Safety Information - Before use, read manual -

This product has been designed and manufactured in accordance with the safety standards applicable to IEC 61010-2-32 Electronic Measuring Equipment and has passed the inspection. The instructions given under the heading of "WARNING" and "CAUTION" must be followed to prevent accidents.

⚠ **WARNING :** Intended to prevent personal injury such as burn and electric shock and other serious accidents.

⚠ **CAUTION :** Intended to prevent misuse that could result in personal injury and damage to equipment including this instrument.

⚠ WARNING

1. This is a clamp meter for low-voltage circuits. Never use it on the power line that exceeds 600VAC to ground. The measurement classification category of this instrument is 300 V CAT. Ⅲ, 600V CAT. Ⅱ.
2. Use the meter only as described in this manual.
3. Do not apply more than the rated maximum input (400VAC).
4. Pay special attention to voltages above 33VAC (46.7Vpeak) and 70VDC that are hazardous to the human body.
5. Do not use the meter if it is damaged or broken.
6. Do not use the meter with the rear case removed.
7. During measurement, keep your fingers behind the barrier (finger guard).
8. When measuring un-insulated conductors, be careful not to touch them. Otherwise you will suffer electric shock.
9. Do not use the meter near flammable gases or solvents.
10. Do not use the meter with wet hands or in a damp environment.
11. Do not disassemble or modify the meter nor use components not specified by the manufacturer.
12. Inspect the meter at least once a year.
13. The meter is for indoor use.

Specification

General Specification

Digital Display:
3 1/2 digits LCD display with maximum reading 1999

Over Load:
When the indication is larger than the 1999 counts, the LCD will show 1000 with blinking 1.

Sample Rate: 2 times/sec

Low Power Indication:
When the battery is under the proper operation range, symbol will appear on the LCD display.

Power Source:
R03(UM-4) or AAA 1.5V battery x 2.

Power Consumption: 1.8mW

Battery Life: 500 hr approx.

Clamp opening size: 25mm

Operating temperature: 0˚C ~ 40˚C,<80% RH, No condensation

Storage temperature: -10˚C ~ 60˚C,<70% RH, No condensation

Approvals: IEC61010-2-32 300V CAT.Ⅲ 600V CAT.Ⅱ

Environmental conditions:
Altitude up to 2000 meters, indoor use, pollution degree 2

Withstand voltage:
AC3.7kV (50/60Hz) for a minute.

Dimension (L x W x H) :
187 x 50 x 29mm

Weight: 210g (include battery)

Accessory:
Instruction Manual, Carrying Case (C-DCM60L), Test Lead (TL-88)

sanwa

DCM60L
DIGITAL CLAMP METER

sanwa
SANWA ELECTRIC
INSTRUMENT CO.,LTD.
Dempa Bldg,Sotokanda2-Chome
Chiyoda-Ku,Tokyo,Japan

INSTRUCTION MANUAL

CE

Electrical Specification

The accuracy specification is defined as ±(…%reading+…count)
At 23±5˚C, ≦80%RH

ACV (Autorange)

Range	Resolution	Accuracy 50Hz～500Hz	Overload Protection
200V	0.1V	±1.5%rdg.+5dgt.	660Vrms
600V	1V		

ACA (Autorange)

Range	Resolution	Accuracy 50Hz～60Hz	Accuracy 60Hz～500Hz	Overload Protection
200A	0.1A	±2%rdg.+5dgt.	±2.9%rdg.+5dgt.	600Arms
600A	1A			

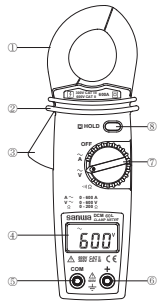
Ohm (Ω)

Range	Resolution	Accuracy	MAX Test Voltage	Overload Protection
200Ω	0.1Ω	±1.9%rdg.+3dgt.	1.6VDC	500Vrms

Continuity (•)))

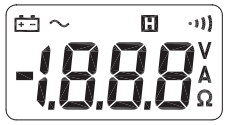
Range	Active Region	MAX Test Voltage	Overload Protection
•))	<Approx.100Ω	1.6VDC	500Vrms

Instrument Familiarization



① Current Sensing Clamp
② Barrier
③ Clamp opening handle
④ LCD display
⑤ COM input terminal
⑥ Positive input terminal
⑦ Main fuction selector
⑧ Data hold button

Symbol Definition



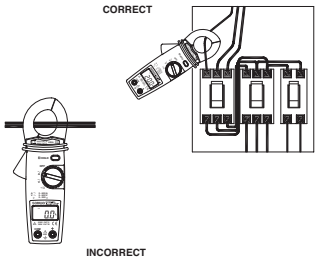
Low battery indication
H Hold Data indication
•)) Continuity function indication
V Voltage measurement indication
A Current measurement indication
~ Alternative source indication
Ω Resistance

Measuring Instruction

AC Current Measurement

Switch the main function selector to Ã range.
Open the clamp by pressing the jaw-opening handle and insert the cable to be measured into the jaw.
Close the clamp and get the reading from the LCD display.

Note:
Before this measurement, disconnect the test lead with the meter for safety.
In some occasion that the reading is hard to read, push the HOLD button and read the result later.

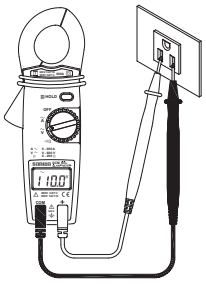


ACV Measurement

⚠ WARNING

Maximum Input Voltage is 600V AC. Do not attempt to take any voltage measurement that may exceed to avoid Electrical shock hazard and/or damage to this instrument.

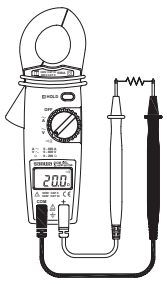
Switch the main function selector to V̄ range.
Connect red test lead to "+" terminal and black one to the " COM " terminal.
Measure the voltage by touch the test lead tips to the test circuit where the value of voltage is needed.
Read the result from the LCD display.



Resistance Measurement

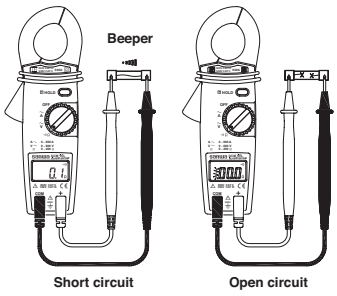
Switch the main function to •)) Ω range.
Connect red test lead to "+" terminal and black one to the " COM " terminal.
Connect tip of the test leads to the points where the value of the resistance is needed.
Read the result from the LCD display.

Note:
When take resistance value from a circuit system, make sure the power is cut off and all capacitors need to be discharged.



Continuity Test

Switch the main function to •)) Ω range.
Connect red test lead to "+" terminal and black one to the " COM " terminal.
Connect tip of the test leads to the points where the conduction condition needed.
If the resistance is under 100Ω, the beeper will sound continuously.



Maintenance

⚠ WARNING

1. The following instructions are very important for safety. Read this manual thoroughly to ensure correct maintenance.
2. Calibrate and inspect the meter at least once a year to ensure safety and maintain its accuracy.

1. Maintenance and Inspection
Appearance: Is the meter not damaged due to falling or other cause?
If any of the above problems exists, stop using the meter and request for repair.

2. Inspection
Inspect the meter at least once a year.

3. Storage

⚠ CAUTION

1. The panel and case are not resistant to volatile solvent and must not be cleaned with thinner or alcohol.
2. The panel and case are not resistant to heat. Do not place the meter near heat-generating devices.
3. Do not store the meter in a place where it may be subjected to vibration or from where it may fall.
4. Do not store the meter in places under direct sunlight, or hot, cold or humid places or places where condensation is anticipated.
5. If the meter will not be used for a long time, remove the battery.

4. Battery when the meter is shipped:
A battery for monitoring has been installed prior to shipment from the factory. It may be discharged before the expiration of the described battery life.
*The battery for monitoring is a battery used to check the functions and performance of the product.

Battery Changing

⚠ WARNING

To prevent electrical hazard or shock, turn off clamp meter and disconnect test leads before removing rear case.
Never uses the meter before the rear case is closed.

1. When the battery voltage drop below proper operation range the symbol will appear on the LCD display and the battery need to changed.
2. Before changing the battery, switch the function selector to "OFF "and disconnect test leads.Open the rear case by a screwdriver. Replace the old batteries with two R03 or AAA size batteries.
3. Close the rear case and fasten the screw.

After - Sale Service

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 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.

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 above 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 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.

3. SANWA web site
http://www.sanwa-meter.co.jp
E-mail: exp_sales@sanwa-meter.co.jp