AC/DC DIGITAL CLAMP METER DCM 2000AD

INSTRUCTION MANUAL

digital clampmeter for low voltage circuits. This manual describes the clamp meter DCM2000AD, an AC/DC

to ensure safe use. Prior to using your new meter, please read this manual thoroughly

Please keep this manual together with the meter.

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[1] SPECIFICATIONS

Measuring current: AC/DC clamp CT. / Max. conductor diameter to clamp: ø55mm Measuring method : Integral method.

Display: 3.5 digits, max. display [3999], with a unit sign. Measuring ranges: ~A (50/60Hz), A ----

~V (50/60Hz), V ---- 400mV~600V (auto/ 400Ω ~40MΩ (auto/ manual) : •1)---- (0~40Ω) -- 100Hz~1000KHz (auto) : •► 40A/ 400A/ 2000A (manual) manual)

: Hz ---- 100Hz~1000kHz (auto)

Date hold:"DH" mark lights and the display held. Overload: Most significant digit "4" flicker (except for 600V and 2000A ranges)

Auto power off: The power is turned off in about 10 minutes after the power switch was turned on. Zero adjustment: Quick zero adjustment using the Zero adjuster. ("A" function only) Sample Rate : Twice / sec Low battery indication: " 🖾 " mark lights when battery is below approx 1.3V Polarity: "--" is indicated only when the input polarity ofA,V is reversed.

Working circuit voltage: 600 VAC max.

Environmental conditions:

Definition of OVERVOLTAGE CATEGORY: Altitude up to 2000m

IEC 1010-2 OVERVOLTAGE CATEGORY III AC, DC600V max. Pollution degree 2

✓ OVERVOLTAGE CATEGORY III: Distribution level, fixed installation, with smaller transient overvoltages than OVERVOLTAGE CATEGORY IV.

Withstand voltage: 5550V AC / 60sec (Iron core ~ Rear case)

Operating temperature and humidity: 5~31°C, 80%RH max.

31<~40°C, 80~50%RH (decreasing linearly)

Storage temperature and humidity : -10~60°C, 70%RH max.

Dimensions • Weight: 240(H) x 84 (W) x 34(D)mm . Approx. 390g Power consumption : Approx. 14 mW. (continuously 100 hours) Power supply: RO3 (1.5V) x 2

Accessories : Carrying case⊶1, Instruction manual⊶1, Test leads (type TL21)⊶1.

 $2/\mathbb{N}$ CAUTION: If the instructions are not followed, the meter may be damaged.



The symbol \(\frac{1}{\text{\tinx}\text{\tinx}\text{\tinx}\text{\text{\text{\text{\text{\text{\tinx}\text{\ti}\text{\tint}\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\te follow the instructions when handling the areas marked by this symbol.

[4] **BATTERY REPLACEMENT**

[3] COMPONENT DEVICES OF THE METER

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Clamp type CT: Clamp type current detect sensor.

Open lever: When this is pushed inward, the clamp opens.

WARNING (Hazard of efectrical shock)

① Do not attempt to replace the batteries while the meter is clamping a wire or measuring

② Do not use the meter with the battery case removed.



① If the batteries are consumed and drop below the operating voltage, the symbol "E2" lights in the display. Immediately replace the batteries with new ones. ② Do not use the different type of batteries together.③ If the meter is not used for a long time, remove the If the meter is not used for a long time, remove the batteries, If they are left in the meter, the

liquid may leak to damage the meter.

- How to replace

 (i) Using a screwdriver, remove the screw fixing the battery case located at the bottom on the back to the arrowed direction. of the meter and slide to remove the battery case
- Take out the two consumed batteries .
 Set new batteries with their polarities facing the
- ⊕ correct directions. (type of battery: RO 3) Attach the battery case and fix it with the screw.

[5] MEASUREMENT PROCEDURE

(Note) If input is exceeding the range, only the most significant digit " 4 " is flickering

5-1 Testing Diode ->+

voltage or resistance range. In the manual range, each time this switch is pressed, the ranges are changed. To return the manual range to the auto range, keep pressing this Range switch: Press this switch to change the range from auto to manual when using the

Rotary switch: A switch to change among the voltage, current, resistance or frequency.

off the power in about 10 minutes after the power

- ಅ ಬ = Press the power switch ③to on.
 Set the rotary switch ④ to a "-----" position. Plug the test lead pins into the measuring terminals.
- (forward voltage)
- Normal diodes are measured in a range of 0.4V to 0.7V. and the red test pin to the anode. Apply the black test pin to the cathode of the diode
- Ð (revers voltage) and the black test pin to the anode. Apply the red test pin to the cathode of the diode

Normal diodes revers voltage : approx 3.000V (Battery voltage)

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-® Measuring terminals

Display: An LCD to show measurements in digits and battery status.

Battery cover : Remove the cover to set and replace the batteries

Data hold switch: When this switch is pressed on, the measured value is maintainted. Zero adjuster : A switch to adjust the zero when using the π . A function. When this switch

ed, "ZERO-ADJ" is displayed and the display is cleated to zero.

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tch for one second or longer.

measuring voltage and current. This switch is also used for resistance meas Function switch : Use this switch to change between the AC (-) and the DC (=) when

and continuity check (🔶).

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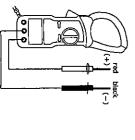
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240

Power switch: When a switch is pressed, the power is turned on and the indicator lamp

lights. When it is pressed again, the power is turned off, The auto power off function turns



Measuring range and Accuracy $\{23^{\circ}C \pm 5^{\circ}C, 80\% \text{RH max, no condensation}\}$

+) (deck -) (deck -) (deck	. 6	~ A (50/60 Hz) A ~ V (50/60 Hz)	Function / Range
3 V 100 Hz 1 kHz 10 kHz 100 kHz 100 kHz	400 Ω 4 k 40 k 400 k 4000 k 4000 M	40 A 400 A 2000 A 400 mV 4 V 40 V 400 V 500 V	lange
<40 \(\Omega \) ± 10%rdg ± 3 dgt ± 0.5%rdg ± 3 dgt	± 1.5%rdg ± 8 dgt ± 3%rdg ± 10 dgt	±2%rdg±8 dgt ±1.5%rdg±8 dgt ±1.2%rdg±8 dgt	Accuracy
" / 600 Vms	250 V/ms (10 sec)	~/ 2200 A (3 ses) ~/ 600 Vrms	Max. overload protection input
	Open voltage 0.4 V	Mean value rectifying type (Effective value calibration)	Remarks

- rdg: reading, dgt: digit ~ A: Place a conductor to measure in the center of the CT.
- When the 40 A range is used (~A, ..., A), the unit digit shows several counts even when the input is 0A, but this is not a problem. (0~ 0.1A: unguarantee)
- AC400mV and 4V ranges accuracy: 0~20mV is unguarantee

Safety

EN61010-2-032:1995	EN50082-1(EN61000-4-2): 1997
nission	EN50082-1(EN61000-4-3): 1997
EN50081-1(EN55022): 1992	EN50082-1(ENV50204): 1997

(1) CAUTION - GENERAL PRECAUTIONS FOR HANDLING

Vibration and shock: it is a cause of failure. Environment: Do not keep the meter

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- (over 60°C) or humid (over 85%) places or places where condensation will occur for long hours in places under direct sunlight or hot
- Battery replacement : Settling the batterys with their polarities (igoplus , igodius) reversed may

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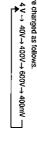
damage the circuit components in the meter.

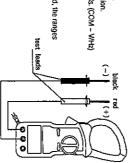
When the meter is not used for measurement, be sure to keep the power switch at OFF.

Measuring ACV (-V)

- 9978833 Press the power switch (3) to an.
 - Set the rotary switch knob (4) to an V position.

 Press the function switch (6) to the " -V" function.
 - Plug the test lead pins into measuring terminats. (COM V/Hz)
- Read the indicated value. Apply the test lead tips to measured target.
- (Note) In the manual range, each time this is pressed, the ranges





5-3 Measuring DCV (.... V)

- 1) ~ 2) The same "Measuring ACV (~V)"
 3) Press the function switch (6) to the
 4) Plug the test lead tips into measuring
 - Press the function switch (6) to the " ... V" function.
- ତ ର Apply the test lead tips to measured target. Plug the test lead tips into measuring terminals. (COM - V/Hz)
- Read the indicated value.

(Note 1) [—] is indicated before measured value when the polarity

- (Note 2) In the manual range, each time this is pressed, the ranges of input is reverse to that of measuring terminals
- are changed as follows. 100mv → 4 V → 40V → 400V → 600V

5-4

Measuring Frequency (Hz)

- Press the power switch (3) to on.
- **& & &** et the rotary switch knob (4) to a "Hz" position.
- Plug the test lead pins into measuring terminals. (COM- V/Hz)
- Using the range switch, set the input sensitivity.

 When the power is turned on, the meter is set in the auto range mode. When the range switch is pressed, it is changed to the manual range mode. Then each time the switch is ressed, the input sensitivity changes in the order of 10mV ightarrow 100mV ightarrow 1 V ightarrow 10mV.
- ව බ Read the indicated value. apply the test lead tips to measured target.

[2] 🖄 WARNINGS, 🖄 PRECAUTIONS

Prior to using the meter, please read this manual to prevent personal injury such as WARNING —— PRECAUTIONS FOR SAFE MEASUREMENT

- electrical shock.

 ① Use the meter Use the meter in a cable run of low voltage (600V or below). Never try to measure
- cable runs exceeding 600V.
- $\Theta \Theta \Theta$ If the body case is damaged or if the battery cover is removed, do not attempt to make Do not handle the meter with wet hands or in humid places Measure only coated cables. Never clamp bare cables.
- ම ම For safety, never try to measure voltages in large capacity cable runs exceeding 250V. It Do not overhaul the meter. measurement. Do not use damaged test leads.
- is a very dangerous practice.
- ⊚ 9 Never apply a voltage to the resistance measurement range or the cliode test range. It is Otherwise, the meter may be damaged. When replacing the batteries, disconnect the test leads from the measuring circuit.
- Indoor use. a cause of failure

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⊳ --- PRECAUTIONS FOR MEASURING CURRENT

- Place a conductor to measure in the center of the CT.
 During measurement, close the ends of the CT (iron core) completely.
 Use the meter in a frequency range from 50Hz to 60Hz.
 An error will occur in display when measuring alternating current other than sine waves.
 Clamp only one conductor for measurent. Clamping 2 or more conductors leads to
- (6) If large current is applied, vibration noise may be heard from the CT. It is not a problem.
- Be sure to disconnect the test lead from the measuring terminals for preventing electric

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WARNING ---

FOR MEASURING CURRENT

If an excessively large current is applied to the meter during current measurement, it will be heated and may be damaged. (2000A range: 1200-2000A/cont invously 30 sec. Do not use the meter for measurement of current above 2000A)



- completely.
- £ 20 20 ± Press the function switch

 to the "- A" position.

Measuring ACA (~A)

- Open the CT, clamp a cable to measure and close the clamp
- Read the indicated value. If a value is hard to read due for
- example to dark illumination, use the "Data hold" function.
- 5-6 Measuring DCA (::: A)
- 1) 2) The same "Measuring ACA (-A/"
 3) Press the function switch (a) to the "
 4) Press the ZERO adjuster (7) once to s
 5) Open the CT, clamp a cable to measu
 6) Read the indicated value, if a value is Press the function switch (6) to the " ... A" position.
- Press the ZERO adjuster (?) once to set it to zero (0)
- Open the CT, clamp a cable to measure and close the clamp completely.
- Read the indicated value. If a value is hard to read due for example to dark illumination, use
- (Note) When the 40A range is used, the display will not become zero (0) even when the input is the data hold function.
- 0 A, but this is not a plobrem. Press the Zero adjuster (1) to set the zero.
- When the zero is set, the over range changes.
- For example, if the zero is 1.00A is displayed in the 40A range, the range is exceeded at current of 39,00A,
- To reset the Zero-ADJ mode, keep pressing the Zero adjuster for one second or longer. If the current direction disaccords with direction mark, the polarity indication of "--"

- Meausuring Ω, check Continuity
 Press the power switch to on.
 Set the rotary switch knob to a "Ω" position.
 Press the function switch to the Ω or ∑ range.
 Apply the test lead tips to measured target.
 Read the indicated value.
 (Note) In the manual range, each time this is pressed, the ranges

- are changed as follows.

