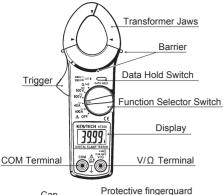
# INSTRUCTION MANUAL AC DIGITAL CLAMP METER **KEWTECH KT200**



## Сар 1

Protective fingerguard (Barrier) : It is a part providing protection against electrical shock and ensuring the minimum required air and creepage distances

Cap 3 Uncapped condition for CAT II environment Capped condition for CAT III/ IV environments The Cap shuld be firmly attached to the probes

- Features

   Safety design conforming to the following provisions of IEC61010. Measurement category III 300V, pollution degree 2, Measurement category II 600V, pollution degree 2,
   Data hold switch 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.

2. Safety Warnings • 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 Orderstand 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.

- Conductor Size : Approx. 30 mm diameter max • Dimensions : 184 (L) x 44 (W) x 27 (D) mm

- Weight : Approx. 190g (including batteries)
- Accessories : Test lead (M-7066A) Two R03 batteries Instruction manual

4. Preparation for Measurement 4-1 Checking Battery Voltage Set the function selector switch to any position other than "OFF". When the display is clear without "EAU" showing, proceed to measu-rement. When the display blanks or "EAU" indicated, replaces the batteries according to the instructions described in section 7. Battery Replacement.

## NOTE

NOTE The sleep feature automatically turns the instru-ment 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 switch. If the display still blanks, the batteries are exhausted. Replace the batteries.

# **4-2 Checking Switch Setting and Operation** Make sure that the function selector switch is set to the correct position and the data hold switch is deactivated. Otherwise, desired measurement

cannot be made.

# 5. Measurement 5-1 AC Current Measurement

- ▲ WARNING
   Do not make measurement on a circuit with a voltage higher than 600 VAC. 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
- It is a part providing protection against electrical shock and ensuring the minimum required air and creepage distances. Keep your fingers and hands behind the barrier during measurement.
- Set the function selector switch to the "40Ô or "400Ô position.
   Press the trigger to open the transformer jaws and clamp onto one conductor only.
   Take the reading on the display.

The symbol  $\triangle$  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  $\triangle$  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 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. This symbol is marked where the user must refer to the instruction manual so as not to cause personal injury or instrument damage. A
- 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). 5
- Indicates AC and DC.
- Indicates Earth.
- Indicates Earth. This marking means they shall be sorted out and collected as ordained in 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. X

- A DANGER Never make measurement on a circuit with a voltage higher than 600 VAC/DC. 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 jaws are made of metal and their tips are not insulated. Where equipment under test has exposed conductive parts, be especially careful to avoid the hazard of possible 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.

- Never open the battery compartment cover when making measurement.
   Verify proper operation on a known source before use or taking action as a result indication of the instrument.
   Keep your fingers and hands behind the protective fingerguard during measurement.

# NOTE

- NOTE During current measurement, keep the trans-former jaws fully closed. Otherwise, accurate measurement cannot be made. The maxi-mum conductor size is 30 mm in diameter. When measuring a larger current, the trans-former jaws may buzz. This does not affect the instrument's accuracy.

# 5-2 AC Voltage Measurement

- ▲ DANGER Never use the instrument on a circuit with a voltage higher than 600 VAC. 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. Keep wour, fingers, and hands, behind the
- Keep your fingers and hands behind the protective fingerguard during measurement.
- Set the function selector switch to the " $600\overline{V}$ " position. (1)
- (1) Set the third third selector switch to the "600V" position.
  (2) Plug the red test lead into the V/Ω terminal and the black test lead into the COM terminal.
  (3) Connect the test lead prods to the circuit under test and take the reading on the display.

# 5-3 DC Voltage Measurement

- A DANGER
   A DANGER
   Never use the instrument on a circuit with a voltage higher than 600VDC. 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.
   Keep your fingers and hands behind the protective fingerguard during measurement.

- (1) Set the function selector switch to the
- $f_{600V}$  position. Plug the red test lead into the V/Ω 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. (2)(3)

# 5-4 Resistance Measurement

- Always make sure that the circuit under test is powered off.
  Do not make measurement with the battery
- Keep your fingers and hands behind the protective fingerguard during measurement.
- (1) Set the function selector switch to the " $\Omega/\mathfrak{M}$ "
- (1) Set the inicition selector swhich to the *U*<sup>nm</sup> position.
   (2) Plug the red test lead into the V/Ω terminal and the black test lead into the COM terminal.
   (3) Check that the display reads "OL." with the test lead prods shorted together, also check that the buzzer beeps and the display reads "O."
   (4) Connect the test lead prods to the circuit

DC Voltage (V) Auto-ranging Range Measuring Range

Range Measuring Range

• EMC(IEC61000-4-3) :

0-399.9V

150-599V

Resistance (  $\Omega$  /Continuity) Auto-ranging (Buzzer beeps below  $50\pm35\,\Omega$  )

0-399.90

150-3999Ω

EMC (IEC61000-4-3) : RF electromagnetic field<1V/m; total accuracy=specified accuracy RF electromagnetic field=3V/m; total accuracy=specified accuracy + 2% of range
 Operating System : Dual Integration
 Display : Liquid crystal display (maximum count: 3999)

(maximum count: 3999) • Low Battery Warning : "BAT" 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 • Temperature and Humidity for Guranteed • Accuracy:

Sample rate: About 2.5 times per second and the second of the second accuracy:
23±5°C, relative humidity up to 85% without condensation
Operating Temperature and Humidity:
0~40°C, relative humidity up to 85% without condensation
Storage Temperature and Humidity:
-20~60°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 R03 or equivalent (DC1.5V) batteries
Current Consumption :
Approx. 2.5mA max.
Sleep Function:
Automatically powered down in about 10 minutes after the last switch operation (power consumption in the sleep mode is about 20 μA.)
Standards:

operation (power consumption in the steep mode is about 20 μ A.)
Standards :

IEC61010-1, -2-032, -2-033
CAT III 300V, CAT II 600V, pollution degree 2
IEC61010-031
IEC61326-1, -2-2 (EMC)
EN50581 (RoHS)

Overload Protection :

AC current ranges : 480A AC/DC for 10sec
AC voltage ranges : 720V AC/DC for 10sec
Resistance ranges : 300V AC/DC for 10sec

Operating Environmental Conditions :

Indoor use, Altitude up to 2000m

Withstand Voltage :

3470VAC (RMS, 50/60Hz) for 5 seconds between electrical circuit and housing case

Insulation Resistance

IOM Ω or greater at 1000V between electrical circuit and housing case

▲ WARNING To avoid electric shock hazard, make sure to set the function selector switch to "OFF" and remove the test leads from the instrument

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

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

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Set the function selector switch to the "OFF" position.
 Unscrew and remove the battery compa-rtment on the bottom of the instrument.
 Replace the batteries observing correct polarity. Use two new RO3 or equivalent batteries

Mount and screw the battery compartment cover.

Battery Compartment

2×R03 or 1.5V AAA

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WORKS, LTD.

before trying to replace the batteries.

7.Battery Replacement

batteries

©∎⊕ ⊢⊒⊨

(4)

400V

600V

4000

4000Ω

Accuracy

± 1.5%rdg ± 5dgt

Accuracy

±2.0%rdg±5dgt

- 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 your distributor for repair or recalibration.

- Instrument to your distributor for repair or recalibration.
  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.
  Stop using the test lead if the outer jacket is damaged and the inner metal or color jacket is exposed.

- A 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.

- 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.
  This instrument isn't dust & water proofed. Keep away from dust and water.
  Use a damp cloth and detergent for cleaning the instrument. Do not use abrasives or solvents.

Working voltage is specified according to each Measurement category, which is defined in safety standards.It is to protect the user from transient impulse, which presents in the circuit under test. Measurement categories are defined as follows. 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

Accuracy ± 2.0%rdg ± 6dgt

(50/60Hz)

Accuracy

± 2.0%rdg ± 5dgt

(50/60Hz)

3. Specifications Measuring Ranges and Accuracy (at 23±5°C, 45-75% relative humidity) AC Current (A)

0-399.9A

Measuring Range

0-399.9V

150-599V

under test and take the reading on the

display. The buzzer beeps the reading is below  $50{\pm}35\,\Omega$  .

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 "0L."

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"

(1) Sleep indde 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

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

(2) How to disable the sleep mode To disable the sleep mode, Power the instrument on with the data hold switch pressed. "P.OFF" is shown on the display for about 3 seconds after the instrument is powered on. To enable the sleep mode, power the instrument off, then power it on without pressing the data hold switch

**6-2 Data Hold Function** This is a function used to freeze the measured value on the display. Press the data hold switch to freeze the reading. The reading will be held regardless of subsequent changes in input. "I" 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 switch again.

NOTE If the instrument in the data hold mode enters the sleep mode, the data hold mode will be cancelled.

NOTE

outlets.

RangeMeasuring Range40A0-39.99A

AC Voltage (V) Auto-ranging

6. Other Functions 6-1 Sleep Function

position after use.

(1) Sleep Mode

switch.

switch again

C

400A

Range

400V

600V