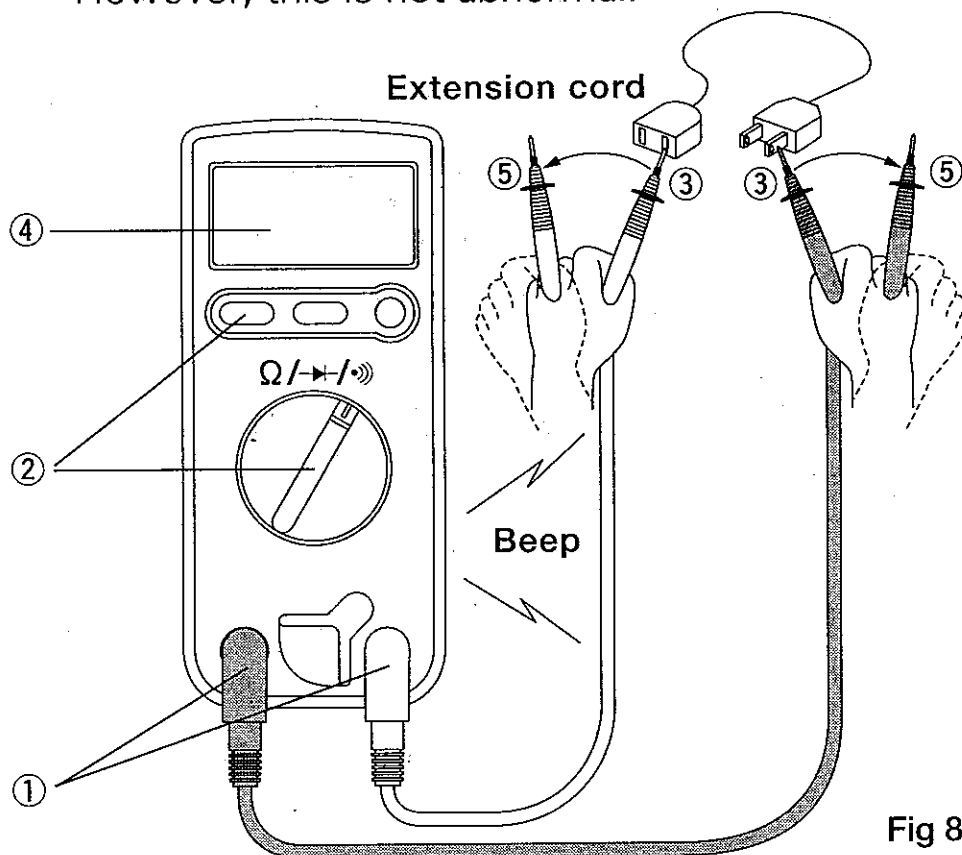


Fig 8

5-6 How to use optional products

⚠ WARNING

1. Never apply input signals exceeding the maximum rating input value of optional products.
2. Be sure to disconnect the test pins from the circuit when changing the function.

5-6-1 HV Probe (HV-60) Maximum measured voltage: DC30kV

⚠ WARNING

1. The probe is designed for the measurement of very small DC circuit. Never use the probe to measure high voltage in power lines, Such as transmission and distribution lines; it is very dangerous.
2. Never apply an input signals exceeding the maximum rating(30kV)of HV prove.
3. Be sure to disconnect the test pins from the circuit when changing the function.
4. Always keep your fingers behind the finger guards on the probe when making measurement.

1) Measurement item

Anode voltage of cathode ray tube, high focusing voltage, and voltage of high-impedance circuit

2) Measurement range : DC1000V range

(Set manually in the manual mode)

3) Measuring method

- ① Insert the red plug of the high-voltage probe into the V input terminal and the black plug into the COM terminal.
- ② Set the function switch to V, select DC with the SELECT switch, and set the RANGE HOLD switch to the 1000 V range.
- ③ Connect the black clip to the ground line of the circuit under test and touch the measuring position with the pin at the end of the probe.
- ④ Read the indicator and multiply the reading by 0.1 for kV.
- ⑤ After measurement, release the pin from the circuit under test and then remove the clip.

● HV-60 cannot be used for AC voltage measurement.

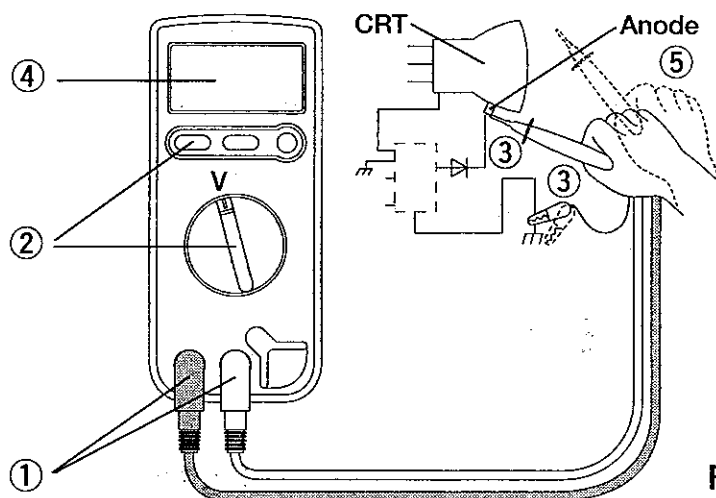


Fig 9

5-6-2 Measurement with AC probe (CL-20D) - Maximum measured current: AC 200 A

- 1) Measurement item
Amperage of electric home appliance or 50 to 60 Hz sinusoidal-wave AC of power-supply equipment
- 2) Measuring range
20 A and 200 A ranges
- 3) Measuring method
 - ① Insert the red plug of the current probe into the V input terminal and the black plug into the COM terminal.
 - ② Set the function switch to V, select AC with the SELECT switch, and set the RANGE HOLD switch to the 4 V range.
 - ③ Turn the range setting control of the current probe to the 20 A or 200 A range.
 - ④ Open the iron core of the current probe and clamp the conductor under test.
 - ⑤ Read the indicator and multiply the reading by 10 if the range of the current probe is 20A or by 100 if it is 200 A.
 - ⑥ After measurement, open the iron core of the current probe and unclamp the current probe.
- This device is not available for measuring a current greater than 20 A or 200 A.
(Although the indicator works, do not measure such a current.)
- Clamp the conductor under test at the center of the iron core wherever possible.

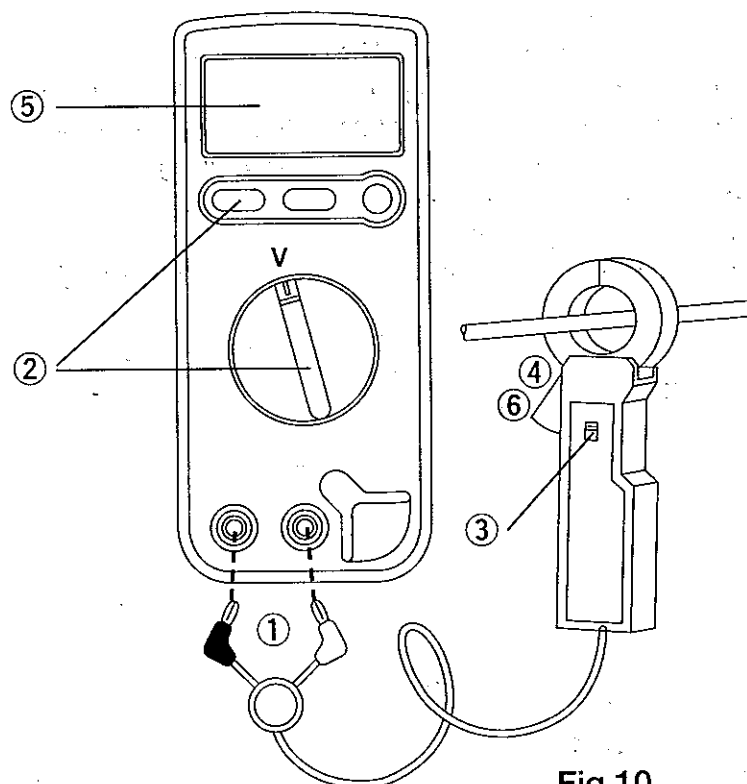


Fig 10

5-6-3 Measurement with DC or AC probe (CL-22AD) Maximum measured current: DC/AC 200 A

- 1) Measurement item
ACA: Amperage of electric home appliance or 50 to 60 Hz sinusoidal-wave AC of power-supply equipment
DCA: Current of automotive electric circuit and amperage of DC equipment
- 2) Measuring range
AC 20/200 A and DC 20/200 A ranges
- 3) Measuring method
 - ① Insert the red plug of the current probe into the V input terminal and the black plug into the COM terminal.
 - ② For DC amperage (DCA), set the function switch to V, select DC with the SELECT switch, and set the RANGE HOLD switch to the 400 mV range.
For AC amperage (ACA), set the function switch to V, select AC with the SELECT switch, and set the RANGE HOLD switch to the 4V range.
 - ③ Turn the range setting control of the current probe to the 20 A or 200 A range.
 - *For DC measurement, turn the zero adjuster of the current probe to 0.
 - ④ Open the iron core of the current probe and clamp the conductor under test.
 - ⑤ Read the indicator and multiply the reading as follows:
DC20A → x0.1
DC200A → x1
AC20A → x100
AC200A → x1000
 - ⑥ After measurement, open the iron core of the current probe and unclamp the current probe.
- This device is not available for measuring a current greater than 20 A or 200 A.
(Although the indicator works, do not measure such a current.)

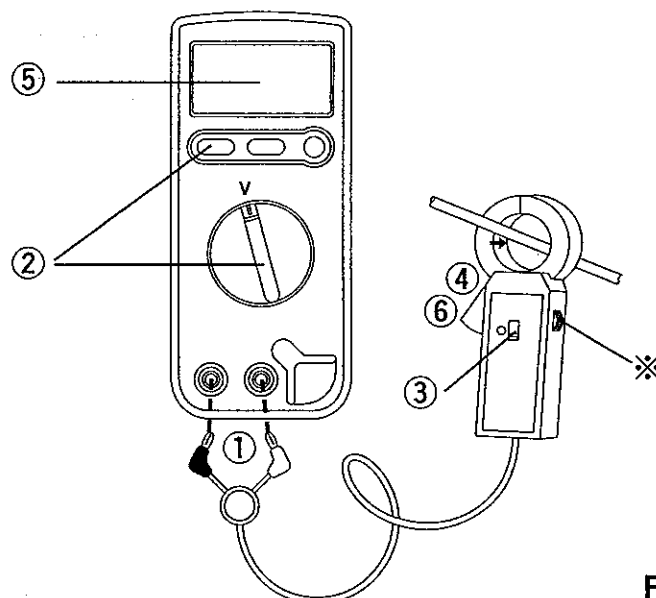


Fig 11

5-6-4 Measurement with DC probe (CL-33DC) Maximum measured current: DC 300 A

- 1) Measurement item
Current of automotive electric circuit and amperage of DC equipment
 - 2) Measuring range
30 A and 300 A ranges
 - 3) Measuring method
 - ① Insert the red plug of the current probe into the V input terminal and the black plug into the COM terminal.
 - ② Set the function switch to V, select DC with the SELECT switch, and set the RANGE HOLD switch to the 400 mV range.
 - ③ Turn the range setting control of the current probe to the 30 A or 300 A range.
- *Turn the zero adjuster of the current probe to 0.
- ④ Open the iron core of the current probe and clamp the conductor under test.
 - ⑤ Read the indicator and multiply the reading by 0.1 if the range of the current probe is 30A or by 1 if it is 300 A.
 - ⑥ After measurement, open the iron core of the current probe and unclamp the current probe.
- This device is not available for measuring a current greater than 30 A or 300 A.
(Although the indicator works, do not measure such a current.)

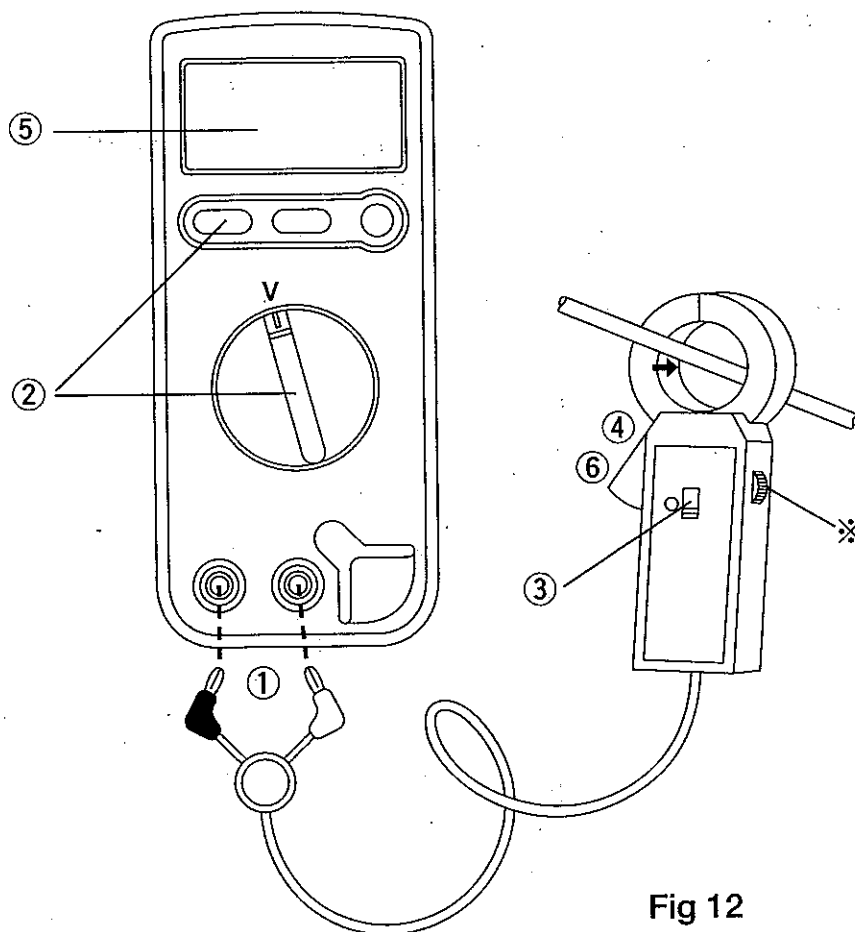


Fig 12

[6] MAINTENANCE

⚠ WARNING

1. This section is very important for safety. Read and understand the following instruction fully and maintain your instrument properly.
2. The instrument must be calibrated and inspected at least once a year to maintain the safety and accuracy.

6-1 Maintenance and Inspection

1. Appearance : Is the appearance not damaged by falling?
2. Test leads : Is the cord of the test leads not damaged?
Is the core wire not exposed at any place of the test leads?

If your instrument falls in any of the above items, do not use it and have it repaired or replace it with a new one.

- Make sure that the test leads are not cut, referring to the section.

6-2 Calibration

The calibration and inspection may be conducted by the dealer.
For more information, please contact the dealer.

6-3 How to replace Battery and Fuse

⚠ WARNING

1. If the rear case is removed with input applied to the input terminals, you may get electrical shock.
Before starting the work, always make sure that no input is applied.
2. Be sure to use the fuse is same rating so as to ensure safety and performance of tester.
3. When operator remove the rear case, do not touch the internal parts or wire with hand.

<How to replace the built-in fuse>

- ① Loosen the screw with screwdriver.
- ② Remove the battery cover and replace batteries or fuses.
- ③ Set the battery cover and tighten the screw.

⚠ WARNING

Please make sure the battery polarity when you Place batteries.

Fuse of the Specified Rating and Type
0.44A/1000V ϕ 10×35mm Blowout capacity:10kA
(DMM-B-44/100 BUSSMANN INC.)

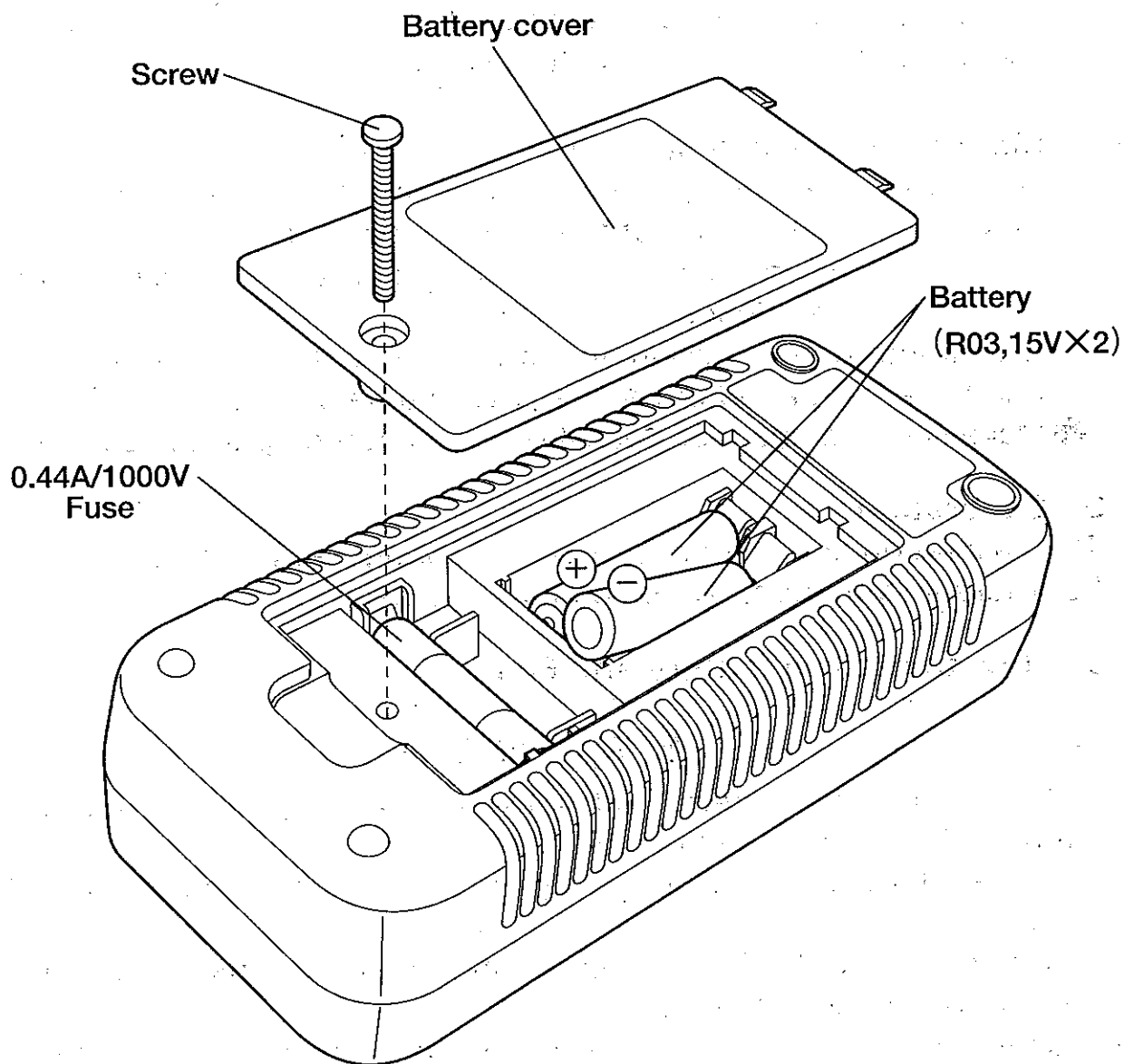


Fig 13

[7] AFTER-SALES SERVICE

7-1 Warranty and Provision

Sanwa offers comprehensive warranty services to its end-users and to its product resellers. Under Sanwa's general warranty policy, each instrument is warranted to be free from defects in workmanship or material under normal use for the period of one (1) year from the date of purchase.

This warranty policy is valid within the country of purchase only, and applied only to the product purchased from Sanwa authorized agent or distributor.

Sanwa reserves the right to inspect all warranty claims to determine the extent to which the warranty policy shall apply. This warranty shall not apply to fuses, disposables batteries, or any product or parts, which have been subject to one of the following causes:

1. A failure due to improper handling or use that deviates from the instruction manual.
2. A failure due to inadequate repair or modification by people other than Sanwa service personnel.
3. A failure due to causes not attributable to this product such as fire, flood and other natural disaster.
4. Non-operation due to a discharged battery.
5. A failure or damage due to transportation, relocation or dropping after the purchase.

7-2 Repair

Customers are asked to provide the following information when requesting services:

1. Customer name, address, and contact information
2. Description of problem
3. Description of product configuration
4. Model Number
5. Product Serial Number
6. Proof of Date-of-Purchase
7. Where you purchased the product

Please contact Sanwa authorized agent / distributor / service provider, listed in our website, in your country with above information. An instrument sent to Sanwa / agent / distributor without those information will be returned to the customer.

Note:

- 1) Prior to requesting repair, please check the following:
Capacity of the built-in battery, polarity of installation and discontinuity of the test leads.
- 2) Repair during the warranty period:
The failed meter will be repaired in accordance with the conditions stipulated in 7-1 Warranty and Provision.
- 3) Repair after the warranty period has expired:
In some cases, repair and transportation cost may become higher than the price of the product. Please contact Sanwa authorized agent / service provider in advance.
The minimum retention period of service functional parts is 6 years after the discontinuation of manufacture. This retention period is the repair warranty period. Please note, however, if such functional parts become unavailable for reasons of discontinuation of manufacture, etc., the retention period may become shorter accordingly.
- 4) Precautions when sending the product to be repaired
To ensure the safety of the product during transportation, place the product in a box that is larger than the product 5 times or more in volume and fill cushion materials fully and then clearly mark "Repair Product Enclosed" on the box surface. The cost of sending and returning the product shall be borne by the customer.

7-3 SANWA Website

<http://www.sanwa-meter.co.jp>

E-mail: exp_sales@sanwa-meter.co.jp

[8] SPECIFICATIONS

8-1 General Specifications

Measuring method	$\Delta\Sigma$ method
AC sensing	AC True RMS
Display	4000 counts LCD
Rang selection	Auto and manual ranges
Over display	"OL" mark indication (except AC750V/DC1000V)
Polarity Indication	Automatic selection ("-" indicated when negative voltage is inputted.)
Low Battery Indication	Below approx. 2.4V "E+B" mark indication
Sampling rate	Approx. 2 times/sec
Operating temperature/ humidity range	5°C ~ 40°C humidity range: Maximum 80% RH for temperatures up to 31°C decreasing linearly to 50% RH at 40°C
Storage temperature/ humidity range	-10°C ~ 40°C 80% RH max. No condensation 40°C ~ 50°C 70% RH max. No condensation
Environmental condition	Operating altitude < 2000m/Pollution degree II
Power supply	R03 X2
Power consumption	Approx. 6mW TYP. (at DCV)
Battery life	Approx. 250 hrs (at DCV range continuous)
Auto-power-save	30 minutes after power-on.
Fuse	(ϕ 10X35mm) 0.44A/1000V/Blowout capacity, 10kA (DMM-B-44/100 Bussmann, Inc.)
Dimension	157.5(H) X 70(W) X 38.5(D)mm
Weight	Approx. 220g
Accessories	Instruction manual X1 Test lead (TL-122) X1 Carrying case (C-NH7) X1
Safety	IEC61010-1
E.M.C	[EN61326 Annex C] EN61000-4-2/-3 [EN61326 class B]

Factory -preinstalled built-in battery

A battery for monitoring is preinstalled before shipping, therefore it may run down sooner than the battery life specified in the instruction manual.

※The "battery for monitoring" is a battery to inspect the functions and specifications of the product.

MEASUREMENT CATEGORY

- CAT I : Secondary electrical circuit connected to an AC electrical outlet through a transformer or similar device.
- CAT II : Primary electrical circuits in equipment connected to an AC electrical outlet by a power cord.
- CAT III : Primary electrical circuits of heavy equipment connected directly to the distribution panel, and feeders from the distribution panel to outlets.

8-2 Optional Accessories



- HV probe (HV-60)
- Clamp probe (CL-20D)(CL-22AD)(CL33DC)

8-3 Measurement Range and Accuracy

Accuracy assurance range : $23 \pm 5^{\circ}\text{C}$ Less than 80% RH MAX. No condensation

Accuracy of ACV : Specified at 5%-100% of the range.

CF: <3:1 (full scale) <6:1 (half scale)

Function	Range	Accuracy	Input Resistance	Remarks
DC Voltage DCV	400.0mV	$\pm (0.7\% \text{rdg} + 5 \text{dgt})$	$\geq 100 \text{M}\Omega$	
	4.000V	$\pm (1.1\% \text{rdg} + 3 \text{dgt})$	Approx. $11 \text{M}\Omega$	
	40.00V		Approx. $10 \text{M}\Omega$	
	400.0V			
	1000V			
AC Voltage ACV	4.000V	$\pm (1.6\% \text{rdg} + 9 \text{dgt})$	Approx. $11 \text{M}\Omega$	Accuracy in the case of sin wave AC: 40Hz~500Hz
	40.00V	$\pm (1.6\% \text{rdg} + 5 \text{dgt})$	Approx. $10 \text{M}\Omega$	
	400.0V			
	750V			
Resistance Ω	400.0 Ω	$\pm (1.5\% \text{rdg} + 10 \text{dgt})$	<ul style="list-style-type: none">• Open voltage: Approx. DC 0.4V• The measuring current changes according to the resistance of the resistor to measure.• Refer to the value of fuse resistance, 5-3.	
	4.000k Ω	$\pm (1.5\% \text{rdg} + 5 \text{dgt})$		
	40.00k Ω			
	4.000M Ω	$\pm (2.0\% \text{rdg} + 5 \text{dgt})$		
	40.00M Ω	$\pm (5.0\% \text{rdg} + 5 \text{dgt})$		
Test Diode 		• Open voltage : Approx. DC 1.5V		
Checking Continuity 		<ul style="list-style-type: none">• Buzzer sounds at less than 10~200Ω• Open voltage : Approx. DC 0.4V (At 10-200Ω, beep position changes.)		

rdg : reading

dgt : digits (LSD)

※ Do not use the tester near places where strong electromagnetic waves and trance are generated or strong electrical voltages are generated.

Specifications and external appearance of the product described above may be revised for modification without prior notice.