

DIGITAL AC CLAMP METER

KEW SNAP SERIES
KEW SNAP 2007A

KYORITSU ELECTRICAL INSTRUMENTS WORKS, LTD.

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 starting using the instrument.
 - Save and keep the manual handy to enable quick reference whenever necessary.
 - Be sure to use the instrument only in its intended applications and to follow measurement procedures described in the manual.
 - Be sure to understand and follow all safety instructions contained in the manual. Failure to follow the above instructions may cause injury, instrument damage and/or damage to equipment under test.

The symbol Δ 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 Δ 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 minor injury or instrument damage.

- Following symbols are used on the instrument and in the instruction manual. Attention should be paid to each symbol to ensure your safety.
- Refer to the instructions in the manual.
 - Indicates an 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).
 - ≐ Indicates AC and DC.
 - ⊕ Indicates Earth.

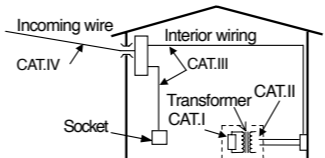
- DANGER**
- Never make measurement on a circuit with a voltage higher than 750VAC.
 - Do not attempt to make measurement in the presence of flammable gasses, fumes, vapor or dust. Otherwise, the use of the instrument may cause sparking, which can lead to an explosion.
 - Transformer jaw tips are designed 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.
 - 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.

- WARNING**
- Never attempt to make any measurement if any abnormal conditions are noted, such as broken case, cracked test leads and exposed metal part.
 - Do not turn the function selector switch with plugged in test leads connected to the circuit under test.
 - 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 batteries if the surface of the instrument is wet.
 - Always switch off the instrument before opening the battery compartment cover for battery replacement.

- CAUTION**
- Make sure that the function selector switch is set to the appropriate position before making measurement.
 - Always make sure to insert each plug of the test leads fully into the appropriate terminal on the instrument.
 - Make sure to remove the test leads from the instrument before making current measurement.
 - 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.

Measurement categories (Over-voltage categories)
To ensure safe operation of measuring instruments, IEC61010 establishes safety standards for various electrical environments, categorized as CAT I 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.

CAT I : Secondary electrical circuits connected to an AC electrical outlet through a transformer or similar device.
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 over-current protection device (distribution panel).



6. Measurement

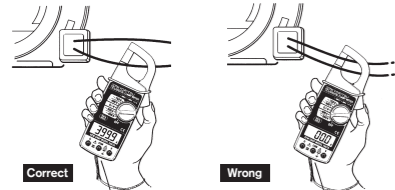
6-1 AC Current Measurement

- WARNING**
- Do not make measurement on a circuit with a voltage higher than 750V AC. Otherwise, shock hazard or damage to the instrument or equipment under test may result.
 - Transformer jaw tips are designed to minimize the possibility of shorting conductors in the circuit under test. If equipment under test has exposed conductive parts, however, extra precaution should be taken to avoid possible shorting.
 - Do not make measurement with the battery compartment cover removed.
 - Do not make current measurement with the test leads connected to the instrument.
 - Keep your fingers and hands behind the barrier during measurement.

- Set the function selector switch to the "400A" or "600A" position.
- Press the trigger to open the transformer jaws and clamp onto one conductor only.
- Take the reading on the display.

Note:

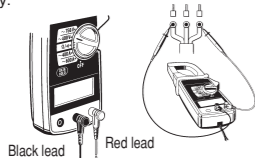
- During current measurement, keep the transformer jaws fully closed. Otherwise, accurate measurement cannot be made. The maximum conductor size is 33mm in diameter.
- When measuring a larger current, the transformer jaws may buzz. This does not affect the instrument's accuracy.



6-2 AC Voltage Measurements

- DANGER**
- Never use the instrument on a circuit with a voltage higher than 750VAC. Otherwise, electric shock hazard or damage to the instrument or the circuit under test may result.
 - Do not make measurement with the battery compartment cover removed.

- Set the function selector switch to the "400V" or "750V" position.
- Plug the red test lead into the V terminal and the black test lead into the COM terminal.
- Connect the test lead prods to the circuit under test and take the reading on the display.



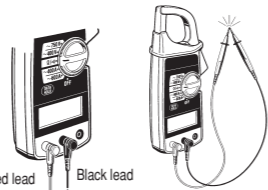
6-3 Resistance Measurement

- DANGER**
- Always make sure that the circuit under test is powered off.
 - Do not make measurement with the battery compartment cover removed.

- Set the function selector switch to the " Ω / \cdot " position.
- Plug the red test lead into the Ω terminal and the black test lead into the COM terminal.
- Check that the display reads "OL". With the test lead prods shorted together, also check that the buzzer beeps and the display reads "0".
- Connect the test lead prods to the circuit under test and take the reading on the display. The buzzer beeps the reading is below about 50 Ω .

NOTE

- When shorting the test lead prods together, the display may show a very small resistance instead of "0". This is the resistance of the test leads.
- If one of the test leads has an open, the display reads "OL".



7. Other Functions

7-1 Sleep Function

NOTE

The instrument still consumes small amount of battery power in the sleep mode. Make sure to set the function selector switch to the OFF position after 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 automatically enter the sleep (powered-down) mode about 10 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.
- How to disable the sleep function:**
- To disable the sleep function, power on the instrument with the Data Hold button pressed. "P.OFF" is shown on the display for about 3 seconds after the instrument is powered on.
- To enable the sleep function, power the instrument off, then power it on without pressing the Data Hold 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 subsequent changes in input. "H" is shown on the upper left 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.

NOTE:

- If the instrument in the Data Hold mode enters the sleep mode, the Data Hold mode will be cancelled.

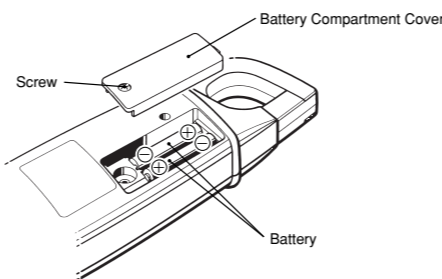
8. Battery Replacement

- WARNING**
- To avoid electric shock hazard, make sure to set the function selector switch to "OFF" and remove the test leads from the instrument before trying to replace the batteries.

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

When "BATT" is shown on the display, replace the batteries. Note that when the battery is completely exhausted, the display blanks without "BATT" shown.

- Set the function selector switch to the "OFF" position.
- Unscrew and remove the battery compartment on the bottom of the instrument.
- Replace the batteries observing correct polarity. Use two new R03 or equivalent batteries.
- Mount and screw the battery compartment cover.



2. Features

- Tear-drop-shaped jaws for ease of use in crowded cable areas and other tight places
- Safety design conforming to the following provisions of IEC61010
 - Measurement category III 300V, pollution degree 2,
 - Measurement category II 600V, pollution degree 2,
 - Measurement category I 1000V, pollution degree 2,
- Data Hold function for easy reading in dimly light or hard-to-read locations
- "Sleep" feature to extend battery life
- Beeper permits easy continuity check
- Provides a dynamic range of 4,000 counts full scale
- Uses shrouded transformer jaws to further improve safety

3. Specifications

Measuring Ranges and Accuracy
AC Current (A)

Range	Measuring Range	Accuracy
400A	0 ~ 399.9A	$\pm 1.5\%rdg \pm 4dgt$ (50/60Hz)
600A	0 ~ 599A	$\pm 2.0\%rdg \pm 5dgt$ (40 ~ 400Hz)

AC Voltage (V) (Input impedance: approx. 2M Ω)

Range	Measuring Range	Accuracy
400V	0 ~ 399.9V	$\pm 1.2\%rdg \pm 3dgt$ (50/60Hz)
750V	0 ~ 749V	$\pm 1.5\%rdg \pm 4dgt$ (40 ~ 400Hz)

Resistance (Ω / \cdot) (Auto-ranging)

Range	Measuring Range	Accuracy
400 Ω / 4k Ω	0 ~ 399.9 Ω / 0.150 ~ 3.999k Ω	$\pm 1.5\%rdg \pm 2dgt$ (Buzzer beeps below 50 $\pm 35 \Omega$)

- Operating System** : Dual Integration
- Display** : Liquid crystal display (maximum count: 3999)
- Low Battery Warning** : "BATT" is shown on the display
- Overrange Indication** : "OL" is shown on the display
- Response Time** : Approx. 2 seconds
- Sample Rate** : About 2.5 times per second
- Location for use** : Indoor use, Altitude up to 2000m
- Temperature and Humidity for Guaranteed Accuracy** : $\pm 23 \pm 5 \text{ }^\circ\text{C}$, relative humidity up to 85% without condensation
- Operating Temperature and Humidity** : $-10 \sim 40 \text{ }^\circ\text{C}$, relative humidity up to 85% without condensation
- Storage Temperature and Humidity** : $-20 \sim 60 \text{ }^\circ\text{C}$, relative humidity up to 85% without condensation
- Power Source** : Two R03 or equivalent (DC1.5V) batteries
- Current Consumption** : Approx. 2.5mA
- Sleep function** : Automatically powered down in about 10 minutes after the last switch operation (power consumption in the sleep mode is about 35 μA .)

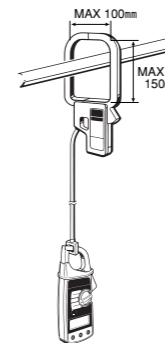
- Standards** : IEC61010-1 CAT III 300V, pollution degree 2
CAT II 600V, pollution degree 2
CAT I 1000V, pollution degree 2

- IEC61010-031
- IEC61010-2-032
- IEC61326(EMC)

- Overload Protection** : AC current ranges: 720A AC for 10sec
AC voltage ranges: 900V AC for 10sec
Resistance ranges: 600V AC for 10sec
- Withstand Voltage** : 3700VAC(RMS,50/60Hz) for 1 minute between electrical circuit and housing case
- Insulation Resistance** : 10M Ω or greater at 1000V between electrical circuit and housing case
- Conductor Size** : Approx. 33mm diameter max.
- Dimensions** : 195(L)x78(W)x36(D)mm

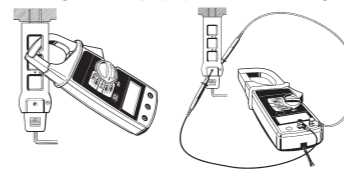
9. Optional Accessories

- Model 8008 Multi-Tran**
Multi-Tran Model 8008 is designed to increase the measuring capability of a clamp meter. With the use of the Multi-tran, you can measure AC current up to 3000A and a large bus-bar or conductor.
 - Set the function selector switch to the "400A" position.
 - As shown in the figure, clamp KEW SNAP 2007A onto the pickup coil of Model 8008.
 - Clamp Model 8008 onto the bus-bar or conductor under test.
 - Take the reading on KEW SNAP 2007A and multiply it by 10.



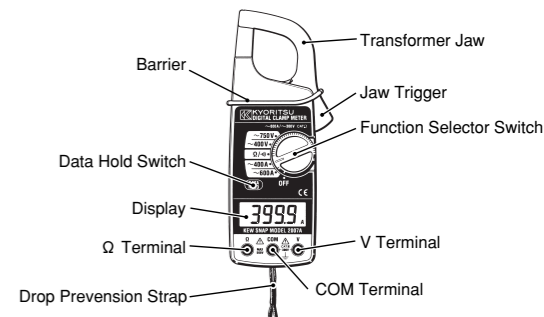
- Model 8021 Energizer**
Model 8021 Energizer permits current measurement with a clamp meter on a two-conductor line cord. It also provides terminals for voltage measurement.

- Current Measurement**
 - Set the function selector switch of KEW SNAP 2007A to the "400A" position.
 - As shown in the figure on the left, clamp KEW SNAP 2007A onto the "1x" position of the Energizer.
 - Take the reading on the display. (Maximum measuring current: 10A)
 - To measure a low current more accurately, clamp onto the "5x" or "10x" position of the Energizer. Take the reading on the display and divide it by 5 or 10.
- Voltage Measurement**
 - Set the function selector switch of KEW SNAP 2007A to the "400V" position.
 - As shown in the figure on the right, With the test lead plugged into the "V" and "COM" terminals, connect one test lead prod to the "VOLTLEAD" terminal on one side of the Energizer and the other test lead prod to the "VOLTLEAD" terminal on the other side.
 - Take the reading on the display. (Maximum measuring voltage: 300V)

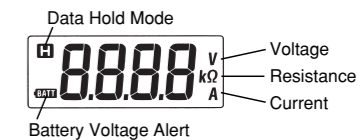


- Weight** : Approx. 260g (including batteries)
- Accessories** : Test leads M-7066
Two R03 batteries
Carrying case M-9097
Instruction manual
Multi-Tran M-8008
- Optional Accessories**

4. Instrument Layout



LCD INDICATOR



5. Preparation for Measurement

- 5-1 Checking Battery Voltage
- Set the function selector switch to any position other than "OFF". When the display is blank without "BATT" showing, proceed to measurement. When the display blanks or "BATT" is indicated, replace the batteries according to the instructions described in section 8. Battery Replacement.

NOTE

The sleep feature automatically turns the instrument off in a certain period of time 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 are exhausted. Replace the batteries.

- 5-2 Checking Switch Setting and Operation
- 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.

DISTRIBUTOR

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

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