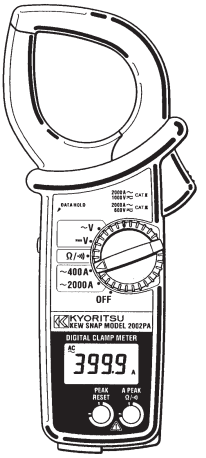
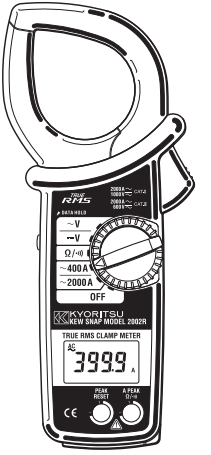
INSTRUCTION MANUAL





DIGITAL CLAMP METER

KEW SNAP SERIES

KEW SNAP 2002PA 2002R

KYORITSU ELECTRICAL INSTRUMENTS WORKS, LTD.

Contents ENGLISH

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 to retain it in safe condition. Therefore, read through these operating instructions before starting using the instrument.

⚠ WARNING

- ●Read through and understand instructions contained in this manual before starting to use 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.

Be sure to observe the above instructions.
Failure to follow the above 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 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 the circuit above 750VAC or 1000VDC.
- 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 and the instrument case when making measurement.
- Verify proper operation on a known source before use or taking action as a result of the indication of the instrument.
- Never try to make measurement if any abnormal conditions, such as broken Transformer jaws or case is noted.
- The instrument is to be used only in its intended applications or conditions. Otherwise, safety functions equipped with the instrument doesn't work, and instrument damage or serious personal injury may be caused.
- Keep your fingers and hands behind the Barrier and protective fingerguard during measurement.

⚠WARNING

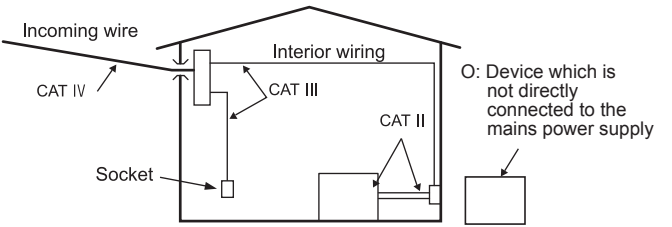
- Never attempt to make any measurement if any abnormal conditions are noted, such as broken case, cracked test leads and exposed metal parts.
- Do not turn the function selector switch with test leads connected to the instrument.
- Do not install substitute parts or make any modification to the instrument. Return the instrument to 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 and make sure to disconnect test leads before opening the battery compartment cover for battery replacement.
- Stop using the test lead if the outer jacket is damaged and the inner metal or color jacket is exposed.

⚠CAUTION

- Always make sure to check the function selector switch is set to an appropriate position before starting measurement.
- Always make sure to insert the plug of each lead fully into the appropriate terminal on the instrument.
- 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, place it in storage after removing the batteries.
- Do not expose the instrument to the direct sun, high temperature or dew fall.
- Use a cloth dipped in water or neutral detergent for cleaning the instrument. Do not use abrasives or solvents.

Measurement categories (Over-voltage categories)
To ensure safe operation of measuring instruments, IEC 61010 establishes safety standards for various electrical environments, categorized as O 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.

O : Circuits which are not directly connected to the mains power supply.
CAT II : 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

- Tear-drop-shaped jaws for ease of use in crowded cable areas and other tight places.
- Accurate true-RMS reading of AC current or voltage with distorted waveform (KEW SNAP 2002R)
- Provides a wide measuring range from 0 up to 2000A.
- Terminal cover to avoid the use of an incorrect terminal.
- Measures current variation as short as 10 msec with peak-hold feature.
- Provides output to a chart recorder for current variation recording.
- Designed to international safety standards.
  IEC61010-1 (CAT III 600V /CAT II 1000V Pollution degree 2)
  IEC61010-031, IEC61010-2-032, IEC 61010-2-033
- Data hold function to allow easy readings in dimly lit or hard-to-read locations.
- Sleep feature to conserve battery power.
- Permits easy continuity check with a beeper.
- Provides a dynamic range of 4,000 counts full scale.
- Provides wide measuring range of voltage and resistance in auto-ranging.
- Wide frequency range from 40Hz to 1kHz (Current measuring range: 0-1500A).
- Transformer jows fitted with guard to further improve safety.
- Protected throughout by double or reinforced insulation "⧈" .

3. Specifications

3－1 KEW SNAP 2002PA

●Measuring Ranges and Accuracy(at 23±5℃, relative humidity 45-75%)

AC Current 〜400 A, 〜2000 A

Range	Measuring Range	Resolution	Accuracy (Frequency Range)	Maximum Measurement Time
400 A	0 〜400.0 A	0.1 A	±1.0%rdg±3dgt(50/60Hz) ±2.0%rdg±3dgt(40〜1 kHz)	Continuous
2000 A	0 〜1000 A	1 A	±1.0%rdg±3dgt(50/60Hz)	
	1000〜1500 A		±3.0%rdg±3dgt(40〜1 kHz)	15min
	1500〜2000 A		±3.0%rdg (50/60Hz)	5 min

AC Voltage (〜V) Auto-ranging

Range	Measuring Range	Resolution	Accuracy (Frequency Range)
40 V	0 〜40.00 V	0.01 V	±1.0%rdg±2dgt(50/60Hz) ±1.5%rdg±3dgt(40〜1 kHz)
400 V	15.0〜400.0 V	0.1 V	
750 V	150〜750 V	1 V	

Initially set to the 40V range. Input impedance is about 1MΩ.

DC Voltage (⎓V) Auto-ranging

Range	Measuring Range	Resolution	Accuracy
40 V	0 〜±40.00 V	0.01 V	±1.0%rdg±2dgt
400 V	±15.0〜±400.0 V	0.1 V	
1000 V	±150〜±1000 V	1 V	

Initially set to the 40V range. Input impedance is about 1MΩ.

Resistance(Auto-ranging)

Range	Measuring Range	Resolution	Accuracy
400Ω	0 〜400.0Ω	0.1Ω	±1.5%rdg±2dgt
4kΩ	0.150〜4.000kΩ	1Ω	
40kΩ	1.50〜40.00kΩ	10Ω	
400kΩ	15.0〜400.0kΩ	100Ω	

Initially set to the 400Ω range. In the continuity check mode, fixed to the 400Ω range and when the reading is not more than 50±35Ω, the buzzer beeps.

OUTPUT (AC Current Ranges)

DC Output: 100.0mV per 1000 counts (Output impedance: about 10kΩ)

Range	Output Voltage / Measuring Range	Accuracy (Frequency Range)
400 A	0 〜400.0mV / 0 〜400 A	±1.5%rdg±0.5m V(50/60Hz) ±2.5%rdg±0.5m V(40〜1 kHz)
2000 A	0 〜150.0mV / 0 〜1500 A	±1.5%rdg±0.5m V(50/60Hz) ±3.5%rdg±0.5m V(40〜1 kHz)
	150.0〜200.0m V /1500〜2000 A	±3.5%rdg (50/60Hz)

●Electromagnetic compatibility (EMC)

EN61000-4-3 Radiated RF electromagnetic field immunity

RF field strength＝＜＝1V/m, total accuracy : specified accuracy

RF field strength＝3V/m, total accuracy : specified accuracy＋2 % of range

● Operating System	Dual Integration
● Display	Liquid crystal display with a maximum count of 4000
● Low Battery Warning	"BATT" symbol is displayed on the digital display.
● Overrange Indication	"OL" is displayed where input exceeds the upper limit of a range
● Response Time	Approx. 2 seconds
● Sleep function	Automatically powered down in about 10 minutes after the last switch operation
● Data Hold	Available in all ranges provided the peak measurement mode is deactivated.
● Operating Environmental conditions	indoor use altitude up to 2000m
● Storage Temperature and Humidity	− 20 ～ 60℃ , relative humidity up to 85% without condensation
● Operating Temperature and Humidity	0 ～ 40℃ , relative humidity up to 85% without condensation
● Conductor Size	Approx. 54.5 diameter max.
● Overload Protection	2400A AC for 10sec 1200V AC/DC for 10sec 600V AC for 10sec
● Withstand Voltage	5160V AC for 5 seconds between electrical circuit and housing cases or metal parts of jaws
● Insulation Resistance	10M Ω or greater at 1000V between electrical circuit and housing cases or metal parts of jaws
● Safety Standard	IEC 61010-1, 61010-2-032, 61010-2-033, 61010-031: Measurement CAT Ⅲ 600V/ CAT Ⅱ 1000V, pollution degree 2.
● EMC	EN 61326-1
● RoHS	EN 50581
● Dimensions	247(L) × 105(W) ×49(D)mm
● Weight	Approx. 470g(battery included)
● Power Source	Two R6P(DC1.5V) batteries or equivalent
● Current Consumption	Approx. 5mA max. (Approx. 20μA in the sleep mode)
● Accessories	Test leads M-7107A Two R6P batteries Instruction manual Carrying case M-9094
● Optional Accessories	Multi-Tran M-8008 Output Probe M-7256, etc.

3－2　KEW SNAP 2002R

● Measuring Ranges and Accuracy(at 23±5℃ , relative humidity 45-75%)

AC Current 〜400 A , 〜2000 A　　(9 counts or less is corrected to 0)

Range	Measuring Range	Resolution	Accuracy (Frequency Range)	Maximum Measurement Time
400 A	0 〜400.0 A	0.1 A	±1.5%rdg±3dgt (45〜65Hz) ±2.5%rdg±3dgt (40〜1kHz)	Continuous
2000 A	0 〜1000 A	1 A	±2.0%rdg±5dgt (45〜65Hz)	
	1000〜1500 A		±3.0%rdg±5dgt (40〜1kHz)	15min
	1500〜2000 A		±4.0%rdg　　(50/60Hz)	5 min

AC Voltage （〜V） Auto-ranging　　(9 counts or less is corrected to 0)

Range	Measuring Range	Resolution	Accuracy (Frequency Range)
40 V	0 〜40.00 V	0.01 V	±1.0%rdg±2dgt(45〜65Hz)
400 V	15.0〜400.0 V	0.1 V	±1.5%rdg±3dgt(40〜 1 kHz)
750 V	150〜750 V	1 V	

Initially set to the 40V range. Input impedance is about 1MΩ.
When approx.300V or more is applied to the instrument instantaneously, the measured value is indicated on 750V range.

DC Voltage （ ⎓V） Auto-ranging

Range	Measuring Range	Resolution	Accuracy
40 V	0 〜±40.00 V	0.01 V	±1.0%rdg±2dgt
400 V	±15.0〜±400.0 V	0.1 V	
1000 V	±150〜±1000 V	1 V	

Initially set to the 40V range. Input impedance is about 1MΩ.

Resistance(Auto-ranging)

Range	Measuring Range	Resolution	Accuracy
400Ω	0 〜400.0Ω	0.1Ω	±1.5%rdg±2dgt
4kΩ	0.150〜4.000kΩ	1 Ω	
40kΩ	1.50〜40.00kΩ	10Ω	
400kΩ	15.0〜400.0kΩ	100Ω	

Initially set to the 400Ω range. In the continuity check mode, fixed to the 400Ω range and when the reading is not more than 50±35Ω, the buzzer beeps.

OUTPUT （AC Current Ranges）

DC Output: 100.0mV per 1000 counts (Output impedance: about 10kΩ)

Range	Output Voltage / Measuring Range	Accuracy (Frequency Range)
400 A	0 〜400.0m V / 0 〜400 A	±2.0%rdg±0.5mV (45〜65Hz) ±3.0%rdg±0.5mV (40〜1kHz)
2000 A	0 〜150.0m V / 0 〜1500 A	±2.5%rdg±0.5mV (45〜65Hz) ±3.5%rdg±0.5mV (40〜1kHz)
	150.0〜200.0m V /1500〜2000 A	±4.5%rdg　　(50/60Hz)

● CF (Crest Factor)　CF=3 or less
accuracy+1% (45 〜 65Hz)、less than AC3000A/AC1200V Peak

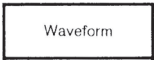
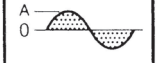
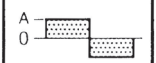
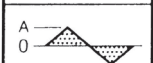
● Electromagnetic compatibility (EMC)
EN61000-4-2 Electrostatic discharge immunity(ESD)
Performance criteria B

● Operating System	Dual Integration
● Display	Liquid crystal display with a maximum count of 4000
● Low Battery Warning	"BATT" symbol is displayed on the digital display.
● Overrange Indication	"OL" is displayed where input exceeds the upper limit of a range
● Response Time	Approx. 2 seconds (at full scale)
● Sleep function	Automatically powered down in about 10 minutes after the last switch operation
● Data Hold	Available in all ranges provided the peak measurement mode is deactivated.
● Operating Environmental conditions	indoor use altitude up to 2000m
● Storage Temperature and Humidity	− 20 ～ 60℃ , relative humidity up to 85% without condensation
● Operating Temperature and Humidity	0 ～ 40℃ , relative humidity up to 85% without condensation
● Conductor Size	Approx. 54.5 diameter max.
● Overload Protection	2400A AC for 10sec 1200V AC/DC for 10sec 600V AC for 10sec
● Withstand Voltage	5160V AC for 5 seconds between electrical circuit and housing cases or metal parts of jaws
● Insulation Resistance	50M Ω or greater at 1000V between electrical circuit and housing cases or metal parts of jaws
● Safety Standard	IEC 61010-1, 61010-2-032, 61010-2-033, 61010-031: Measurement CAT Ⅲ 600V/ CAT Ⅱ 1000V, pollution degree 2.
● EMC	EN 61326-1
● RoHS	EN 50581
● Dimensions	247(L) × 105(W) ×49(D)mm
● Weight	Approx. 470g(battery included)
● Power Source	Two R6P(DC1.5V) batteries or equivalent
● Current Consumption	Approx. 10mA max. (Approx. 20μA in the sleep mode)
● Accessories	Test leads M-7107A Two R6P batteries Instruction manual Carrying case M-9094
● Optional Accessories	Multi-Tran M-8008 Output Probe M-7256, etc.

***Effective Value (RMS)**

Most alternating currents and voltages are expressed in effective values, which are also referred to as RMS (Root-Mean-Square) values. The effective value is the square root of the average of square of alternating current or voltage values.

Many clamp meters using a conventional rectifying circuit have "RMS" scales for AC measurement. The scales are, however, actually calibrated in terms of the effective value of a sine wave though the clamp meter is responding to the average value. The calibration is done with a conversion factor of 1.111 for sine wave, which is found by dividing the effective value by the average value. These instruments are therefore in error if the input current has some other shape than sine wave.

Waveform	Effective value Vms	Average value Vavg	Conversion factor Vms/Vavg	Reading errors for average sensing instruments	Crest factor CF
	$\frac{1}{\sqrt{2}}A$ $\fallingdotseq 0.707$	$\frac{2}{\pi}A$ $\fallingdotseq 0.637$	$\frac{\pi}{2\sqrt{2}}$ $\fallingdotseq 1.111$	0%	$\sqrt{2}$ $\fallingdotseq 1.414$
	A		1	$\frac{A\times 1.111 - A}{A}\times 100$ $= 11.1\%$	1
	$\frac{1}{\sqrt{3}}A$	0.5 A	$\frac{2}{\sqrt{3}}$ $\fallingdotseq 1.155$	$\frac{0.5A\times 1.111 - \frac{A}{\sqrt{3}}}{\frac{A}{\sqrt{3}}}\times 100 = -3.8\%$	$\sqrt{3}$ $\fallingdotseq 1.732$
	$A\sqrt{D}$	$A\frac{f}{T}$ $= A \cdot D$	$\frac{A\sqrt{D}}{AD} = \frac{1}{\sqrt{D}}$	$(1.111\sqrt{D} - 1)$ $\times 100\%$	$\frac{A}{A\sqrt{D}} = \frac{1}{\sqrt{D}}$

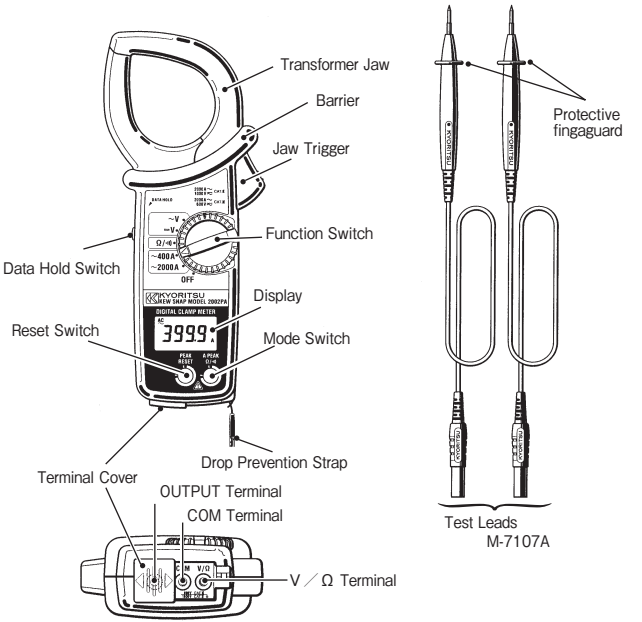
*CF (Crest Factor) is found by dividing the peak value by the effective value.

Examples:

Sine wave: CF=1.414

Square wave with a 1: 9 duty ratio: CF=3

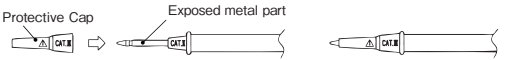
4. Instrument Layout



Barrier and Protectivefingerguard:

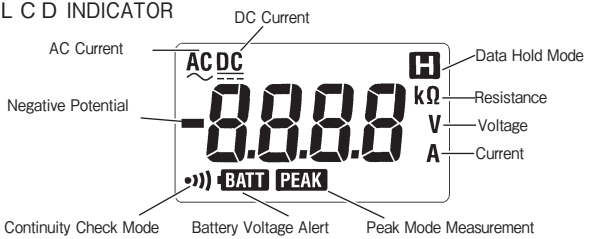
It is a part providing protection against electrical shock and ensuring the minimum required air and creepage distances.

Test Lead Cap : Test leads can be used under the CAT II and III environments by attaching a Protective cap as illustrated below. Use of our Protective cap offers different lengths suitable for the test environments.



When the instrument and the test lead are combined and used together, whichever lower category either of them belongs to will be applied.

● L C D INDICATOR



5. Preparation for Measurement

5 — 1 Checking Battery Voltage

① Set the function selector switch to any position other than "OFF".

② When the display is clear without "BATT" showing, proceed to measurement.

③ When the display blanks or "BATT" is indicated, replace the batteries according to section 8: battery replacement.

NOTE

● It is possible that display is kept in blank while the function selector switch is set to a position other than "OFF". This is due to sleep function which automatically powers the instrument down in a certain period of time after the last switch operation. To operate the instrument in this case, set the switch back to the "OFF" position, then to the desired position, or press any button.

5 — 2 Checking Switch Setting and Operation

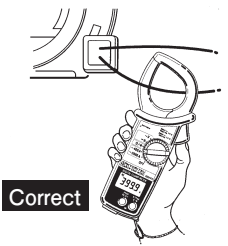
Make sure that the function selector switch is set to the correct position, the instrument is set to the correct mode and the data hold function is deactivated. Otherwise, desired measurement cannot be made. (See section 6 for measurement instructions and section 7 for notes on functions.)

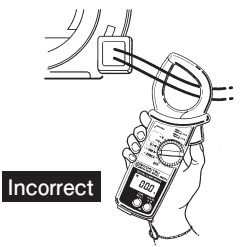
6. Measurement

6 — 1 Current Measurement

⚠WARNING

- Do not make measurement on a circuit above 750V AC. This may cause shock hazard or damage to the instrument or equipment under test.
- 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.
- Do not make measurement with the battery compartment cover removed from the instrument.
- Do not make current measurement with the test leads connected to the V/ Ω and COM terminals.
- When measuring current is not less than 1000A, make sure to stop measurement within the maximum measuring time shown below. Otherwise, transformer jaws may heat to cause a fire or deformation of molded parts, which will degrade insulation.
  1000 ~ 1500 A : 15min. 1500 ~ 2000 A : 5 min.
- Keep your fingers and hands behind the barrier during measurement.





6 — 1 — 1 AC Current Measurement (Normal Mode)

① Set the function selector switch to the " ~ 400A" or " ~ 2000A" position and make sure that the current under test does not exceed the upper limit of the measuring range you are selecting.

② Press the trigger to open the transformer jaws and clamp them onto the conductor under test.

③ Take the reading on the display.

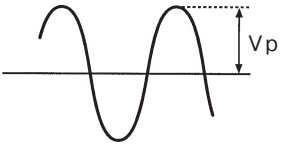
NOTE

- During current measurement, keep the transformer jaws fully closed. Otherwise, accurate measurement cannot be made. The maximum measurable conductor size is 54.5mm in diameter.
- When measuring a larger current, the transformer jaws may buzz. This is not a fault and does not affect the accuracy at all.

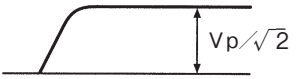
6－1－2　Peak Current Measurement

① Set the function selector switch to the " ～ 400A" or " ～ 2000A" position.
② Press the mode switch to select the peak mode. "PEAK" will be shown on the display.
③ Press the trigger to open the transformer jaws and clamp them onto the conductor under test. Then, press the reset switch.
④ The display shows the current's crest value divided by the square root of two. Therefore, when the current is sinusoidal, the reading equals RMS value.
⑤ To reset the display, press the reset switch.
(Note: When this is done, the reading goes off for about one second.)

INPUT Current



Peak Hold



⑥ After the measurement is over, press the mode switch to return to the normal mode.

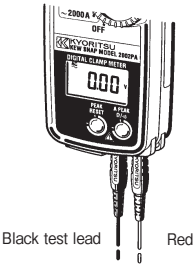
NOTE

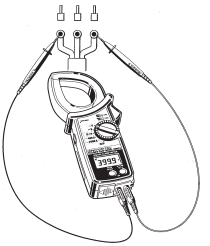
- In the peak measurement mode, the data hold feature is disabled.
- When a measured value is 9 counts or less, it is corrected to 0 (KEW SNAP 2002R).

6－2　Voltage Measurement

⚠WARNING

- Do not make measurement on a circuit above 750V AC or 1000V DC. This may cause shock hazard or damage to the instrument or equipment under test.
- Do not make measurement with the battery compartment cover removed.
- Keep your fingers and hands behind the protective fingerguard during measurement.





6－2－1　DC Voltage Measurement

① Set the function selector switch to the " ⎓ V" position.
② Slide the terminal cover to the left. Plug the red test lead into the V/Ω terminal and the black test lead into the COM terminal.
③ Connect the other end of the test leads to the circuit under test. Take the reading on the display. When the red lead is the negative potential, the " － " sign is shown on the display.

6－2－2　AC Voltage Measurement

① Set the function selector switch to the " ～ V" position.
② Slide the terminal cover to the left. Plug the red test lead into the V/Ω terminal and the black test lead into the COM terminal.
③ Connect the other end of the test leads to the circuit under test. Take the reading on the display.

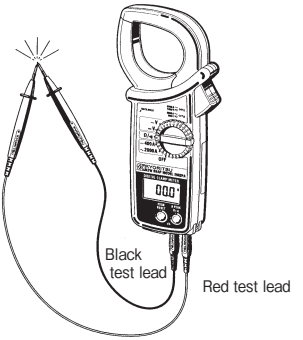
NOTE

- For high sensitivity, there are parts which do not indicate " 0 ".

6 − 3 Resistance Measurement

⚠WARNING

- Before attempting to make measurement, make sure that the circuit under test is not live. The instrument is protected against a voltage up to 600V.
- Do not make measurement with the battery compartment cover removed.
- Keep your fingers and hands behind the protective fingerguard during measurement.



6 − 3 − 1 Resistance Measurement (Normal Mode)

① Set the function selector switch to the "Ω / ·))" position.
② Slide the terminal cover to the left. Plug the red test lead into the V/Ω terminal and the black test lead into the COM terminal.
③ Short the tip of the test leads and check whether the display reads "0".
④ Connect the tip of the test leads to the circuit under test. Take the reading on the display.

NOTE

- When shorting the tip of the test leads, the display may read a very small resistance instead of "0." This is the resistance of the test leads, not a fault.
- If one of the test leads is open, the display reads "OL".

6－3－2　Continuity Check

① Set the function selector switch to the "Ω / ·)) " position.
② Slide the terminal cover to the left. Plug the red test lead into the V/ Ω terminal and the black test lead into the COM terminal.
③ Press the mode switch to set the instrument to the continuity check mode. The measuring range is fixed to 400Ω and the "·)) " symbol is shown on the display.
④ Short the tip of the test leads and make sure that the display reads "0" and the buzzer beeps.
⑤ Connect the tip of the test leads to the circuit under test. The display reads the resistance and the buzzer beeps when the reading is not more than about 50Ω.

NOTE

- When shorting the tip of the test leads, the display may read a very small resistance instead of "0". This is the resistance of the test leads, not a fault.
- If one of the test leads is open, the display reads "OL".

7. Notes on Functions

7－1 Data Hold

This is a function used to freeze the measured value on the display.

① Press the data hold switch. The reading becomes frozen and the "H" symbol is shown on the display, indicating the instrument in the data hold mode.

② To exit the data hold mode, press the data hold switch again to release it.

NOTE

- When the function selector switch is turned while the instrument is in the data hold mode, the data hold function remains activated. To make measurement in this case, release the data hold switch by pressing it and exit the data hold mode.
- The data hold function is disabled in the peak measurement mode on the AC current range.
- When the sleep function is activated, the data hold mode turns to the normal mode.

7－2 Sleep Function

This is a function to prevent the instrument from being left powered on in order to conserve battery life.

① The instrument automatically enters the sleep (powered-down) mode about 10 minutes after the last switch operation.

② To exit the sleep mode, press the data hold, reset or mode switch or turn the function selector switch back to "OFF", then to any other position.

[How to Exit the Sleep Mode]

① Turn the function selector switch from "OFF" to another position with the data hold switch pressed. Then, "P.OFF" is shown on the display. This disables the sleep function and enables continuous use of the instrument.

② To enable the sleep function, turn the function selector switch back to "OFF", then to any other position.

NOTE

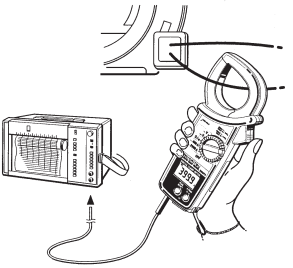
- The instrument consumes small amount of current in the sleep mode. When the instrument is not in use, make sure to set the function selector switch to "OFF".

7 − 3 Recorder Output

Only on the " ～ 400A" or " ～ 2000A" range, DC voltage proportional to the input current is output from the OUTPUT terminal.

① Set the function selector switch to the " ～ 400A" or " ～ 2000A" position.

② Slide the terminal cover to the right and insert the recorder output plug into the OUTPUT terminal for connection with a recorder or other recording device.



NOTE

- Output voltage is 1mV/A on the " ～ 400A" range and 0.1mV/A on the " ～ 2000A" range. Set an appropriate input sensitivity on the recorder.
- The peak hold function does not apply to the recorder output even if the instrument is in the peak hold mode.
- For long term measurement, disable the sleep function. (See section 7-2 for sleep function.)

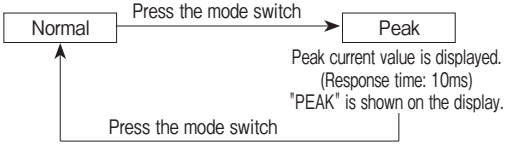
⚠ DANGER

Never apply voltage to the output terminal.

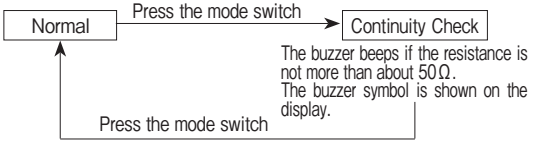
7 − 4 Mode Switching Function

On a AC current (" ～ 400A" or " ～ 2000A") or the resistance(Ω / ·))) range, press the mode switch to cycle through the measurement modes. The instrument is initially set to the normal mode and can be switched to the peak or continuity check mode by means of the mode switch. (See section 6-1-2 for peak current measurement and section 6-3-2 for continuity check.)

≪ AC Current Range(400A or 2000A) ≫



≪ Resistance Range ≫



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 batteries.

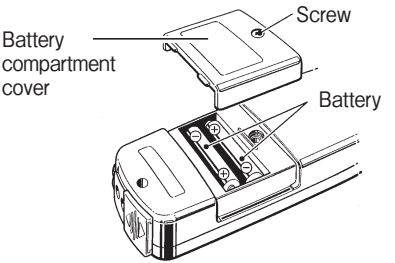
⚠CAUTION

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

NOTE

- 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 Unscrew and remove the battery compartment cover on the bottom of the instrument.
③ Replace the batteries observing correct polarity. Use two new R6P batteries.
④ Replace and screw the battery compartment cover.



9. Optional Accessories

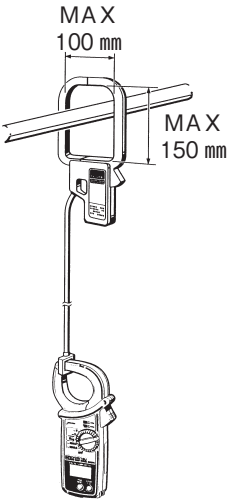
● Multi-Tran MODEL 8008 extends the capability of KEW SNAP 2002PA or KEW SNAP 2002R, allowing measurement up to 3000A or on a large bus-bar or conductor.

① Set the function selector switch to " ～ 400A"

② As shown in the figure below, clamp KEW SNAP 2002PA or KEW SNAP 2002R onto the pickup coil of MODEL 8008.

③ Clamp MODEL 8008 onto the bus-bar or conductor under test.

④ Take the reading on KEW SNAP 2002PA or KEW SNAP 2002R and multiply it by 10.



10. Disposing the Product

Waste Electrical and Electronic Equipment (WEEE), Directive 2002/96/EC

This Product complies with the WEEE Directive (2002/96/EC) marking requirement.

The affixed product label (see below) indicates that you must not discard this electrical/electronic product in domestic household waste.

Product Category

With reference to the equipment types in the WEEE directive Annex 1, this product is classified as a "Monitoring and Control instrumentation" product.

DISTRIBUTOR

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