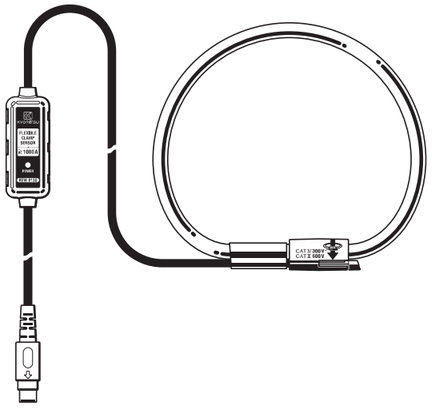
Instruction Manual



FLEXIBLE CLAMP SENSOR

POWER CLAMP SENSOR Series

KEW 8130

KYORITSU ELECTRICAL
INSTRUMENTS WORKS, LTD.

DISTRIBUTOR

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Cautions for using this clamp sensor with KEW5010/5020:
Some KEW5010/5020 that were manufactured before the specific timing of production may not be used with this clamp sensor. Please refer to "**6-3 Connecting with Logger (KEW5010/5020)**" and check the serial no..

1. SAFETY WARNINGS

This clamp sensor has been designed and tested according to IEC61010-1: 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 clamp sensor and to maintain it in safe condition. Therefore, read through these operating instructions before using the clamp sensor.

⚠ DANGER
- Read through and understand instructions contained in this manual before starting to use the clamp sensor.
- Keep the manual at hand to enable quick reference whenever necessary.
- The clamp sensor is to be used only in its intended applications.
- 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, clamp sensor damage and/or damage to equipment under test. KYORITSU is not liable for any damage resulting from the user's mishandling of the clamp sensor.

The symbol ⚠ indicated on the clamp sensor means that the user must refer to the related parts in the manual for safe operation of the clamp sensor. 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 injury or instrument damage.

⚠ DANGER
- With attention to the measurement category to which the object under test belongs, and do not make measurements on a circuit in which the electrical potential exceeds the following values: 300V for CAT IV and 600V for CAT III or lower categories.

⚠ WARNING
- Never attempt to make any measurement if any abnormal conditions, such as a broken cover or exposed metal parts are present on the clamp sensor.
- Do not disassemble, install substitute parts or make any modification to the clamp sensor. Return the clamp sensor to your local KYORITSU distributor for repair or re-calibration in case of suspected faulty operation.
- Do not use the clamp sensor if the clamp sensor or your hands are wet. Otherwise, electrical shock accident may occur.
- Use insulated protective gears for your safety when using this clamp sensor.

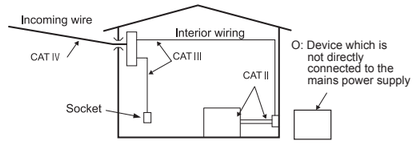
⚠ CAUTION
- Do not step on or pinch the cord; it may damage the jacket of cord.
- Do not expose the clamp sensor to direct sunlight, high temperatures, humidity or dew. Otherwise, it may cause deformation or insulation degradation and cannot meet the original specification.
- Not to give shocks, such as vibration or drop, which may damage the clamp sensor, during transit or use.
- Use a damp cloth with water or neutral detergent for cleaning the clamp sensor. Do not use abrasives or solvents.
- This clamp sensor is not designed to be dust or waterproof. Do not use it dusty places or where the clamp sensor is likely to be wet. It may cause troubles on the clamp sensor.
- Never pinch foreign matters or give vibrations at the jointed parts of this clamp sensor. 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.
- Never apply the current exceeding the measuring range for a long time. It may damage the clamp sensor.
- Never connect/remove the connectors while connected devices are on or clamping onto the conductor under test. Otherwise, the connected devices or clamp sensors may be damaged.
- Accurate measurement may not be obtained in the vicinity of strong magnetic fields such as transformers, high-current circuits or wireless machines.

Meaning of symbols on the clamp sensor:

⚠	User must refer to the explanations in the instruction manual for safety reasons.
⧈	Clamp sensor with double or reinforced insulation
	Do not apply around or remove from un-insulated hazardous live conductors, which may render electric shock, electric burn, or arc flash.
~	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.

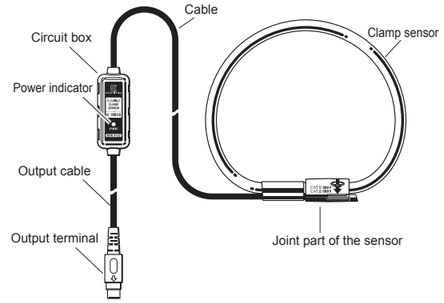
O : Circuits which are not directly connected to the mains power supply.
CAT II : Electrical circuits of equipment connected to an AC electrical outlet by a power cord.
CAT III : Primary electrical circuits of the equipment connected directly to the distribution panel, and feeders from the distribution 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

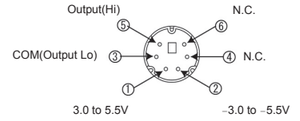
- This is a Clamp Sensor capable of measuring AC current up to 1000A.
- Flexible and light weight because of an air core coil used at the Clamp Sensor part

3. CLAMP SENSOR LAYOUT



4. PIN ASSIGNMENT FOR OUTPUT TERMINAL

The pin assignment for the output terminal of this clamp sensor is as follows.



* Pin assignment at the connecting terminal of measuring instrument is symmetrical to above figure.

- Output signal passes between 3 and 5 of Output terminal.
- This clamp sensor is supplied power via an Output cable. Power supply of +3.0 to +5.5V is required between 1 and 3 of Output terminal and -3.0 to -5.5V is required between 2 and 3 of Output terminal.

5. SPECIFICATION

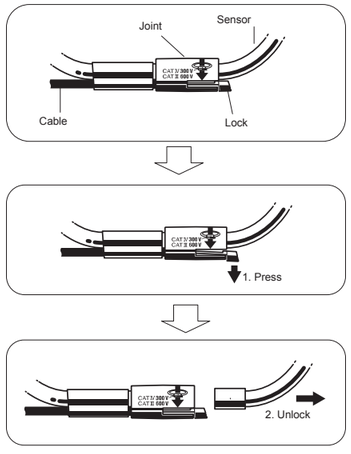
Model name	KEW8130
Rated current	AC1000A
Output voltage	AC500mV/AC1000A(0.5mV/A)
Measuring range	AC0 - 1000Arms(1850Apeak)
Accuracy (sine wave input)	±0.8%rdg±0.2mV(45 - 65Hz) ±1.5%rdg±0.4mV(40 - 1kHz)
Phase characteristics	45 to 65Hz: within ±2° 40 to 1kHz: within ±3°
Current consumption (at power supply ±5V)	max. 2mA
Temperature & humidity range (guaranteed accuracy)	23±5°C, Relative humidity: 85% or less (no condensation)
Operating temperature & humidity range	-10 to 50°C, Relative humidity: 85% or less (no condensation)
Storage temperature & humidity range	-20 to 60°C, Relative humidity: 85% or less (no condensation)
Max allowable input	AC1300A (continuous)
Output impedance	100Ω or less
Environmental condition	Altitude up to 2000m, in-door use
Applicable standards	IEC 61010-1 IEC 61010-2-030 IEC 61010-2-032 Measurement CAT III(600Vrms), CAT IV (300Vrms) Pollution degree 2 IEC 61326-1 (EMC)
Environmental standards	EU RoHS directive compliant
Withstand voltage	AC5160V (r.m.s. 50/60Hz) / 5 sec. Between circuit – clamp sensor
Insulation resistance	50MΩ or more/ 1000V Between circuit – clamp sensor
Measureable conductor size	Max ø 110mm
Cable length	Between clamp sensor – circuit box: approx. 2.7m Between circuit box – output terminal: approx. 0.2m
Output terminal	MINI DIN 6PIN
Weight	Approx. 180g
Accessories	Instruction manual Cable marker: No.1 to 3 (2pcs each) Carrying case (MODEL9095)

6. OPERATING INSTRUCTIONS

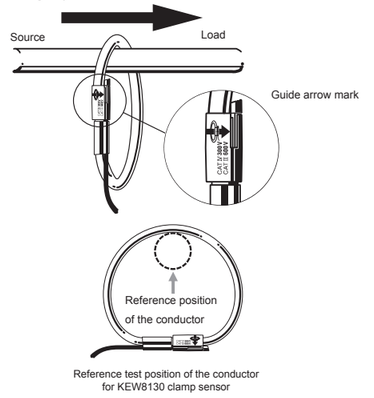
⚠ DANGER
- With attention to the measurement category to which the object under test belongs, and do not make measurements on a circuit in which the electrical potential exceeds the following values: 300V for CAT IV and 600V for CAT III or lower categories.

⚠ CAUTION
- The measurable conductor size is max. 110mm in diameter. Accurate results cannot be obtained if the clamp sensor is not closed firmly.
- When disconnecting the output terminal from the measuring instrument, do so by removing the plug first and not by pulling the cord.

6-1 Measuring method
(1) Connect the output terminal to the input terminal on the measuring instrument.
(2) Power on the measuring instrument.
(3) Press the Joint according to the following illustrations and unlock it.

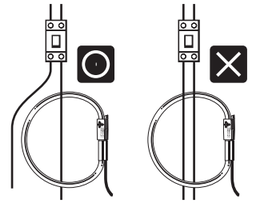


(4) Clamp onto one conductor under the test. Locate the conductor to the position as shown in the below figure. When connecting the Clamp sensor with our Power meter (MODEL6315 etc.), check the direction of the Guide arrow mark indicating the current flowing direction marked on the Joint of the Clamp sensor to make the phase of the current under test and output voltage synchronized.



(5) Confirm that the Joint on the Clamp sensor is firmly locked.

- Jointed part of the Clamp sensor may be disconnected if excessive force is applied to.
- Clamp onto one conductor only; measurements cannot be made when clamping single-phase (2-wire) or three-phase (3-wire) at the same time.

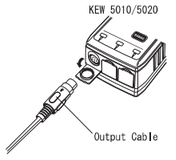


6-2 Connecting with Power meter (KEW6315/KEW6310/KEW6305/ MODEL6300)
When this clamp sensor is detected by the auto-detection function of our KEW6310/ 6315 Power meter after the connection, the type of the clamp sensor will be displayed as follows. On KEW6310, the displayed model name will not be "KEW8130", however, this is not a malfunction. Enter the model name according to the following table if setting the type of the clamp sensor directly.

Power meter	Model name displayed through the auto-detection function
KEW6310	MODEL8124
KEW6315	MODEL8124/8130

- MODEL6300/ KEW6305 does not detect the connected clamp sensors automatically. Enter the model name directly: MODEL8124 (1000A).
- For the detailed setting of the clamp sensor, please refer to the instruction manual for each Power meter.

6-3 Connecting with Logger (KEW5010/5020)
When using this clamp sensor together with our KEW5010 / 5020 Logger;
(1) Connect the clamp sensor to CH1 of KEW5010/ 5020 while KEW5010 / 5020 is in powered off status.



(2) Then power on KEW5010 / 5020. Time will be displayed, and then LOAd and "1000A" will be displayed. (KEW5010/ 5020 checks the connected clamp sensors when it is powered on, and detects and displays the clamp sensor type and a proper range automatically.)

(3) Now the instrument is ready for measurements. When "nC" (no connection) is displayed on the LCD; it means no clamp sensor is connected to the selected channel or the connection is loose.
In this case, check the connection and reconnect the clamp sensor,and power off KEW5010 / 5020. Then power it on again.

* Only KEW5010 / 5020 which have the following or later serial number may be used with this clamp sensor.
KEW5010: No.8031560 or later
KEW5020: No.8029792 or later