1. SAFETY WARNINGS

This instrument has been designed and tested according to IEC Publication 61010-1. Safety requirements for electrical measuring equipment. This publication contains warnings and safety rules which must be observed by the user to ensure safe operation of the instrument and to retain it in safe condition. Therefore, read through these operating instructions before using the instrument.

**WARNING**

- Read through and understand instructions contained in this manual before using the instrument.
- Save and keep the manual at hand to enable quick reference whenever necessary.
- Be sure to use the instrument only in its intended applications and to follow measurement procedures described in the manual.
- Be sure to understand all safety instructions contained in this manual.

The symbol *ajf* indicates that the user must refer to related parts of the manual for safe operation of the instrument. Be sure to carefully read the instructions following each *ajf* symbol in this manual.

**DANGER**

- Never make measurements on a circuit having potential of 300VAC or greater.
- Do not attempt to make measurement in the presence of flammable gases. Otherwise, the instrument may cause serious accidents or result in explosion.
- The transformer jaws are made of metal and their tips are not completely insulated. Be especially careful about the possible shorting when the equipment under test has exposed metal parts.
- Never attempt to use the instrument if its surface or your hand comes in contact with water.
- Do not exceed the maximum allowable input of any measurement range.
- Never attempt to make any measurement, if any abnormal conditions are noted, such as broken case, cracked test leads, and exposed metal parts.
- Do not use insulated parts or make any modification to the instrument. Return the instrument to Kyoritsu or your distributor for repair or re-calibration.

**CAUTION**

- Do not step on or pinch the cord, or it may damage the jacket of cord.
- The output connector shall be removed or connected while the measured conductor are not being clamped. Otherwise, it may cause a failure.
- Do not expose the instrument to the direct sun, extreme temperatures or dew fall.
- Do not to give shocks, such as vibration or drop, which may damage the instrument.
- Use a damp cloth and detergent for cleaning the instrument. Do not use abrasive or solvents.

2. FEATURES

- Clamp sensor for AC leakage current measurement.
- Designed to safety standard IEC 61010-1, 2.02 over-voltage Category III, Pollution Degree 2.
- High accuracy: Even in highly polluted environment, the instrument keeps high accuracy of 1%. 1% of the rated input is guaranteed accuracy.

3. SPECIFICATIONS

- Rated current: AC100mA
- Output voltage: AC0〜100mV (AC100mV/1000mA)

4. INSTRUMENT LAYOUT

- Transformer Jaws: For connecting the test leads and clamping the conductor.
- Barier: To protect against electrical shock and ensure the required air and creepage distances.
- Trigger: To operate the meaurements.
- Cable: To connect the transformer jaws and close the current measuring circuit.

5. DIN Plug pin assignment

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>GND pin</td>
<td>Output signal pin</td>
<td>1,2,4 and 6th use</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. OPERATING INSTRUCTIONS

- In order to avoid possible shock hazard, never make measurement in circuits having potential of 300VAC or greater.
- The transformer jaws are made of metal and their tips are not completely insulated. Be especially careful about the possible shorting when the equipment under test has exposed metal parts.

**DANGER**

- Measurement Category: To ensure safe operation of measuring instruments, IEC 61010 establishes safety standards for various electrical environments, categorized as CAT I, II, and III. These categories correlate to electrical environments with greater or lesser momentary energy, so a measuring instrument designed for CAT II environments can generate greater momentary energy than one designed for CAT I.
- 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 services entrance, and to the power meter and primary over-current protective device (distribution panel).

6-1 Measuring method

(1) Connect the output connector to the terminal of the instrument.
(2) Press the trigger to open the transformer jaws and close them over measured conductor.
(3) Make sure that the jaw tips are fully closed.

6-2 Leakage Current Measurement

(1) Measuring instrument connected to the system. Clamps all conductors that are not energized. To avoid shorts.

(2) Measuring earth leakage current (See Fig.2): Clamp on a grounded circuit.

Temperature and Humidity Ranges:guaranteed accuracy

- 23℃±5℃: relative humidity 85% or less (without condensation)
- 20℃~27℃: relative humidity 85% or less (without condensation)

Storage Temperature and Humidity Ranges:

-20℃~60℃: relative humidity 85% or less (without condensation)

Maximum permissible input:

M-8141-100A continuous (60/60Hz)
M-8142-200A continuous (60/60Hz)
M-8143-300A continuous (60/60Hz)

Above values are the limit values that only permitted when operating the instrument, and the outputs are 50% of guaranteed accuracy.

Insulation Resistance

50MΩ or greater at 1000V between Jaw and enclosure between Jaw and output connector between enclosure and output connector.