1. Safety warnings

This instrument has been designed, manufactured and tested according to IEC 61010: 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.

**WARNING**

- Read through and understand instructions contained in this manual before using the instrument.
- 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 and or instrument damage.

**CAUTION**

The symbol △ indicates on the instruction, 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 whenever the △ symbol appears in the manual.

**DANGER**

- Never make measurement on a circuit in which the electrical potential exceeds 1000V in order to avoid possible shock hazard.
- The transformer jwes 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.
- Always keep your fingers and all part of your body behind the barrier on the instrument to avoid the possible shock hazard.

- Never make measurement on a circuit in which the electrical potential exceeds 1000V in order to avoid possible shock hazard.
- Never attempt to make any measurement, if any abnormal conditions are noted, such as broken cases, or exposed metal parts.
- Never attempt any modification to the instrument.
- Never attempt to use the instrument if its surface or your hand are wet.
- Do not exceed the maximum allowable input of any measuring range.

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5. Operating instructions

- Connect the Output connector to the Input terminal of the measuring instrument.
- The output connector shall be connected to the center of the instrument.
- The transformer jwes 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.
- Take sufficient care to avoid shock, vibration or excessive force when handling the instrument.
- Otherwise, precisely adjusted transformer jwes will be damaged.
- When transformer jwes do not fully close, try never to close them by force, but make them fully to move and try again. If a foreign substance is stuck in the jaw tips, remove it.
- When making current measurements, keep the transformer jwes fully closed. Otherwise, accurate measurements cannot be taken.
- Hold the insert part (except for the cable) and disconnect the Output connector from the measuring instrument so as not to cause a break in the cord.
- When measuring current which pulse element is experiment, differentials of the indicated value must be compensated, so that it can be measured accurately. In this case, the reading of the bigger range should be taken as a right value. Sensitive transformer jwes are used for Leakage in use cases. Because of the characteristics of transformer jwes, which can be opened and closed, it is impossible to eliminate the interference of external magnetic field completely. If there is a presence of strong magnetic field, use the instrument in a distance as far as possible from it.

6. Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>KEW 8146</th>
<th>KEW 8147</th>
<th>KEW 8148</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage</td>
<td>100V (10mA)</td>
<td>200V (5mA)</td>
<td>500V (1mA)</td>
</tr>
<tr>
<td>Output voltage</td>
<td>100V (10mA)</td>
<td>200V (5mA)</td>
<td>500V (1mA)</td>
</tr>
<tr>
<td>Measuring range</td>
<td>0 ~ 30A</td>
<td>0 ~ 60A</td>
<td>0 ~ 150A</td>
</tr>
<tr>
<td>Accuracy (Input: 0.5% of Full Scale; Input: 1.5% of Full Scale)</td>
<td>0.1%</td>
<td>0.5%</td>
<td>1.5%</td>
</tr>
<tr>
<td>Temperature &amp; humidity range</td>
<td>0 ~ 40°C; relative humidity: 85% or less (no condensation)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Casing material</td>
<td>ABS</td>
<td>ABS</td>
<td>ABS</td>
</tr>
<tr>
<td>Output impedance</td>
<td>Approx. 100Ω</td>
<td>Approx. 100Ω</td>
<td>Approx. 100Ω</td>
</tr>
<tr>
<td>Location for use</td>
<td>Upright use up to 90°, flat use up to 45°</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient conditions</td>
<td>IS0 60071-1:1997; IEC 60529:1991 IP 54</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insulation</td>
<td>3000V (min)</td>
<td>5000V (min)</td>
<td></td>
</tr>
<tr>
<td>Conductive Size</td>
<td>Approx. 400mm in diameter (max.)</td>
<td>Approx. 400mm in diameter (max.)</td>
<td>Approx. 400mm in diameter (max.)</td>
</tr>
<tr>
<td>Cable length</td>
<td>4.5m</td>
<td>4.5m</td>
<td>4.5m</td>
</tr>
<tr>
<td>Output terminal</td>
<td>MIN-DIN 28</td>
<td>MIN-DIN 28</td>
<td>MIN-DIN 28</td>
</tr>
<tr>
<td>Accessories</td>
<td>Instruction manual Cable marker</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**2. Features**

- Clamp sensor for AC leakage current measurement.
- Core (measure up to):
  - KEW 8146: 50A
  - KEW 8147: 100A
  - KEW 8148: 200A
- Designed to international safety standard IEC61010-2-032
- CAT: Ⅱ Pollution degree 2

**3. Instrument layout**

- Transformer.jwes
- Trigger
- Output connector

**4. DIN Plug pin assignment**

<table>
<thead>
<tr>
<th>Pin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GND pin</td>
</tr>
<tr>
<td>2</td>
<td>Socket pin</td>
</tr>
</tbody>
</table>

Lower figure shows the pin assignment seeing the Clamp sensor from output connector part. The figure of the pin assignment of connection terminal is symmetrical to lower figure.