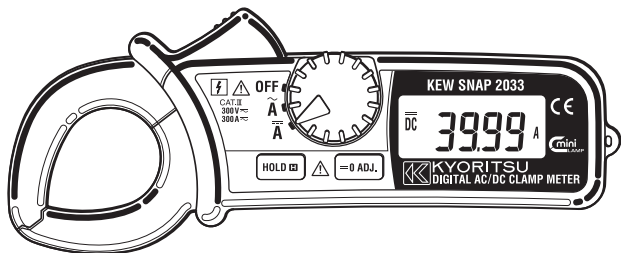


INSTRUCTION MANUAL



DIGITAL AC/DC CLAMP METER

KEW SNAP SERIES

MODEL 2033



**KYORITSU ELECTRICAL
INSTRUMENTS WORKS, LTD.**

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1. Safety Warnings

- This instrument has been designed and tested according to IEC Publication 61010; Safety Requirements for Electronic Measuring Apparatus. This instruction manual contains warnings and safety rules which must be observed by the user to ensure safe operation of the instrument and retain it in safe condition. Therefore, read through these operating instructions before using the instrument.

WARNING

- Read through and understand instructions contained in this manual before using the instrument.
- Save and keep the manual handy to enable quick reference whenever necessary.
- The instrument is to be used only in its intended applications. Understand and follow all the safety instructions contained in the manual.

Failure to follow the instructions may cause injury, instrument damage and/or damage to equipment under test. Kyoritsu is by no means liable for any damage resulting from the instrument in contradiction to this cautionary note.

- The symbol  indicated on the instrument means that the user must refer to related parts in the manual for safe operation of the instrument. Be sure to carefully read the instructions following each symbol in this manual.

-  **DANGER** is reserved for conditions and actions that are likely to cause serious or fatal injury.
-  **WARNING** is reserved for conditions and actions that can cause serious or fatal injury.
-  **CAUTION** is reserved for conditions and actions that can cause injury or instrument damage

○The following symbols are used and marked on the instrument and in the instruction manual. Please carefully check before starting to use the instrument.

- ⚠ User must refer to the explanation in the instruction manual.
- Instrument with double or reinforced insulation.
- ⚡ Indicates that this instrument can clamp on bare conductors when measuring a voltage corresponding to the applicable measurement category, which is marked next to this symbol.
- ~ Indicates AC (Alternating Current).
- ≡ Indicates DC (Direct Current).

⚠ DANGER

- Never make measurement on a circuit above 300V AC or DC.
- Do not attempt to make measurement in the presence of flammable gasses. Otherwise, the use of the instrument may cause sparking, which can lead to an explosion.
- Never attempt to use the instrument if its surface or your hand is wet.
- Do not exceed the maximum allowable input of any measurement range.
- Never open the battery compartment cover when making measurement.
- Transformer jaw tips are designed not to short the circuit under test. If equipment under test has exposed conductive parts, however, extra precaution should be taken to minimize the possibility of shorting.
- Keep your fingers and hands behind the barrier during measurement.

⚠ WARNING

- Never attempt to make any measurement, if the instrument has any structural abnormality such as cracked case and exposed metal part.
- Ensure that the Clamp sensor is disconnected from the object under test, and that the instrument is powered off when opening the battery compartment cover for battery or fuse replacement.
- Do not install substitute parts or make any modification to the instrument. Return the instrument to Kyoritsu or your distributor for repair or re-calibration.
- Do not try to replace the battery if the surface of the instrument is wet.

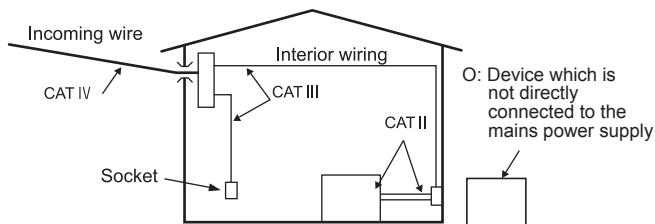
⚠ CAUTION

- Do not expose the instrument to the direct sun, extreme temperatures or dew fall.
- Be sure to set the function selector switch to the "OFF" position after use. When the instrument will not be in use for a long period of time, place it in storage after removing the battery.
- Use a damp cloth and detergent for cleaning the instrument. Do not use abrasives or solvents.
- This instrument isn't dust & water proofed. Keep away from dust and water.

○Measurement categories(Over-voltage categories)

To ensure safe operation of measuring instruments, IEC 61010 establishes safety standards for various electrical environments, categorized as 0 to CAT IV, and called measurement categories. Higher-numbered categories correspond to electrical environments with greater momentary energy. So a measuring instrument designed for CAT III environments can endure greater momentary energy than one designed for CAT II.

- 0 :Circuits which are not directly connected to the mains power supply.
- CAT II :Primary electrical circuits of equipment connected to an AC electrical outlet by a power cord.
- CAT III :Primary electrical circuits of the equipment connected directly to the distribution panel, and feeders from the distribution panel to outlets.
- CAT IV :The circuit from the service drop to the service entrance, and to the power meter and primary overcurrent protection device (distribution panel).



2. Features

- Small Clamp Meter capable of AC/DC current measurement.
- Tear-drop-shaped jaws for ease of use in crowded cable areas and other tight places
- Provides a wide measuring range from 0 up to 300A
- Designed to CAT III 300V and pollution degree 2 specified by the international safety standard, IEC 61010-1.
- Data hold function to allow easy readings in dimly lit or hard-to-read locations
- Sleep function to conserve battery life.
- Provides a dynamic range of 4,000 counts full scale
- Wide frequency range from 20Hz to 1kHz
- Transformer jaws fitted with Guard to further improve safety

3. Specifications

●Measurement Ranges and Accuracy

DC current $\equiv$ (Auto-ranging)

Range	Measuring Range	Accuracy
40A	0~±40.00A	±1.0%rdg±4dgt
300A	±20.0~±200.0A	±1.5%rdg±4dgt
	±200.0~±300.0A	±3.0%rdg

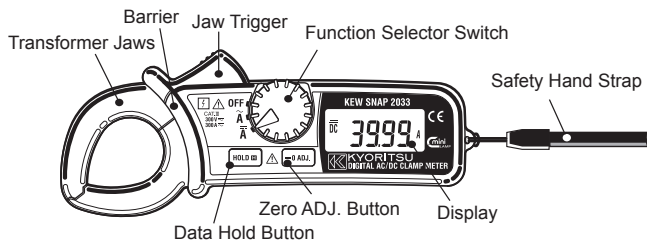
AC current $\sim$ (Auto-ranging)

Range	Measuring Range	Accuracy
40A	0~40.00A	±1.0%rdg±4dgt (50/60Hz)
		±2.5%rdg±4dgt (20Hz~1kHz)
300A	20.0~200.0A	±1.5%rdg±4dgt (50/60Hz)
		±2.5%rdg±4dgt (20Hz~1kHz)
	200.0~300.0A	±3.5%rdg (50/60Hz)
		±4.0%rdg (20Hz~1kHz)

- Operating System : Dual Integration
- Display : Liquid crystal display with a maximum count of 4,000
- Over-range Indication : "OL" is displayed
- Response Time : Approx. 2 sec.
- Sample Rate : Approx. 2.5 counts / sec
- Location for use : Indoor use. Altitude up to 2000m
- Temperature and Humidity for Guaranteed Accuracy : 23°C±5°C, relative humidity up to 85% without condensation
- Operating Temperature : 0~40°C, relative humidity up to 85% without condensation
- Storage Temperature and Humidity : -20~60°C, relative humidity up to 85% without condensation
- Power Source : Two LR44 or SR44 (DC3V) batteries

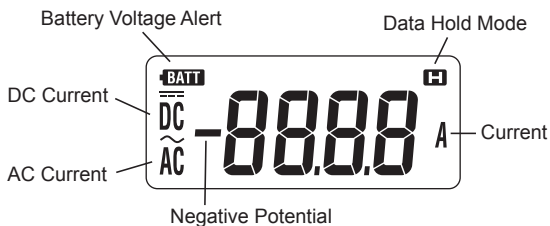
- Current Consumption : Approx. 9mA
- Sleep function : Automatically goes into the sleep mode in about 5 minutes after the last switch operation. (Current consumption: approx. 20 A)
- Conductor Size : Approx. 24mm diameter max.
- Dimentions : 147(L)×59(W)×25(D)mm
- Weight : Approx. 100g (batteries included)
- Safety Standards : IEC 61010-1 Pollution degree CAT III 300V
IEC 61010-2-32
- EMC Standards : IEC 61326 (EMC)
- RoHS : EN 50581
- Overload protection : AC / DC current ranges; 360A AC / DC for 10sec
- Withstand voltage : 3470V AC for 5 seconds between housing case and jaws
- Insuration Resistance : 10M Ω or greater at 1000V between housing case and jaws
- Accessories : Two LR44 batteries
Carrying case MODEL 9090
Instruction manual

4. Instruction Layout



Barrier is a part providing protection against electrical shock and ensuring the minimum required air and creepage distances.

●LCD INDICATOR



5. Preparation for Measurement

5-1 Checking Battery voltage

Set Function Selector switch to any position other than “OFF” .

When the display is clear without **BATT** is showing, proceed to measurement.

When the display blanks or **BATT** is shown, replace the batteries according to section 8: Battery Replacement.

NOTE

The Sleep function automatically turns the instrument off in about five minutes after the last switch operation. Therefore, the display may be blank with the Function Selector switch set to a position other than “OFF” .

To operate the instrument in this case, set the switch back to the OFF position, then to the desired position, or press any button. If the display still blanks, the batteries have exhausted. Then, replace the batteries.

5-2 Checking Switch Setting

Make sure that the Function Selector switch is set to the correct position and the Data Hold function is deactivated. Otherwise, desired measurement cannot be made.

6. Measurement

6-1 AC Current Measurement

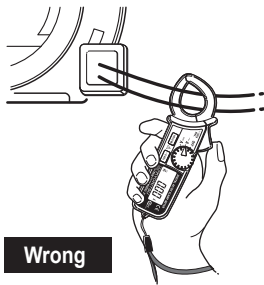
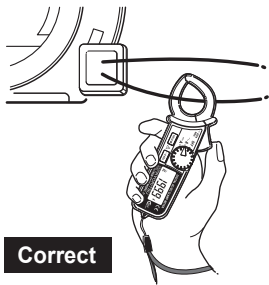
⚠ DANGER

- Do not make measurement on a circuit above 300V AC. This may cause shock hazard.
- Do not make measurement with the battery compartment cover removed from the instrument.
- Keep your fingers and hands behind the barrier during measurement.

- (1) Set the Function Selector switch to the " $\sim$ A" position. "AC" should be shown on the lower left corner of the display.
- (2) Press the jaw trigger to open the transformer jaws and clamp them onto the conductor under test, then take the reading on the display. Position the conductor at the center of the transformer jaws for accurate measurement.

Note :

- ◇ During current measurement, keep the transformer jaws fully closed. Otherwise, accurate measurement cannot be made. The maximum measurable conductor size is approx. 24mm in diameter.
- ◇ Unlike in DC current measurement, zero adjustment is not necessary in AC current measurement. There is no polarity in the reading either.



6-2 DC Current Measurement

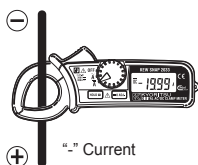
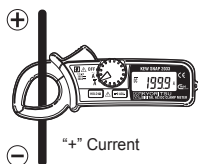
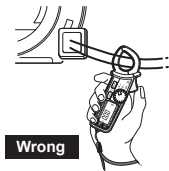
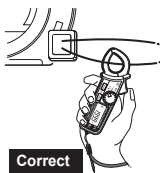
⚠ DANGER

- Do not make measurement on a circuit above 300V AC. This may cause shock hazard.
- Do not make measurement with the battery compartment cover removed from the instrument.
- Keep your fingers and hands behind the barrier during measurement.

- (1) Set the Function Selector switch to the " $\overline{\text{A}}$ " position DC should be shown on the upper left corner of the display.
- (2) With the transformer jaws closed and without clamping them onto the conductor, presses the Zero ADJ. Button for about one second to zero adjust the display.
- (3) Press the jaw trigger to open the transformer jaws and clamp them onto the conductor under test and take the reading on the display. Position the conductor at the center of the transformer jaws for accurate measurement.

Note

- ◇ During current measurement, keep the transformer jaws fully closed. Otherwise, accurate measurement cannot be made. The maximum measurable conductor size is approx. 24mm in diameter.
- ◇ When the current flows from the upside (the display side) to the underside of the instrument, the polarity of the reading is positive and vice versa. (See the figure at the left.)



7. Other functions

7-1 Sleep Function

NOTE

The instrument consumes small amount of current even in the Sleep (power-down) mode. Make sure to turn the Function Selector switch to the "OFF" position, when the instrument is not in use.

This is a function to prevent the instrument from being left powered on in order to conserve battery life. This function causes the instrument to go into the Sleep (powered-down) mode about 5 minutes after the last switch or button operation. To exit the Sleep mode, turn the Function Selector switch back to "OFF", then to any other position, or press any button.

7-2 Data Hold Function

This is a function used to freeze the measured value on the display. Press the Data Hold button to freeze the reading. The reading will be held regardless of the subsequent variation in current under test. The " **H** " symbols is shown on the upper right corner of the display while the instrument is in the Data Hold mode. To exit the Data Hold mode, press the Data Hold button again to release it.

NOTE:

If the instrument in the Data Hold mode goes into "sleep," the Data Hold function will remain effective when the instrument is powered on again

8. Battery Replacement

⚠ WARNING

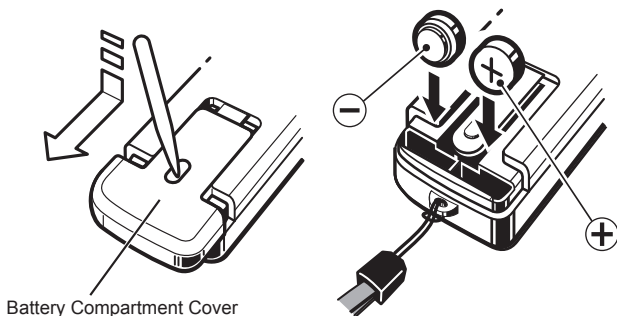
- To avoid electric shock hazard, never try to replace batteries during measurement.

⚠ CAUTION

- Do not mix new and old batteries.
- Make sure to install batteries in correct polarity as indicated in the battery compartment.

If the instrument is powered on, but the display blanks or "BATT" is shown on the display, replace the batteries

- (1) Set the Function Selector switch to the "OFF" position.
- (2) Press in the hole on the battery compartment cover with the tip of a pointed object, then slide open the cover.
- (3) Replace the batteries observing correct polarity. Make sure to use two new LR44 or SR44 batteries.
- (4) Slide the battery compartment cover back in place.



DIRECTIVE 2006/66/EC.

This directive is valid only in the EU. When you remove batteries from this product and dispose them, discard them in accordance with domestic law concerning disposal. Take a right action on waste batteries, because the collection system in the EU on waste batteries are regulated.



This instrument satisfies the marking requirement defined in the WEEE Directive (2002/96/EC). This symbol indicates separate collection for electrical and electronic equipment.

Memo

Memo

DISTRIBUTOR

Kyoritsu reserves the rights to change specifications or designs described in this manual without notice and without obligations.



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