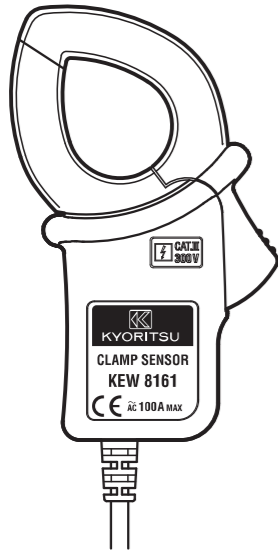


# INSTRUCTION MANUAL



CLAMP SENSOR

## CLAMP SENSOR Series KEW 8161

**KYORITSU ELECTRICAL INSTRUMENTS WORKS, LTD.**

### 1. Safety warnings

- This instrument has been designed, manufactured and tested according to IEC 61010-1: 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 before using 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 ⚠ indicated 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.

- ⚠ **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.

**⚠ DANGER**

- Never make measurement on a circuit in which the electrical potential exceeds AC300V.
- Verify proper operation on a known source before use or taking action as a result of the indication of the instrument.
- Do not make measurement when thunder rumbling. If the instrument is in use, stop the measurement immediately and remove the instrument from the equipment under test.
- Do not attempt to make measurement in the presence of flammable gasses. 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.

**⚠ WARNING**

- Never attempt to make any measurement, if any abnormal conditions are noted, such as broken case, and exposed metal parts.
- Do not install substitute parts or make any modification to the instrument. Return the instrument to your local KYORITSU distributor for repair or re-calibration in case of suspected faulty operation.
- Always keep your fingers and hands behind the barrier on the instrument to avoid the possible shock hazard.

**⚠ CAUTION**

- Do not step on or pinch the cord to prevent the jacket of cord from being damaged.
- The output terminal shall be removed or connected without clamping a conductor. Otherwise, it may cause a failure.
- Do not 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.

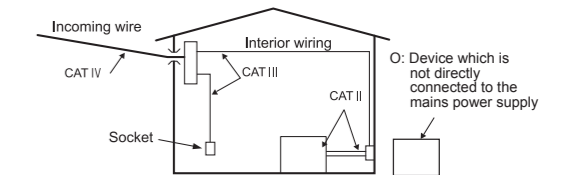
- This instrument is not designed to be dust or waterproof. Do not use it dusty places or where the instrument is likely to be wet. It may cause troubles on the instrument.
- Never pinch foreign matters or give vibrations at the jointed parts of this instrument. Otherwise, matching area of Jaws may be 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 wireless machines.

#### Safety 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
	Crossed-out wheel bin symbol (according to WEEE Directive: 2002/ 96/ EC) indicating that this electrical product may not be treated as household waste, but that it must be collected and treated separately.

**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 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 over-current protection device (distribution panel).



### 2. Features

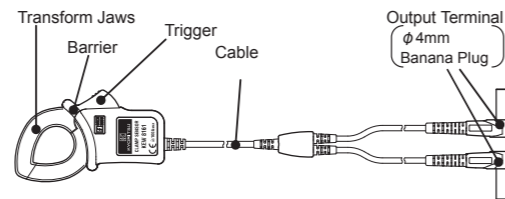
- Clamp sensor for AC current measurement.
- Designed to international safety standard IEC61010-2-032 CAT III 300V Pollution Degree 2

### DISTRIBUTOR

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

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### 3. Instrument layout



Barrier: provides protection against electrical shock and ensuring the minimum required air and creepage distances.

### 4. Operating instructions

**⚠ DANGER**

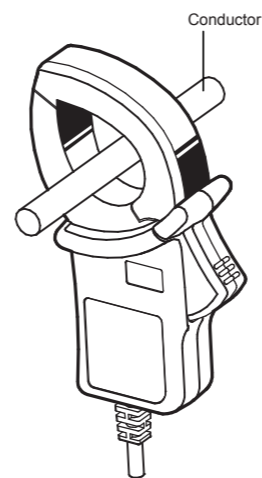
- Never make measurement on a circuit in which the electrical potential exceeds AC300V in order to avoid possible shock hazard.
- The transformer jaws are made of metal and their tips are not completely insulated. Be especially careful about the possible shorting where the measured object has exposed metal parts.

**⚠ CAUTION**

- Take sufficient care to avoid shock, vibration or excessive force when handling the instrument. Otherwise, precisely adjusted transformer jaws will be damaged.
- When transformer jaws do not fully close, never try to close them by force, but make them free to move and try again. If a foreign substance is stuck in the jaw tips, remove it.
- Do not force to open the Transformer jaws when they are frozen.
- When making current measurements, keep the transformer jaws fully closed. Otherwise, accurate measurements cannot be taken. Maximum conductor size is approx φ24mm.
- Hold the inserting part (except for the cable) and disconnect the Output terminal from the measuring instrument so as not to cause a break in the cord.

### 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.



### 5. Specifications

Model	KEW 8161
Rated current	AC100Arms(141Apeak)
Output voltage	AC0~1000mV (AC1000mV/AC100A):10mV/A
Measuring range	AC0~100A
Accuracy (Input: sine wave)	±2.0%rdg±3.0mV (45~65Hz) ±2.5%rdg±3.0mV (65~1kHz)
Temperature & humidity range (Guaranteed accuracy)	23±5°C, relative humidity: 85% or less (no condensation)
Operating temperature & humidity range	-10~ 50°C, relative humidity: 85% or less (no condensation)
Storage temperature & humidity range	-20 ~ 60°C, relative humidity: 85% or less (no condensation)
Maximum permissible input	AC100Arms
Output impedance	22Ω or less
Location for use	Altitude up to 2000m, Indoors
Applicable standards	IEC 61010-1, IEC 61010-2-032 Measurement CAT. III (300Vrms) Pollution degree 2 IEC 61326-1,2-2 EN50581
Withstand voltage	AC3470Vrms (50/60Hz)for 5 sec. between Jaw and enclosure between enclosure and output terminal between Jaw and output terminal
Insulation resistance	50MΩ 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	97(L)×59(W)×26(D)mm
Cable length	Approx. 1.2m
Weight	Approx. 120g
Accessories	Instruction manual

MEMO