Model 8112 Instruction Manual

1. Safety precautions

This instrument has been designed and tested according to IEC Publication 61010: Safety Requirements for Electronic Measuring Apparatus. 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 starting to use the instrument.

⚠WARNING

- Read through and understand instructions contained in this manual before starting to use the instrument.
- Save and keep the manual at hand to enable quick reference whenever necessary.
- The instrument is to be used only in its intended applications.
- Understand and follow all the safety instructions contained in the manual. Failure to follow the instructions may cause injury, instrument damage and/or damage to the equipment under test. Kyoritsu is by no means liable for any damage resulting from the instrument in contradiction to these cautionary notes.

The symbol ⚠ indicated on the instrument means that the user must refer to the related part in the manual for safe operation of the instrument. Be sure to carefully read the instructions following each ⚠ 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.

⚠ DANGER

- Never make measurement on a circuit above 100 V AC (CAT II).
- Do not attempt to make measurement in a presence of flammable gasses, fumes, vapor or dust. Otherwise, use of the instrument may cause sparking, which can lead to an explosion.
- Never attempt to use the instrument if its surface or your hand is wet.
- Never attempt to make any measurement if the instrument has any mechanical abnormality such as cracked case or damaged output cable metal part.
- The instrument should be used only in its intended applications or conditions; otherwise, safety features provided by the instrument don't work, and instrument damage or serious personal injury may be caused.
- Keep your fingers and hands behind the barrier during measurement.

⚠ WARNING

- Do not install substitute parts or make any modification to the instrument. Return the instrument to Kyoritsu or your local KYORITSU distributor for repair or re-calibration.

⚠ CAUTION

- Make sure that the range switch is set to an appropriate position before making measurement.
- Do not expose the instrument to direct sunlight, extreme temperature, or dew fall.
- Use a damp cloth and detergent for cleaning the instrument. Do not use abrasives or solvents.

Measurement categories(Over-voltage categories)

To ensure safe operation of measuring instruments, IEC 61010 establishes safety standards for various electrical environments, categorized as CAT 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.

CAT II : Primary electrical circuits of equipment connected to an AC electrical outlet by a power cord.

2. Features

MODEL 8112 is a clamp type AC current / voltage conversion probe which can measure 0.1 mA to 120 A AC by connecting and using with a digital multimeter.

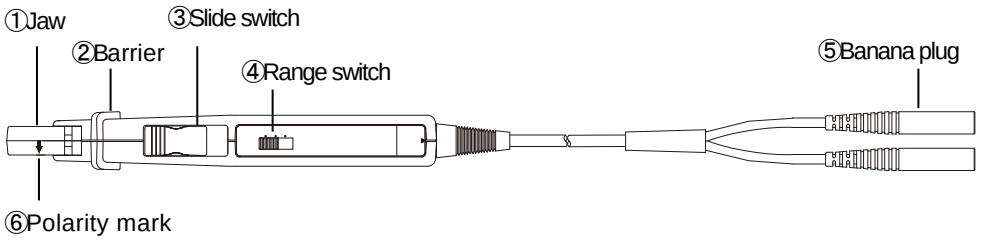
It is simple to operate, and measurement range is selectable among 200 mA, 2 A, and 20 A .

3. Specifications

Range switch position	Measuring range	Output	Accuracy	Frequency Range
200mA / 200mV (1mA / mV)	0 to 500 mA AC	0 to 500 mV AC	±1.5%rdg ±0.2 mA	50 Hz to 1 kHz
	0 to 1000 mA AC	0 to 1000 mV AC	±3.0%rdg ±0.4 mA	40 Hz to 10 kHz
2A / 200mV (10mA / mV)	0 to 20 A AC	0 to 2000 mV AC	±1.0%rdg ±1 mA	40 Hz to 1 kHz
			±1.5%rdg ±2 mA	1 kHz to 10 kHz
20A / 200mV (100mA / mV)	0 to 20 A AC	0 to 200 mV AC	±1.0%rdg ±0.01 A	40 Hz to 1 kHz
	20 to 60 A AC	200 mV to 600 mV AC	±2.5%rdg	50 Hz to 10 kHz
	60 to 120 A AC	600 mV to 1200 mV AC	±2.5%rdg	100 Hz to 10 kHz

Frequency characteristics : Within ±3dB at 30 Hz to 100 kHz
Output impedance : Approx. 2 kΩ
Guaranteed temperature and humidity range : 23ºC±5ºC, relative humidity 85% or less (no condensation)
Operating temperature and humidity range : -10ºC to 50ºC, relative humidity 85% or less (no condensation)
Storage temperature and humidity range : -20ºC to 60ºC, relative humidity 80% or less (no condensation)
Location for use : Indoor use, Altitude up to 2000m
Complied standards : IEC 61010-1 CAT II 100V, Pollution degree 2, IEC 61010-2-32
Environmental standard : EU RoHS directive compliant
Withstand voltage : 500 V AC/ 1 min. (between electrical circuit and enclosure)
Insulation resistance : 10MΩ or greater at 500 V DC (between electrical circuit and enclosure)
Conductor size : Approx. 8 mm (max.)
Output cord : Insulated shield wire (3.9 mm in diameter, approx. 1.5 m long, and banana plug with barrier)
Dimension and weight : 18 mm(W) x 152.5 mm(L) x 23 mm(D) Approx. 100 g (including output cord)
Accessories : Carrying case MODEL 9095 and instruction manual

4. Instruction layout



① Jaw	Current detection CT
② Barrier	Provides protection against electrical shock and ensures the minimum required air and creepage distances.
③ Slide switch	Opens and closes ① Jaw.
④ Range switch	Selects measurement range.
⑤ Banana plug	To be connected to a digital multimeter.
⑥ Polarity mark	Indicates the direction of current to display positive value on a connected multimeter: when current flows along the direction of this mark, the output will be positive.

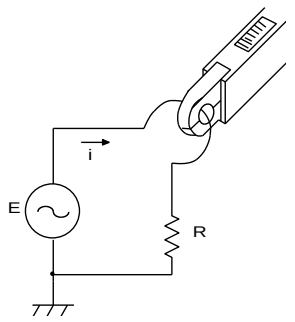
5. Operating instructions

(1) Connect ⑤ Banana plug with barrier to a digital multimeter (range on the multimeter should be ACV").

(2) Slide ③ Slide switch to open ① Jaw to clamp the conductor to be measured.

(3) When current flows along the direction of the polarity mark on ① Jaw, measured value displayed on the multimeter will be positive value.

(4) Slide ④ Range switch to select an appropriate range depending on the current magnitude flowing through the conductor.



(5) How to read current value:

Output voltages are as follows.

- When measuring 200 mA on 200mA range of M-8112, the multimeter indicates 200 mV.
- When measuring 2 A on 2A range of M-8112, the multimeter indicates 200 mV.
- When measuring 20 A on 20A range of M-8112, the multimeter indicates 200 mV.

The followings are the examples of how to take readings.

- When 500 mA is measured by M-8112 setting to 200mA range, the connected multimeter setting to 2V range reads 0.500 V.
- When 10 A is measured by M-8112 setting to 2A range, the connected multimeter setting to 2V range reads 1.000 V.
- When 60 A is measured by M-8112 setting to 20A range, the connected multimeter reads 0.600 V.

DISTRIBUTOR

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