



CD800a2 CD800a3

DIGITAL MULTIMETER

INSTRUCTION MANUAL

SANWA ELECTRIC INSTRUMENT CO., LTD.
Dempa Bldg., 4-4 Sotokanda 2-Chome
Chiyoda-ku, Tokyo, Japan



[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.

4-1 FUNCTION Switch

Turn this switch, to turn on and off the power and to select the functions of V , Ω , Hz , mA , EF (EF is available only with the CD800a3).

4-2 SELECT Button: Measurement Function Selection

When the SELECT button is pressed (\rightarrow), the functions change as follows.

• In the case of V , mA , the modes change : $\text{---} \rightarrow \text{---} \rightarrow \text{---}$

• In the case of Ω , Hz , mA , the modes change : $\Omega \rightarrow \text{Hz} \rightarrow \text{mA}$

• In the case of Hz , the modes change : $\text{Hz} \rightarrow \% \rightarrow \text{Hz}$

4-3 RANGE (Range Hold) Button

Press the RANGE button to switch to manual range mode, fixing the range (AUTO will disappear). Range light up on the display. A manual mode switch press of the button changes the range. Select the appropriate range while checking the unit and decimal point position on the display. To return to auto range mode, press and hold the button for at least 1 second (AUTO will light up on the display). Note: The RANGE button is disabled during Hz , $\%$, mA , EF , and MAX/MIN functions.

4-4 Ⓜ (Relative) Button: Relative Value Display

When the Ⓜ button is pressed, Δ is displayed, and the value at that point is set as Y . From then on, the value $X-Y$ will be displayed based on the actual input value X . To exit this mode, press the Ⓜ button again. Note: The Ⓜ button is disabled during Hz , $\%$, mA , EF , and MAX/MIN functions.

4-5 HOLD (Data Hold) Button

Pressing the HOLD button freezes the current displayed value ('DH' will appear on the display). While active, the display remains unchanged even if the input fluctuates. Press the button again to deactivate the hold function and return to measurement mode ('DH' will disappear from the display).

Note: The HOLD button is disabled during EF functions.

4-6 Backlight (CD800a3 only)

When the SELECT button is held pressed for 2 seconds or longer, the backlight will be turned on. To turn it off, hold this button pressed for 2 seconds or longer again.

4-7 MAX/MIN Button

When the MAX/MIN button is pressed, 'MAX' appears on the display, and the maximum measurement value recorded after pressing the button will be shown.

Note: The MAX/MIN button is enabled only during V and mA measurements.

Each time the button is pressed, the display will switch in the following order: MAX (maximum measurement value) \rightarrow MIN (minimum measurement value) \rightarrow MAX-MIN. To cancel this function and reset the measurement value, press and hold the MAX/MIN button or press the SELECT or RANGE button.

4-8 Auto Power Off

When no switch or button is operated for approximately 30 minutes after the power is turned on, the power will automatically turn off, and all displays will disappear.

— 4 —

5-1 Applications

Checking the continuity of wiring and selecting wires.

5-2 How to use

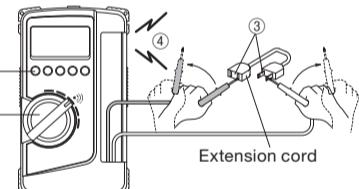
① Set the FUNCTION switch to Ω , Hz , mA , or EF .

② Select \rightarrow by pressing the SELECT button.

③ Apply the red and black test pins to a circuit or conductor to be measured.

④ The continuity can be judged by whether the buzzer sounds or not.

• Threshold: 39 to 60 Ω or less



5-3 Capacitance (C) Measurement

⚠️ WARNING

Never apply external voltage to the measurement terminals.

⚠️ CAUTION

1. Discharge the capacitor before measurement.

2. This device uses a method that applies current to the capacitor being measured, making it unsuitable for measuring electrolytic capacitors with high leakage current due to significant errors.

3. The measurement time increases for capacitors with larger capacitance.

Measurement function	Max. rated input	Measurement range
C	6.000 mF	6 ranges: 60.00 nF to 6.000 mF

5-4 Measurement procedure

① Set the FUNCTION switch to C , Hz , mA , or EF .

② Use the SELECT button to choose C .

③ Press the Ⓜ button to zero the display to 0.000 nF.

④ Apply the red and black test pins to the capacitor to be measured.

• The display reading may fluctuate due to ambient noise or the stray capacitance of the test leads.

1. Failure due to improper handling or use that deviates from the instruction manual.

2. Failure due to inadequate repair or modification by people other than Sanwa service personnel.

3. Failure due to causes not attributable to this product such as fire, flood and other natural disasters.

4. Non-rechargeable to a discharged battery.

5. Failure or damage due to transportation, relocation or dropping after the purchase.

6-1 Storage

⚠️ CAUTION

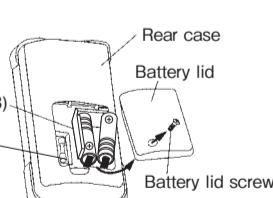
1. The panel and the case are not resistant to volatile solvent and must not be cleaned with thinner or alcohol. For cleaning, use dry, soft cloth and wipe it lightly.

2. The panel and the case are not resistant to heat. Do not place the instrument near heating devices (such as a soldering iron).

3. Do not store the instrument in a place where it may be subjected to vibration or shock.

4. For storing the instrument, avoid hot, cold or humid places or places under direct sunlight or where condensation is anticipated.

5. When the instrument will not be used for an extended period, be sure to remove the batteries.



7-1 AFTER-SALE SERVICE

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 will 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 disasters.

4. Non-rechargeable to a discharged battery.

5. 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

— 12 —

[1] SAFETY PRECAUTIONS Before use, read the following safety precautions. This instruction manual explains how to use your new digital multimeter CD800a2/CD800a3 safely. Before use, please read this manual thoroughly. After reading it, keep it together with the product for reference to it when necessary. Using this product in ways not specified in this manual may damage its protection function.

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.

⎓ : Ground	⎓ : Diode	⎓ : Fuse
● : Buzzer	⎓ : Capacitance	Ω : Resistance
⎓ : Direct current (DC)	Hz : Frequency	⎓ : Alternating current (AC)
% : Duty cycle	⎓ : Double insulation (Protection Class II)	⎓ : EF antenna
⎓ : Backlight	⎓ : EF antenna	⎓ : Plus input
⎓ : Plus input	⎓ : Minus input	⎓ : Minus input

1-2 Warning Instruction for Safe Use

⚠️ WARNING

To prevent injuries such as burns or electric shocks, ensure strict compliance with the following instructions when using this instrument:

1. Do not input signals exceeding the maximum rated input value (see 1-3).
2. Do not use the instrument to measure lines connected to equipment (e.g., motors) that may generate induced or surge voltages, as these may exceed the maximum allowable input.
3. Do not use the instrument if the main unit or test leads are damaged or broken.
4. Do not use the instrument with the case or battery cover removed.
5. Always use fuses of the specified rating and type. Never substitute fuses or short-circuit the fuse terminals with wire.
6. When measuring, keep your fingers behind the finger guards on the test probes.
7. When connecting test leads, connect the ground lead (black) first. When disconnecting, remove the ground lead last.
8. Do not switch functions or ranges during measurement.

— 1 —

9. Always confirm the correct function and range settings before starting a measurement.

10. Do not use the instrument with wet hands or in damp conditions.

11. Use only the specified type of test lead.

12. Do not perform repairs or modifications, except for replacing the battery or fuse.

13. Do not use the instrument near devices that emit strong electromagnetic waves or are electrically charged.

14. Inspect the instrument at least once a year.

15. Use the instrument indoors only.

1-3 Overload Protections

Function	Input terminals	Maximum rating input value	Maximum overload protection input
V	⎓ (Red)	DC·AC 600.0 V	
Ω / Hz / mA	⎓ (Black)	⎓ Voltage and Current input prohibited DC·AC 600.0 V or Peak Max 840 V	
Hz / %		DC·AC 600.0 V	
mA		DC·AC 600.0 mA	0.6 A / 600 V Fuse

※ AC voltage is regulated by rms, value of sinusoidal wave.

⚠️ CAUTION

1. Correct measurement may not be performed when using the instrument in the ferromagnetic / intense electric field such as places near a transformer, a high-current circuit, and a radio.
2. The instrument may malfunction or correct measurement may not be performed when measuring special waveform such as that of the inverter circuit.

2-1 APPLICATION AND FEATURES

2-1 Applications

This instrument is a true RMS digital multimeter designed for measurements within the CAT. IV 600 V range.

2-2 Features

- Complies with IEC61010-1 CAT. IV 600 V.
- Includes a durable body cover that protects the main unit and doubles as a stand.
- Features a MAX/MIN measurement function.
- Display with backlight (CD800a3 only).

— 2 —

5-2 Voltage (V) Measurement

Measurement function	Max. rated input	Measurement range

<tbl_r cells="3" ix="2" maxcspan="1" maxrspan="1" usedcols="