1. Safety warnings

- This instrument has been designed, manufactured and tested according to IEC61010-2-032. Safety requirements for Electronic Measuring apparatus, and delivered in the best condition after passing quality control tests. This instruction manual contains warnings and safety rules which have to be observed by the user to ensure safe operation of the instrument and to maintain it in safe condition.

Therefore, read through these operating instructions before using the instrument.

**DANGER**
- Read through and understand instructions contained in this manual and obtain safety education of the instrument.
- Keep the manual at hand to enable quick reference whenever necessary.
- The instrument is to be used only in its intended applications. The operating instructions described in the manual must be observed.
- Understand and follow all the safety instructions contained in the manual. It is essential that the above instructions are adhered to. Failure to follow the above instructions may cause injury, instrument damage and/or damage to equipment under test. KYORITSU is not liable for any damage resulting from the user’s mishandling of the instrument.

The symbol 🙁 on the instrument, means that the user must refer to the related parts in the manual for safe operation of the instrument. It is essential to read the instructions wherever the 🙁 symbol appears in the manual.

**WARNING**
- Never make measurement on a circuit in which the electrical potential exceeds AC347V.
- Verify proper operation on a known source before use or taking action as a result of the indication of the instrument.
- Never make measurement when thunder rumbling. If the instrument is in use, stop the measurement immediately and remove the instrument from the equipment under test.
- Never attempt to make measurement in the presence of flammable gases. Otherwise, the use of the instrument may cause sparking, which can lead to an explosion.
- Use insulated protective gears, such as insulated gloves, for your safety when possible electric shock hazards are concerned.
- The transformer jaws are made of metal and their tips are not completely insulated. Be especially careful about the possible shorting where the measured object has exposed metal parts.
- Never use this instrument when its surface or your hand is wet. Do not wet the output terminal because it is not dust- waterproof.
- Do not exceed the maximum allowable input of any measuring range.

**CAUTION**
- Do not step on or pinch the cord to prevent the jacket of the cord from being damaged.
- The output terminal shall be removed or connected without clamping a conductor. Otherwise, it may cause a failure.
- Never expose the instrument to direct sunlight, high temperatures, humidity or dew.
- Never give shocks, such as vibration or drop, which may damage the instrument.
- Use a damp cloth with water and neutral detergent for cleaning the instrument. Do not use abrasives or solvents.

This instrument is not designed to be dust or waterproof. Do not use it in dirty places or where the instrument is likely to be frozen.

It may cause trouble on the instrument.

Never pinch foreign objects or give vibrations at the jointed parts of this instrument. Otherwise, matching area of jaws may be damaged and cause influences on the measurements.

Do not bend or pull the root of the cable in order to prevent breaks in the cable.

Accurate measurement may not be obtained in the vicinity of strong magnetic fields such as transformers, high-current circuits or electronic machines.

**Safoty symbols**
- Refer to the instructions in the manual.
- Indicates a instrument with double or reinforced insulation.
- Indicates that this instrument can clamp on live bare conductors when the voltage to be tested is below Circuit - Ground-to-Earth voltage against the indicated Measurement Category.
- Indicates AC

2. Features

- Clamp sensor for AC current measurement.
- Designed to international safety standard IEC61010-2-032

**Measurement Category:**
- 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 ensure greater momentary energy than one designed for CAT II.

**Circuit**
- 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 switchboards.
- CAT IV: The circuit from the service drop to the service entrance, and to the power meter and primary overcurrent protection device (distribution panel).

3. Instrument layout

- Transformer Jaw
- Barbed Jaw
- Output Terminal
- Fropot Cable
- Conductor
- Barrier: provides protection against electrical shock and ensuring the minimum required air and creepage distances.

4. Operating instructions

- Never make measurement on a circuit in which the electrical potential exceeds AC347V.
- Verify proper operation on a known source before use or taking action as a result of the indication of the instrument.
- Never make measurement when thunder rumbling. If the instrument is in use, stop the measurement immediately and remove the instrument from the equipment under test.
- Never attempt to make measurement in the presence of flammable gases. Otherwise, the use of the instrument may cause sparking, which can lead to an explosion.
- Use insulated protective gears, such as insulated gloves, for your safety when possible electric shock hazards are concerned.
- The transformer jaws are made of metal and their tips are not completely insulated. Be especially careful about the possible shorting where the measured object has exposed metal parts.
- Never use this instrument when its surface or your hand is wet. Do not wet the output terminal because it is not dust-proof.
- Do not exceed the maximum allowable input of any measuring range.

**CAUTION**
- Do not step on or pinch the cord to prevent the jacket of the cord from being damaged.
- The output terminal shall be removed or connected without clamping a conductor. Otherwise, it may cause a failure.
- Never expose the instrument to direct sunlight, high temperatures, humidity or dew.
- Never give shocks, such as vibration or drop, which may damage the instrument.
- Use a damp cloth with water and neutral detergent for cleaning the instrument. Do not use abrasives or solvents.

Always keep your fingers and hands behind the barrier on the instrument to avoid the possible shock hazard.

**CAUTION**
- Do not make measurement when thunder rumbling.
- Never pinch foreign objects or give vibrations at the jointed parts of this instrument. Otherwise, matching area of jaws may be damaged and cause influences on the measurements.
- Do not bend or pull the root of the cable in order to prevent breaks in the cable.
- Accurate measurement may not be obtained in the vicinity of strong magnetic fields such as transformers, high-current circuits or electronic machines.

**Safoty symbols**
- Refer to the instructions in the manual.
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3. Measurement procedures

1. Connect the Output terminal to the input terminal of the measuring instrument.
2. Press the Trigger to open the transformer jaws and clamp onto one conductor. Clamped conductor should be at the center of the closed transformer jaws.
3. Ensure that the tips of transformer jaws are firmly closed.

4. Specifications

- **Model:** KEW 8161
- **Rated current:** AC1000mA (41Apeak)
- **Max. output voltage:** ACAC100V/AC100A/10V/1A
- **Measuring range:** AC0-1000A
- **Accuracy**
  - Input: ±0.5%rdg ±3mA
  - Output: ±2.0%rdg ±3.0mV (45 ≤ AC100V ≤ 65Hz)
- **Temperature & humidity range (Guaranteed accuracy):**
  - 23±5ºC, Relative humidity: 85% or less (no condensation)
- **Operating temperature & humidity range:**
  - 10~ 60ºC, Relative humidity: 85% or less (no condensation)
- **Storage temperature & humidity range:**
  - 20 ~ 60ºC, Relative humidity: 85% or less (no condensation)
- **Maximum permissible input:** AC1000mA
- **Output impedance:** 2Ω or less
- **Application (for use):** indoors or in unheated buildings up to 3000m, indoors
- **Applicable standards:** IEC61010-1, IEC 61010-2-032 Measurement CAT. II, CAT III (2001mA) Pollution degree 2 IEC 61326-1-2-2 IEC61326-1-2-2
- **Withstand voltage:** AC13747Vrms (50/60Hz) for 5 sec. between jaw and enclosure between enclosure and output terminal between jaw and output terminal
- **Insulation resistance:** 200MΩ or greater at 1000V between jaw and enclosure between enclosure and output terminal between jaw and output terminal
- **Conductor Size:** Approx 24mm in diameter (max.)
- **Dimension:** 31L×19W×25H (mm)
- **Cable length:** Approx. 1.5m
- **Weight:** Approx. 1kg
- **Accessories:** Instruction manual

**Memo**

KYORITSU ELECTRICAL INSTRUMENTS WORKS LTD.

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