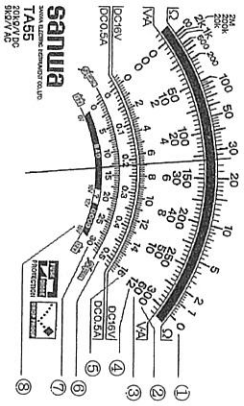


TAS5

MULTITESTER

SANWA ELECTRIC INSTRUMENT CO., LTD.  
Danga Bldg., 4-4 Setokubo 2-Chome, Chiyoda-Ku, Tokyo, Japan



[4] Scale Reading

Scales of ②-④ and measurement ranges on the panel are indicated by the same color for easier reading.

①	Range	Multiplicd	②	Range	Multiplicd
Ω	X 1K	X 1K(1000)	DCA3	X 0.01	X 0.01
Ω	X 100	X 100	DCA30	X 0.1	X 0.1
Ω	X 10	X 10	DCV60	X 1	X 1
Ω	X 1	X 1	ACV120	X 10	X 10
DCV30	X 0.1	X 0.1	DCV16	X 1	X 1
DCV3	X 0.01	X 0.01	DCmA5	X 1	X 1
DCV0.3	X 0.001	X 0.001	Probe (30A)	X 1	X 1
ACV1200	X 1	X 1	Probe (300A)	X 10	X 10
ACV3	X 0.1	X 0.1	Good or Bad		

Example of scale reading

Function	Range	Scale	Scale reading	Readout number
Ω	X 100	①	26 X 100	2600 Ω = 2.6kΩ
DCV	30V	②	130 X 0.1	13V
ACV	120V	③	5.2 X 10	52V
DCA	0.5A	④	0.215 X 1	0.215A

[1] Safety Precautions — Before use, read the following safety precautions —  
This instruction manual explains how to use your analog multimeter TAS5 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" and "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 burns and electric shock.
- The caution messages are intended to prevent damage to the instrument.

⎓	DC voltage	~	AC voltage
⊥	Ground	Ω	Resistance
∞	Continuity	+	Plus
⊖	Minus	⊖	Fuse

1-2 Warning Instruction for Safe Use

⚠ Warning

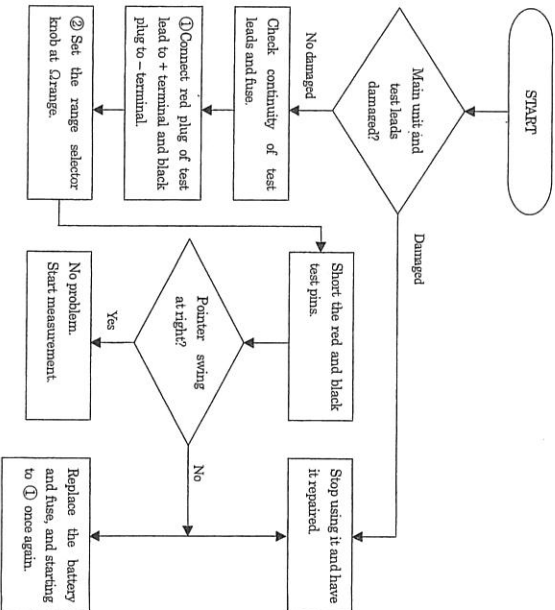
- Be sure to observe the instruction when using the meter.
- Never use meter on the electric circuit that exceed 3kV/A (100V x 30A or 200V x 15A).
- Pay special attention when measuring the voltage of AC30Vrms (42.4V peak) or DC60V.
- Never apply input signals exceeding the maximum rating input voltage value.
- 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.
- Never use meter if the meter or test leads are damaged or broken.
- Never use uncoated meter.
- 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.
- Always use the test leads specified in the manual (TL-91) and keep your fingers behind the finger guards on the probe when making measurements.
- Do not switch the measuring function range and function before measurement.
- Be sure to select the appropriate measurement range and function before measurement.
- Never use meter with wet hands or in a damp environment.
- Never open meter case except when replacing batteries or fuse. Do not attempt any

[5] Measuring Procedure

5-1 Start-up Inspection

⚠ Warning

- Never use meter if the meter or test leads are damaged or broken.
- Make sure that test leads are not broken or cut.



attention of original specifications.  
13. To ensure safety and maintain accuracy, calibrate and check the meter at least once a year.

\* Safety cap  
There is a safety cap for a large current measuring terminal (30A terminal) for safe use and avoidance of wrong insertion. Voltage measurement at 30A terminal could pose a danger to operating personnel or damage meter. Therefore, be sure to insert the safety cap to + input terminal when using the 30A terminal. And also be sure to insert the safety cap to the 30A input terminal after large current measurements.

1-3 Maximum Allowance Input Value

Function (Range)	Input terminal	Max. rating input value	Max. overload protection input value
ACV120 ~ 300		DCV500V	DCV500V
DCV3 ~ 60		AS500V or Peak Max 700V	AS500V or Peak Max 700V
ACV30 dB		* DC200V	* DC200V
DCV0.3		AC200V or Peak Max 250V	AC200V or Peak Max 250V
DCA0.5/3	+	DC200V	DC200V
Ω	⚠ Do not input Voltage and current	AC200V or Peak Max 250V	AC200V or Peak Max 250V
		Fuse protection	Fuse protection
DCA30	30A, -	Maximum scale value	* Peak Max 30A, No fuse protection
		AC Voltage: RMS value of sine curve	* within 5 seconds

[2] Application and Features

2-1 Application

This device is a portable analog multimeter designed for measurement of low-capacity circuit. It is intended for measurement of compact communication equipments, home electric appliances, light wiring, voltage, and various batteries.

2-2 Features

- Drop shock proof meter.
- Teat-stand structure is adopted in the meter part.
- A stand is equipped.
- Continuity check buzzer function.

5-2 How to Set up Range (Selection of appropriate range)

① Voltage (V) and Current (A)

When determining a measuring range, select a higher voltage than the value to be measured and closer range as well. However, select the maximum range and measure if extent of value to be measured is uncertain.

Example: Select 3V range when measuring 2V. Select 30V range when measuring 20V.

② Resistance (Ω)

Select the range that the pointer indicates approximately in the center.  
Example: Select X100 range instead of 1kΩ range when measuring 1kΩ.

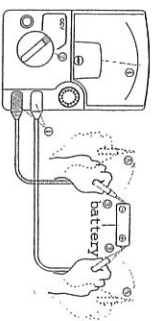
5-3 Voltage V Measurement

⚠ Warning

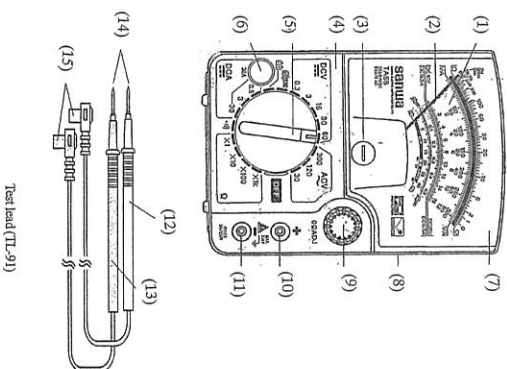
- Never apply input signals exceeding the maximum rating input value.
- Never attempt to change the range selector knob position during measurement.
- Be sure to select the maximum range if extent of value to be measured is uncertain.
- Always keep your fingers behind the finger guards on the probe during measurement.

5-3-1 DCV ≡ Measurement Maximum measured voltage: DC60V

- Insert the red plug of the test lead into + input terminal and the black plug into the - input terminal.
- Set the range selector knob to an appropriate DCV range.
- Connect the black test pin to the negative potential side of the circuit and red test pin to the positive potential side.
- Read the move of the pointer by V A scale.
- After measurement, remove the black and red test pins from the circuit measured.



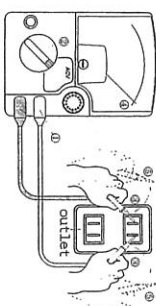
[3] Name of Component Units



- Scale
- Pointer
- Zero position adjuster
- Panel
- Range selector
- 30A (+) input terminal with safety cap
- Meter cover
- Rear case
- 0 ohm adjuster
- + input terminal
- input terminal
- Test lead (Red)
- Test lead (Black)
- Test pin
- Plug

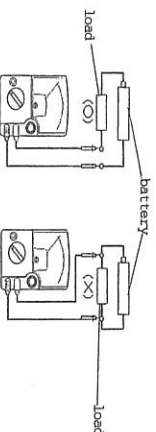
5-3-2 ACV ~ Measurement Maximum measured voltage: AC300V

- Insert the red plug of the test lead into + input terminal and the black plug into the - input terminal.
- Set the range selector knob to an appropriate ACV range.
- Connect the both black and red test pin to the circuit to be measured.
- Read the move of the pointer by V A scale.
- After measurement, remove the black and red test pins from the circuit measured.
- Error of measurement is observed when measuring current except for sine wave alternating current.
- Error of measurement increase at high frequency.



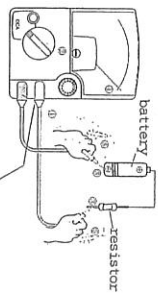
5-4 DCA ≡ Measurement Maximum measured current: 30A

- Never apply voltage to the input terminals.
- Be sure to connect in series through load.
- Never apply input signals exceeding the maximum rating input value to the input terminals.



- Insert the red plug of the test lead into + input terminal and the black plug into the - input terminal. In case of 30A measurement, insert the red plug into the 30A input terminal.

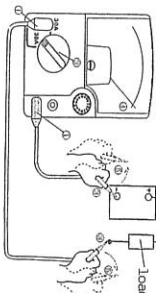
- Set the range selector knob to an appropriate DCA range.
- Cut out a measuring circuit and connect it in series with load.
- Read the move of the pointer by V.A scale (0.5A: dedicated scale available)
- After measurement, remove the black and red test pins from the circuit measured.
- Low resistance circuit is greatly affected by internal resistance of current range.



Measurement at 0.5A and 3A range: Be sure to use + input terminal

### ⚠ Warning

30A terminal does not have any circuit protection like fuse. Never apply voltage to avoid short circuit, human injuries, and electric shock. Be sure to check the range selector knob position before measurement. Do not measure current over 3 seconds at 30A terminal. Be sure to wait for a next measurement for 2 minutes at least after a last measurement.



Measurement at 30A range

- Be sure to use the rated fuse. Never short and use substitute.
- Do not touch the fuse, internal parts, and wire except battery when removing the battery lid.

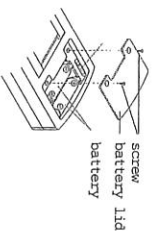
How to replace the battery

- Remove the battery lid screw with a screwdriver.
- Remove the battery lid.
- Take out the battery and replace it with a new one.
- Attach the battery lid and fix it with the screw.

How to replace the fuse

[Rated fuse: 3A/250V (φ6.4 X 30mm Breaking capacity 300A fast-blow fuse)]

- Remove the battery lid screw with a screwdriver.
- Remove the battery lid. Pull out the fuse from holder on the circuit board and replace it with a new one.
- Attach the battery lid and fix it with the screw.
- Check and see whether or not each range work properly.



### 6-3 Storage

#### ⚠ Warning

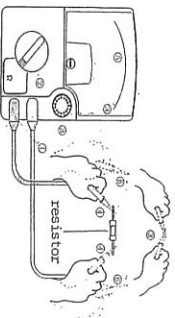
- The panel and rear case are not resistant to volatile solvents or heat. Do not attempt to clean them with lacquer thinner or alcohol, or place the instrument near a source of heat. To clean the instrument, wipe lightly with a soft, dry cloth.
- Do not store the instrument in a place subject to vibration, or where the instrument may drop.
- Do not store the instrument under direct sunlight, under extremely high or low temperatures, or in a place where toxic gas is generated.
- When the instrument is not used, be sure to set the function switch to OFF.
- When the instrument is not to be used for a long period of time, be sure to remove the built-in batteries before storing it.

### 5-5 Resistance Ω Measurement

Maximum measured resistance 2MΩ

#### ⚠ Warning

- Never apply voltage to the input terminals.
- Be sure to turn off the circuit to be measured before resistance measurement.



Measurable resistance range: below 70 Ω

- Insert the red plug of the test lead into + input terminal and the black plug into the - input terminal.
- Set the range selector knob to an appropriate Ω range.
- Short the red and black test pins and turn the 0Ω adjuster to align the pointer with 0 on Ω scale.
- Connect the both black and red test pin to the resistance to be measured.
- Read the move of the pointer by Ω scale.
- After measurement, remove the black and red test pins from the resistor measured.
- Be sure to use the same rated fuse to prevent degradation of measurement accuracy and failure of 0Ω adjustment.
- Replace batteries if 0Ω adjustment at X1 range is failed. It deems battery exhaustion.
- Approx. 150mA flow when conducting 0Ω adjustment at X1 range. Avoid shorting test pins long time to save battery and to prevent change in 0Ω position.

### 5-6 Checking Continuity

#### ⚠ Caution

- Never apply voltage to the input terminals.
- Be sure to turn off the circuit to be measured before continuity check.

### [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:

- A failure due to improper handling or use that deviates from the instruction manual.
- A failure due to inadequate repair or modification by people other than Sanwa service personnel.
- A failure due to causes not attributable to this product such as fire, flood and other natural disaster.
- Non-operation due to a discharged battery.
- 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:

- Customer name, address, and contact information
- Description of problem
- Description of product configuration
- Model Number
- Product Serial Number
- Proof of Date of Purchase
- Where you purchased the product

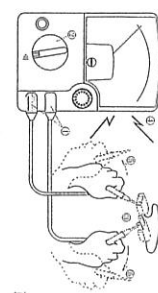
Please contact Sanwa authorized agent / distributor / service provider, listed in our website, in your country with above information. An instrument sent to Sanwa / agent / distributor without these information will be returned to the customer.

#### Note:

- Prior to requesting repair, please check the following:  
Capacity of the built-in battery, polarity of installation and discontinuity of the test leads.
- Repair during the warranty period:  
The failed meter will be repaired in accordance with the conditions stipulated in 7-1 Warranty

- Insert the red plug of the test lead into + input terminal and the black plug into the - input terminal.

- Set the range selector knob to  $\infty$ .
- Connect the black and red test pin to the circuit to be measured or conducting wire.
- Check that the buzzer sounds to indicate continuity.
- After measurement, remove the black and red test pins from the circuit measured or conducting wire.

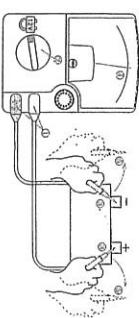


Measurable resistance range: below 70 Ω

### 5-7 Battery (2V) Check

#### ⚠ Warning

- Never apply input signals exceeding the maximum rating input value.
- Never attempt to change the range during measurement.
- Always keep your fingers behind the finger guards on the probe during measurement.



- Insert the red plug of the test lead into + input terminal and the black plug into the - input terminal.
- Set the range selector knob to  $\infty$  range.
- Connect the black test pin to the negative potential side of the battery and red test pin to the positive potential side.
- Read the move of the pointer by  $\infty$ .
- After measurement, remove the black and red test pins from the battery.

### 5-8 Optional Clamp Sensor (CL33DC)

Maximum measured current DC300A

Please refer to CL33DC's instruction manual.

- Insert the test plug of the probe into + input terminal and the black plug into the - input terminal.
- Set the range selector knob of FT A55 to  $\infty$  range.
- Set the range of CL33DC (30A or 300A).
- Adjust the pointer to 0A by 0Ω adjuster switch of CL33DC.
- Clamp a cord to be measured.
- Read the move of the pointer by  $\infty$ .

### 5-9 End of Measurement

Turn off the meter to prevent voltage applied to resistance and current ranges.

### [6] Maintenance & Management

#### ⚠ Warning

- This section contains important information for safety.
- This instrument must be calibrated and inspected at least once a year to maintain the safety and accuracy.

#### 6-1 Maintenance & Inspections

1) Appearance  
Check that the external finish of the instrument is not damaged due to dropping, etc.

- Check the test leads and fuse to ensure that
  - a plug is not loose when it is inserted into a terminal.
  - the test lead coating is not damaged.
  - the conductor wires are not exposed from any part of the test leads.

#### 6-2 How to Replace Battery and Fuse

#### ⚠ Warning

- If the rear case or the battery lid is removed with input applied to the input terminal, you may get electrical shock. Before starting the work, always make sure that no inputs is applied.

### 8-3 Measurement Range and Accuracy

Accuracy assurance range: 23 °C ± 2 °C, 75%RH (without condensation)

Attable: Horizontal (φ ± 5°)

ACV range	See wave AC (50/60Hz or 60Hz)	Accuracy	Remarks
Function	Range (full scale value)	Accuracy	Remarks
DCV $\infty$	0.3/1.6/30/60V	± 3% against full scale	Input impedance 20kΩ/V
ACV $\sim$	30/120/300V	± 4% against full scale	Input impedance 9kΩ/V
DCA $\infty$	0.5/3/30A	± 5% against full scale	Frequency 40Hz~5kHz
			Voltage drop 0.3V (Not including the resistance of the fuse)
Resistance $\Omega$	2k/20k/200k/2MΩ	± 3% of arc	Center value 20Ω
	(X1 / X10 / X100 / X1k)		Max value 2kΩ
			Open voltage 3V
Battery check	BAD / ? / GOOD		Buzzer sounds at below 70Ω
			Full-scale value 16V

The specifications in this manual may be subject to change for performance improvement without notice.