1. Features

- Designed to meet international safety standards.
- KEW2046R, KEW2056R (CJW 600V Portability Design)
- Double molded main body provides comfortable single-handed grip
- Data Hold Function
- LCD Backlight function to facilitate working at dimly lit situations.
- REL function to indicate measurement variation
- Over-range indication: “OL” displayed when exceeding the nominal range.
- Accuracy of Temperature probe is excluded.

2. Accuracy

- KEW2046R: ±2.0% rdg ±5dgt (50/60Hz)
- KEW2056R: ±5.5% rdg ±5dgt (500~1kHz)
- KEW2056R: ±1.5% rdg ±4dgt (50/60Hz)
- KEW2046R: ±1.5% rdg ±5dgt

3. Specification

3-1. Measuring range & accuracy

<table>
<thead>
<tr>
<th>Function</th>
<th>KEW2046R</th>
<th>KEW2056R</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC Voltage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>KEW2046R</td>
<td>KEW2056R</td>
</tr>
<tr>
<td>400V-600V</td>
<td>±0.5% rdg</td>
<td>±0.5% rdg</td>
</tr>
<tr>
<td>1000V</td>
<td>±1.0% rdg</td>
<td>±1.0% rdg</td>
</tr>
<tr>
<td>2000V</td>
<td>±1.5% rdg</td>
<td>±1.5% rdg</td>
</tr>
<tr>
<td>DC Voltage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>KEW2046R</td>
<td>KEW2056R</td>
</tr>
<tr>
<td>40V</td>
<td>±1.5% rdg</td>
<td>±1.5% rdg</td>
</tr>
<tr>
<td>100V</td>
<td>±1.5% rdg</td>
<td>±1.5% rdg</td>
</tr>
<tr>
<td>400V</td>
<td>±1.0% rdg</td>
<td>±1.0% rdg</td>
</tr>
</tbody>
</table>

4. Battery life

- KEW2046R: approx. 33mm
- KEW2056R: approx. 40mm

5. Dust & Water Proof

- Rating: IP40

6. Measurement Category

- To ensure safe operation of measuring instruments, IC-61010 establishes safety standards for various electrical environments, categorized as 0 to CAT IV, and measurement categories. Higher-numbered categories are for electrical environments with greater momentary energy, so a measuring instrument designed for CAT III environments can guarantee momentary energy one designated for CAT II.

7. Measurement

- Never use a clamp meter when there is a possibility of shorting.
- Never attempt to make measurement in the presence of flammable gases. Otherwise, the use of the instrument may cause sparking, which can result in fire hazardous situations.

8. Safety Warnings

- KEW2046R & KEW2056R: 0°C ~ 50°C
- KEW2046R & KEW2056R: 0°C ~ 50°C

9. Accessories

- Carrying Case Model 9094 / 1pcs
- Instruction manual English, Japanese / 1pce

10. Applicable Standards

- EN 61010-1
- EN 61010-031
- EN 61010-032
- EN 61010-033
- EN 61010-034
- IEC 61010-031

11. Guarantee

- KEW2046R: approx. 30 months
- KEW2056R: approx. 30 months

12. CF (Great Factor) is found by dividing the peak value by the effective value.

- Examples: Sin wave: CF = 1.414
- Square wave: CF = 3

3.3. Function Keys

- HOLD PEAK SELECT ZERO
- MIN MAX
- ACV DCV
- TEMP
- Hz

4. Preparation for measurement

4-1. Battery Voltage Setting

- Set the Function Switch by putting other than “OFF”. When the display is clear without “BATT” mark, show battery voltage is enough. When the display is blank of “BATT” mark is indicated, replace the batteries according to section 7, Battery Measurement.

4-2. Switching Setting & Operation

- Confirm the Function Switch is set to the correct measurement mode and the instrument is not disabled. Otherwise, desired measurement cannot be made.

9. CAUTION

- Set the Function Switch to an appropriate position before starting measurement.
- Firmly insert the test leads.
- Disconnect the test leads from the instrument for current measurement.
- Do not expose the instrument to the direct sun, high temperature and humidity or dust.
- Avoid 200mm or less. Appropriate operating distance is within 50cm.
- This instrument isn’t dust & water proofed. Keep away from dust and water.
- Be sure to power off the instrument after use. When the instrument is not used for a long period, store it in a place away from the elements.
- Use a cloth dipped in water or neutral detergent for cleaning the instrument. Do not use abrasives or solvents.

10. Battery Cover: Open

- Do not rotate the Function Switch while the test leads are being connected.
- Never attempt to make measurement in any abnormal conditions, such as broken case and exposed metal parts are found on the instrument.
- Do not install substitute parts or make any modification to the instrument. For repair or calibration, return the instrument to your local refuses from wear or tear.

11. Warning

- Never attempt to make measurement in the presence of flammable gases. Otherwise, the use of the instrument may cause sparking, which can result in fire hazardous situations.

12. CONSUMER INFORMATION

- This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
5. Measurement

5.1 AC Current Measurement

**DANGER**
- Never measure current in a circuit in which voltage over AC600V exists to avoid getting electrical shock.
- 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 electrocution.
- Do not measure current with the Battery Cover removed.
- Disconnect the test leads from the instrument for current measurement.

1) Set the Function Switch to “600A” or “1000A” position.
   - For KEW2064R, only “600A” is available.
   - AC is displayed at the upper left of the display.

2) Press the trigger to open the transformer jaws and clamp them onto the conductor under test, then take the reading on the display. Pressing the “Hz/DUTY” Key switches the indication in following sequence.
   - AC Current  $\rightarrow$ Hz  $\rightarrow$ DUTY

**Hz/DUTY** Function requires 50A or more at AC600V Range and 350A or more at AC1000V range.

**CAUTION**
- Max conductor size for “600A” is approx. dia. 30mm and for KEW2065R is approx. dia. 40mm. During current measurement, keep the transformer jaws fully closed. Other wise, accurate measurements cannot be taken.
- Keep your fingers and hands behind the barrier during measurement.

5.2 DC Current Measurement

**DANGER**
- Never measure current on a circuit in which voltage over DC600V exists to avoid getting electrical shock.
- Never measure current with the Battery Cover removed.

1) Set the Function Switch to “600A” or “1000A” position. AC has been selected by default; press the SELECT key, when DC has been selected, to change it to AC. AC display is marked at the upper left of the display.

2) Press the trigger to open the transformer jaws and clamp them onto the conductor under test, then take the reading on the display. Pressing the “Hz/DUTY” Key switches the indication in following sequence.
   - AC Current $\rightarrow$ Hz $\rightarrow$ DUTY

**Hz/DUTY** Function requires 50A or more at AC600V Range and 350A or more at AC1000V range.

**CAUTION**
- Max conductor size for “600A” is approx. dia. 30mm and for KEW2065R is approx. dia. 40mm. During current measurement, keep the transformer jaws fully closed. Other wise, accurate measurements cannot be taken.
- Keep your fingers and hands behind the barrier during measurement.
- Press the trigger to open the transformer jaws and clamp them onto the conductor under test, then take the reading on the display. Pressing the “Hz/DUTY” Key switches the indication in following sequence.
   - AC Current $\rightarrow$ Hz $\rightarrow$ DUTY

**Hz/DUTY** Function requires 50A or more at AC600V Range and 350A or more at AC1000V range.

**CAUTION**
- Max conductor size for “600A” is approx. dia. 30mm and for KEW2065R is approx. dia. 40mm. During current measurement, keep the transformer jaws fully closed. Other wise, accurate measurements cannot be taken.
- Keep your fingers and hands behind the barrier during measurement.

5.3 AC Voltage Measurement

**DANGER**
- Never make measurement on a circuit in which voltage over AC600V exists to avoid getting electrical shock.
- Never make measurement with the Battery Cover removed.
- Keep your fingers behind the barrier on the instrument during measurement.

1) Set the Function Switch to “ACV” position.

2) Connect the red test lead to V/COM terminal and the black test lead to COM terminal. When the red test lead is connected, the tip mark is to be indicated at the upper right on the display. If the tip mark is not shown, the polarity of the reading is positive and vice versa.

**CAUTION**
- When the current flows from the upside (the display of the underside of the display) the polarity of the reading is positive and vice versa.

5.4 DC Voltage Measurement

**DANGER**
- Never make measurement on a circuit in which voltage over DC600V exists to avoid getting electrical shock.
- Never make measurement with the Battery Cover removed.
- Keep your fingers behind the barrier on the instrument during measurement.

1) Set the Function Switch to “DCV” position.

2) Connect the red test lead to V/COM terminal and the black test lead to COM terminal. When the red test lead is connected, the tip mark is to be indicated at the upper right on the display. If the tip mark is not shown, the polarity of the reading is positive and vice versa.

**CAUTION**
- When connecting the test leads, press down the red test lead (left side) and black test lead (right side) on the display. If the tip mark is not shown, the polarity of the reading is positive and vice versa.

6. Battery Replacement

**CAUTION**
- The instrument consumes small amount of battery power at standby mode. When the battery power becomes low, the battery indicator “OFF” will be displayed on the display. To avoid electrical hazard, set the Function Switch to “OFF” position after use.

1) Push the “HOLD” key, this is a function to freeze the measured value on the display. Press the “HOLD” key to freeze the reading.

8. Maintenance

**CAUTION**
- Keep the instrument clean. Do not wipe the instrument with benzene, thinner or alcohol.

1) Data Hold Function

- Hold readings are released when Sleep Function is activated while the instrument is in the Data Hold mode. To exit Data Hold mode, press the “HOLD” key again.

The reading will be held regardless of subsequent variation in input. “H” is indicated on the upper left corner. “H” mark is indicated on the upper left corner when the instrument is in the Data Hold mode. To exit Data Hold mode, press the “HOLD” key again.

2) Backlight On/Off

- Pressing the backlight key 2 sec or more lights up the backlight. Pressing the backlight key 2 sec or more turns off the backlight.

3) AC/DC Current Range

- Set the Function Switch to 1000A, then press the “ZERO” key to zero adjust the display. (If “ZERO” key is pressed at least 2 sec or change functions, the AUTO ranging function is disabled, while “MIN” or “MAX” is held until this function is disabled. “MIN” or “MAX” is indicated on the upper left of the display.)

4) MIN/MAX Function

- Press the trigger to open the transformer jaws and clamp them onto the conductor under test, the conductor should be at the center of the jaws, then take the reading on the display. When the Auto-ranging function is disabled, a “MAX” mark is indicated on the upper left of the display.

5) Min/Max Key

- Pressing the MIN/MAX Key at least 2 sec or change functions.

6) AC/DC Voltage Range

**CAUTION**
- Pressing the MIN/MAX Key, without applying voltage, disables the Auto-ranging function. The ACV/DCV ranges are as following.
- 60V/600V Range: 0.001V-600V
- 600V Range: 601V-6000V
- 6000V Range: 6001V-60000V

7) Battery Replacement

**CAUTION**
- Do not mix old and new batteries.

8. Maintenance

**CAUTION**
- Keep the instrument clean. Do not wipe the instrument with benzene, thinner or alcohol.

- Data Hold function is activated while the instrument is in the Data Hold mode. Pressing the “HOLD” key 2 sec or more lights up the backlight. Pressing the “HOLD” key 2 sec or more turns off the backlight.

1) AC/DC Current Range

- Set the Function Switch to 1000A, then press the “ZERO” key to zero adjust the display. (If “ZERO” key is pressed at least 2 sec or change functions, the AUTO ranging function is disabled, while “MIN” or “MAX” is held until this function is disabled. “MIN” or “MAX” is indicated on the upper left of the display.)

2) MIN/MAX Function

- Press the trigger to open the transformer jaws and clamp them onto the conductor under test, the conductor should be at the center of the jaws, then take the reading on the display. When the Auto-ranging function is disabled, a “MAX” mark is indicated on the upper left of the display.

**CAUTION**
- Never use the instrument on energized circuit.
- Do not use the instrument with the Battery Cover removed.
- Do not connect the test leads from the instrument for current measurement.
- Disconnect the test leads from the instrument for current measurement.

5.5. Resistance/ Diode/ Cont./ Capacity Measurement

**DANGER**
- Never make measurement with the Battery Cover removed.
- Do not make measurement on energized circuit.

1) Set the Function Switch to “Ω/Diode/Cont./Capacity” position.

2) Connect the test leads to V/COM terminal and the black test lead to COM terminal.

3) Set the test leads to the both ends of the conductor under test.

4) Take the reading on the display.

**CAUTION**
- Even if the short test leads, indicated value may not be zero. But it is because of the resistance of test leads and not a failure.
- When test leads are open, “OL” is indicated on the display.
- Keep your fingers and hands behind the barrier during measurement.

**CONTINUITY**

1) Set the Function Switch to “Ω/Diode/Cont./Capacity” position.

2) Connect the test leads to V/COM terminal and the black test lead to COM terminal.

3) Connect the test leads to the both ends of the conductor under test. The buzzer sounds, if the resistance under test is 1000 or less.

4) Set the Function Switch to “Ω/Diode/Cont./Capacity” position.

5) Connect the red and black test lead to the Anode and Cathode of the diode under test respectively. Take the reading on the display. If the connection is reversed, the display indicates “OL”.

6) When the input exceeds the measuring range, the instrument enters measurement.

7) Battery Replacement

**CAUTION**
- To avoid electrical hazard, set the Function Switch to “OFF” position before trying to replace batteries.

- Replace the batteries when a Low Battery Voltage warning “BATT” mark is indicated on the display.
- When the battery is completely exhausted, the display blanks without “BATT” mark shown.
- Set the Function Switch to “OFF” position.
- Unscrew and remove the Battery Compartment Cover from the bottom of the instrument.
- Replace the batteries observing correct polarity. Use new R03 (AAA) or R03 / 1.5V batteries.
- Install the Battery Compartment and tighten the screws.