Kyoritsu started early an effort to establish system that ensures traceability to the national standards in order to produce reliable instruments as well as instruments that can assure reliability of other equipment and installations.

When traceability is in place, measurements taken with an instrument any time and anywhere in any situation can be related to the appropriate national measurement standards through a clear and unbroken chain of comparisons.

For example, in terms on measurement defined by JIS (Japanese Industrial Standards), traceability is specified as a condition in which a calibration path is established from instruments produced or in-house standards to higher level standards to the national standards. Kyoritsu currently has a system in place as shown in the figure below.

Our calibrator (standard) is calibrated at Japan Electric Meters Inspection Corporation (JEMIC), Japan Quality Assurance Organization (JQA) and Fluke Japan who perform calibration based on the units established and maintained by National Institute of Advanced Industrial Science and Technology (AIST). The standard is used as the in-house standard to calibrate all the test and measuring equipments which are used in-house.

Voltage: Precision calibrators are used as in-house DC and AC voltage standards.
Current: DC or AC current is converted to a voltage by a standard resistor, and the voltage is calibrated with a precision digital multimeter.
Resistance: Calibration resistors are calibrated with a DC standard current generator and the precision digital multimeter.

**QUALITY CONTROL CONCEPT**

**Kyoritsu 2060BT**
- Conductor size Max. Ø 75mm / Busbar Max. 80x30mm
- Current up to 1000A RMS
- Voltage up to 1000V RMS
- Harmonics up to 30th
- Wireless communication with smartphone or tablet

**Kyoritsu 6516/6516BT**
- 12 functions in one instrument
- Insulation / Loop / RCD / PSC / PFC / Earth / ACV / Continuity / Phase rotation / Frequency / SPD (Varistor) / PAT
- Wireless communication with smartphone or tablet (only 6516BT)

**Kyoritsu 5204**
- Wide Range Illuminance Measurement 0.0 lx to 199900 lx
- Detachable & Rotatable Light Sensor
- Data Hold Function
- MAX/MIN Function
- Large LCD with Backlight

---

CE Marking: signifies conformance to
- EMC directive (2014/30/EU)
- LVD directive (2014/35/EU)
- RoHS directive (2011/65/EU)
Please read the “Safety Warnings” in the instruction manual supplied with the instrument thoroughly and completely for safety use. Failure to follow the safety rules can cause fire, trouble, electrical shock, etc. Therefore, make sure to operate the instrument on a correct power supply and voltage rating marked on each instrument.
# KYORITSU LINE UP

## ANALOGUE MULTIMETERS

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kew 1109S</td>
<td>Model 1110</td>
</tr>
<tr>
<td>Kew 1009</td>
<td>Model 1011/1012</td>
</tr>
<tr>
<td>Kew 1019R</td>
<td>Kew 1020R/1021R</td>
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## ANALOGUE INSULATION/CONTINUITY TESTERS

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Model 2608A</td>
<td>Model 2002PA</td>
</tr>
<tr>
<td>Model 2002R</td>
<td>Kew 2007R</td>
</tr>
<tr>
<td>Kew 2031</td>
<td>Kew 2117R</td>
</tr>
<tr>
<td>Kew 2127R</td>
<td>Kew 2200/2200R</td>
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## HIGH VOLTAGE INSULATION TESTERS

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
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<tbody>
<tr>
<td>Model 2300R</td>
<td>Model 2413F/2413R</td>
</tr>
<tr>
<td>Model 2431</td>
<td>Model 2432</td>
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## DIGITAL MULTIMETERS

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
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<tbody>
<tr>
<td>Kew 1012</td>
<td>Model 1013</td>
</tr>
<tr>
<td>Kew 1019R</td>
<td>Kew 1020/1021R</td>
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## DIGITAL CLAMP METERS

<table>
<thead>
<tr>
<th>Model</th>
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<tbody>
<tr>
<td>Model 2046R</td>
<td>Kew 2055/2056R</td>
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<tr>
<td>Kew 2500/2510</td>
<td>Kew 2300R</td>
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## LEAKAGE CLAMP METERS

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## ANALOGUE INSULATION CONTINUITY TESTERS

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<thead>
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<tbody>
<tr>
<td>Model 3131A</td>
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<tr>
<td>Model 3151A</td>
<td>Model 3165/3166</td>
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<tr>
<td>Kew 3431</td>
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<td>Kew 3121B/3122B</td>
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## DIGITAL CLAMP METERS

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<tr>
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<td>Kew 2200/2200R</td>
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## ELECTRIC CLAMP METERS

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## EARTH TESTERS

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<td>Kew 4105DL</td>
<td>Kew 4106</td>
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<tr>
<td>Model 4118A</td>
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<td>Model 5406A</td>
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## LOOP/PSC TESTERS

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## RCD TESTERS

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## OTHERS

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<tbody>
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## POWER METERS

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<td>Kew 2060BT</td>
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<td>Kew 6305</td>
<td>Kew 6315</td>
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<tr>
<td>Kew 5010/5020</td>
<td>Kew 5050</td>
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<td>Model 5202</td>
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## LOGGERS

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<td>Model 5406A</td>
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<tr>
<td>KEW 1030</td>
<td>P13</td>
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<tr>
<td>KEW 1051/1052</td>
<td>P14</td>
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<tr>
<td>KEW 1061/1062</td>
<td>P16</td>
</tr>
<tr>
<td>KEW MATE 2000A</td>
<td>P16</td>
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<tr>
<td>KEW MATE 2001A</td>
<td>P16</td>
</tr>
<tr>
<td>KEW MATE 2012RA</td>
<td>P16</td>
</tr>
<tr>
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<td>P22</td>
</tr>
<tr>
<td>KEW 2210R</td>
<td>P23</td>
</tr>
<tr>
<td>KEW 2003A</td>
<td>P23</td>
</tr>
<tr>
<td>KEW 2009R</td>
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<tr>
<td>MODEL 2010</td>
<td>P23</td>
</tr>
<tr>
<td>MODEL 2033</td>
<td>P24</td>
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<tr>
<td>MODEL 2343/2433R</td>
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<tr>
<td>MODEL 2434</td>
<td>P28</td>
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<tr>
<td>MODEL 3005A</td>
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<td>MODEL 3007A</td>
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<tr>
<td>MODEL 3021A-3023A</td>
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<td>MODEL 3123A</td>
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<td>MODEL 3128</td>
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<td>MODEL 4200</td>
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<td>KEW 5711</td>
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<td>KEW 8035</td>
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<td>MODEL 8030</td>
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<tr>
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<tr>
<td>KT 170/171</td>
<td>P61</td>
</tr>
<tr>
<td>KT 200/203</td>
<td>P62</td>
</tr>
</tbody>
</table>
Special measurement application “KEW CONNECT”

Maintenance work till now...

- Takes time due to many measurement points
- Manual input is hard and error-prone
- Spend a lot of time writing reports
- Input work is troublesome

From now...

Auto data save → E-mail the data at the site → Just copy and paste the mailed data to create reports.

- Easy! Data transfer
- Quick! Report creation
- No miss-transcription
- Reducing labor cost
- Eliminating data input work

FREE App “KEW CONNECT” supporting iOS/Android devices

KEW Smart*
KEW3552BT / KEW6516BT

Android App
Download from Google Play Store for FREE.
Supporting Android Ver. 5.0 or later.

KEW Power*
KEW2060BT

iOS App
Download from App Store for FREE.
Supporting iPhone, iPad, and iPod touch with iOS 10.0 or later.

* Please note that communication charge is incurred separately for downloading the applications.
* Bluetooth® is the trademark or registered trademark of Bluetooth SIG.
* Android™ is the trademark or registered trademark of Google Inc.
* iOS is the trademark or registered trademark of Cisco in the U.S. and other countries and is used under license.

Models supported by KEW CONNECT:

KEW 3552BT DIGITAL INSULATION/CONTINUITY TESTER
KEW 6516BT MULTI FUNCTION TESTER
KEW 2060BT CLAMP POWER METER
MULTIMETERS

www.kew-ltd.co.jp
### Selection Guide of Multimeters

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<tr>
<th>Model</th>
<th>Appearance</th>
<th>Detection method</th>
<th>Maximum count display</th>
<th>DC Basic accuracy</th>
<th>Frequency response</th>
<th>Measurement</th>
<th>Function</th>
<th>Other</th>
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</thead>
<tbody>
<tr>
<td>1109s</td>
<td><img src="image1.png" alt="Image" /></td>
<td><img src="image2.png" alt="Image" /></td>
<td><img src="image3.png" alt="Image" /></td>
<td>±3% of FS</td>
<td>30 - 20kHz</td>
<td>DC: 0 - 1000V AC: 0 - 600V</td>
<td>Dual display</td>
<td>Operating temperature: -10°C to 50°C</td>
</tr>
<tr>
<td>1110</td>
<td><img src="image4.png" alt="Image" /></td>
<td><img src="image5.png" alt="Image" /></td>
<td><img src="image6.png" alt="Image" /></td>
<td>±3% of FS</td>
<td>50 - 5kHz</td>
<td>DC: 0 - 1000V AC: 0 - 600V</td>
<td>Bar graph</td>
<td>Power source: Rechargeable Ni-MH Battery</td>
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<tr>
<td>1019r</td>
<td><img src="image7.png" alt="Image" /></td>
<td><img src="image8.png" alt="Image" /></td>
<td><img src="image9.png" alt="Image" /></td>
<td>0.8%</td>
<td>45 - 500Hz</td>
<td>DC: 0 - 1000V AC: 0 - 600V</td>
<td>Back light</td>
<td>Dimensions (WxHxD): 150x100x47mm</td>
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<tr>
<td>1020r</td>
<td><img src="image10.png" alt="Image" /></td>
<td><img src="image11.png" alt="Image" /></td>
<td><img src="image12.png" alt="Image" /></td>
<td>0.8%</td>
<td>10kHz</td>
<td>DC: 0 - 1000V AC: 0 - 600V</td>
<td>Data hold</td>
<td>Weight (Approx.): 330g</td>
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<td>1021r</td>
<td><img src="image13.png" alt="Image" /></td>
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<td><img src="image15.png" alt="Image" /></td>
<td>0.8%</td>
<td>40kHz</td>
<td>DC: 0 - 1000V AC: 0 - 600V</td>
<td>Auto hold</td>
<td>Accessories: 7066A, 7066D, 8919A, 8918A, 9013, 9188, 9097, 9130</td>
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<td>1030</td>
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<td><img src="image17.png" alt="Image" /></td>
<td><img src="image18.png" alt="Image" /></td>
<td>0.8%</td>
<td>1kHz</td>
<td>DC: 0 - 1000V AC: 0 - 600V</td>
<td>Peak hold</td>
<td>Test leads: 7066A, 7066D, 8919A, 8918A, 9013, 9188, 9097, 9130</td>
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<td>1011</td>
<td><img src="image19.png" alt="Image" /></td>
<td><img src="image20.png" alt="Image" /></td>
<td><img src="image21.png" alt="Image" /></td>
<td>0.8%</td>
<td>40kHz</td>
<td>DC: 0 - 1000V AC: 0 - 600V</td>
<td>Main switch</td>
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<td>DC: 0 - 1000V AC: 0 - 600V</td>
<td>REL</td>
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<td><img src="image26.png" alt="Image" /></td>
<td><img src="image27.png" alt="Image" /></td>
<td>0.8%</td>
<td>40kHz</td>
<td>DC: 0 - 1000V AC: 0 - 600V</td>
<td>Manual memory</td>
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<td><img src="image29.png" alt="Image" /></td>
<td><img src="image30.png" alt="Image" /></td>
<td>0.8%</td>
<td>1kHz</td>
<td>DC: 0 - 1000V AC: 0 - 600V</td>
<td>Logging memory</td>
<td>Test leads: 7066A, 7066D, 8919A, 8918A, 9013, 9188, 9097, 9130</td>
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<tr>
<td>1053</td>
<td><img src="image31.png" alt="Image" /></td>
<td><img src="image32.png" alt="Image" /></td>
<td><img src="image33.png" alt="Image" /></td>
<td>0.8%</td>
<td>40kHz</td>
<td>DC: 0 - 1000V AC: 0 - 600V</td>
<td>Communication</td>
<td>Test leads: 7066A, 7066D, 8919A, 8918A, 9013, 9188, 9097, 9130</td>
</tr>
<tr>
<td>1054</td>
<td><img src="image34.png" alt="Image" /></td>
<td><img src="image35.png" alt="Image" /></td>
<td><img src="image36.png" alt="Image" /></td>
<td>0.8%</td>
<td>1kHz</td>
<td>DC: 0 - 1000V AC: 0 - 600V</td>
<td>Other</td>
<td>Test leads: 7066A, 7066D, 8919A, 8918A, 9013, 9188, 9097, 9130</td>
</tr>
</tbody>
</table>

*1 With flat-type holder
*2 With wing-type holder
MULTIMETERS

**KEW 1020R/1021R**

- Accurate reading with True RMS
- Large display with 6000 counts and Backlight
- MIN/MAX function
- Rugged and reliable
- Enhanced current measuring function using an external clamp sensor
- Sensor mode (with clamp sensor)
- Ergonomic design
- Safety Standard IEC61010-1 CAT IV 300V / CAT III 600V (1020R and 1021R) / CAT II 1000V (1020R)

### Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>1020R</th>
<th>1021R</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC V</td>
<td>±0.5%rdg+3.5dgt</td>
<td>±0.5%rdg+3.5dgt</td>
</tr>
<tr>
<td>DC mV</td>
<td>±1.5%rdg+3.5dgt+Sensor accuracy</td>
<td>±1.5%rdg+3.5dgt+Sensor accuracy</td>
</tr>
<tr>
<td>DC Clamp Sensor</td>
<td>±1.5%rdg+3.5dgt+Sensor accuracy</td>
<td>±1.5%rdg+3.5dgt+Sensor accuracy</td>
</tr>
<tr>
<td>AC V</td>
<td>±1.0%rdg+3.5dgt [40 - 500Hz] (6/60/600V)</td>
<td>±1.3%rdg+3.5dgt [40 - 500Hz] (1000V)</td>
</tr>
<tr>
<td>AC mV</td>
<td>±2.0%rdg+3.5dgt [40 - 500Hz]</td>
<td>±2.0%rdg+3.5dgt [40 - 500Hz]</td>
</tr>
<tr>
<td>AC Clamp Sensor</td>
<td>±2.0%rdg+3.5dgt + Sensor accuracy [40 - 500Hz]</td>
<td>±2.0%rdg+3.5dgt + Sensor accuracy [40 - 500Hz]</td>
</tr>
<tr>
<td>DC A</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>AC A</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Ω</td>
<td>±0.5%rdg+2.5dgt(600Ω)</td>
<td>±0.5%rdg+3.5dgt(40MΩ)</td>
</tr>
<tr>
<td>Continuity buzzer</td>
<td>600Ω (Buzzer sounds below 90Ω)</td>
<td>600Ω (Buzzer sounds below 90Ω)</td>
</tr>
<tr>
<td>Diode test</td>
<td>Open-loop Voltage:&lt;3.0V</td>
<td>—</td>
</tr>
<tr>
<td>Capacitance</td>
<td>±2.0%rdg+5dgt(600Ω), ±0.5%rdg+2.5dgt(60/600/6000Ω)</td>
<td>±2.0%rdg+5dgt(600Ω), ±0.5%rdg+2.5dgt(60/600/6000Ω)</td>
</tr>
<tr>
<td>Frequency</td>
<td>±0.1%rdg+3dgt ACA 99.99999.99Hz/99999.99kHz ±0.1%rdg+3dgt</td>
<td>±0.1%rdg+3dgt ACA 99.99999.99Hz/99999.99kHz ±0.1%rdg+3dgt</td>
</tr>
<tr>
<td>DUTY</td>
<td>10.0 - 90.0% ±1.0%rdg+3dgt [50/60Hz]</td>
<td>10.0 - 90.0% ±1.0%rdg+3dgt [50/60Hz]</td>
</tr>
<tr>
<td>Applicable Standards</td>
<td>IEC 61010-1 CAT IV 300V / CAT III 600V / CAT II 1000V ** Pollution degree 2, IEC 61010-2-033, IEC 61010-031 IEC 61239-2-2(EMC), IEC 60529 IP40, EN 50581(RoHS)</td>
<td>IEC 61010-1 CAT IV 300V / CAT III 600V / CAT II 1000V ** Pollution degree 2, IEC 61010-2-033, IEC 61010-031 IEC 61239-2-2(EMC), IEC 60529 IP40, EN 50581(RoHS)</td>
</tr>
<tr>
<td>Fuse</td>
<td>—</td>
<td>8919(Ceramic fuse[10A/600V]) x 1(included)</td>
</tr>
<tr>
<td>Power source</td>
<td>R03(AAA)x2</td>
<td>R03(AAA)x2</td>
</tr>
<tr>
<td>Dimensions</td>
<td>155(L) x 75(W) x 40(D) mm (with Wing-type holder)</td>
<td>155(L) x 75(W) x 40(D) mm (with Wing-type holder)</td>
</tr>
<tr>
<td>Weight</td>
<td>250g approx. (including batteries and Wing-type holder)</td>
<td>250g approx. (including batteries and Wing-type holder)</td>
</tr>
</tbody>
</table>

**Accessories**

- Wing-type holder
- Flat-type holder
- Test leads
- Carry case
- Magnet hanger strap
- Alligator clip
- AC Clamp sensor
- MC Clamp sensor
- Flat type holder
- Test leads
- Carry case
- Magnet hanger strap

**Optional Accessories**

- 7234(Alligator clip), 8161(AC Clamp sensor), 8115(AC/DC Clamp sensor), 9189(Magnet hanger strap)

*1 1021R only  *2 1020R only
## Multimeters

### Model 1009
- **Features**
  - Display: 4000 counts.
  - Auto range and manual range selector provided. (with range hold feature)
  - Resistance range provides audible continuity test.
  - Automatically turns power off in about 30 minutes to conserve battery life.
  - Direct current measurement up to 10A AC and DC.
- **Specifications**
  - **DC V**: 400mV/4/40/400/600V ±0.6%rdg±4dgt*
  - **AC V**: 400/4000A/40/400mA/4/10A ±1.0%rdg±4dgt*
  - **DC A**: 400/4000A/40/400mA/4/10A ±0.9%rdg±4dgt*
  - **AC A**: 400/4000A/40/400mA/4/10A ±0.9%rdg±4dgt*
  - **Frequency**: 5.12/51.2/512Hz/5.12/512kHz/5.12/10MHz
  - **Temperature**: 0~100°C (-5~377°F ±3% of scale length for the use of Temperature probe 7056)
  - **Applicable Standards**: IEC 61010-1 CAT II 300V, IEC 61326-1

### KEW 1011/1012
- **Features**
  - 6040 counts with Bar Graph display
  - MIN/MAX function enables to record min & max value
  - REL(relative value) function
  - Temperature measurement, selectable for °C and °F (KEW 1011)
  - True RMS can measure and indicate distorted waveforms (KEW 1012)
  - DUTY function

### Model 1109
- **Features**
  - Mirrored scale for easy and accurate reading.
  - Output terminal to cut off DC component when measuring AC voltage.
  - Safety designed input terminals and test leads.
- **Specifications**
  - **DC V**: 0.1/0.5/2.5/10/50/250/1000V(20kHz) ±3% of FS
  - **AC V**: 100/250/1000V(9kHz) ±3% of FS
  - **DC A**: 50/0.5/2.5/25/250mA ±3% of FS
  - **Ω**: 2/20/20MΩ ±3% of scale length
  - **dB**: 0 - 10000(10+20dB)

### Model 1110
- **Features**
  - High sensitivity DC200kΩ/V.
  - 1μ drop-proof heavy duty design.
  - Can measure line voltage up to 600V. (Voltage to ground MAX AC 300V) (Protected by 600V ceramic fuse against accidental overload)
  - Continuity buzzer, battery check, LED check function.
  - Skeleton type robust and clear case with carrying handle furnished as standard accessory.
- **Specifications**
  - **DC V**: 0.3/6.7/10/30/120/600V(20kHz) ±3% of FS
  - **AC V**: 1.2/10/100/300/60kV(3kHz) ±3% of FS
  - **DC A**: 60/µ/30/300mA ±3% of FS
  - **Ω**: 3/20/300kΩ ±3% of scale length
  - **Battery Test**: 1.5V(0.7 - 2V) ±3% of FS (10μA load)
  - **Temperature**: Note: The MODEL1110 includes a temperature measurement scale, but it is not available for new customers due to the discontinuation of the Temperature Probe 7056.

### KEW 1109S
- **Features**
  - Mirrored scale for easy and accurate reading.
  - Output terminal to cut off DC component when measuring AC voltage.
  - Safety designed input terminals and test leads.
- **Specifications**
  - **DC V**: 0.1/0.5/2.5/10/50/250/1000V(20kHz) ±3% of FS
  - **AC V**: 100/250/1000V(9kHz) ±3% of FS
  - **DC A**: 50/0.5/2.5/25/250mA ±3% of FS
  - **Ω**: 2/20/20MΩ ±3% of scale length
  - **Decibel**: 10 - +42dB
  - **IF**: 0 - 10000(10+20dB) ±3% of scale length
  - **Power source**: R6(AA)(1.5V) × 2, 6F22 × 1
  - **Dimensions**: 150(L) × 78(W) × 30(D)mm
  - **Weight**: 240g approx.

### KEW 1110
- **Features**
  - High sensitivity DC200kΩ/V.
  - 1μ drop-proof heavy duty design.
  - Can measure line voltage up to 600V. (Voltage to ground MAX AC 300V) (Protected by 600V ceramic fuse against accidental overload)
  - Continuity buzzer, battery check, LED check function.
  - Skeleton type robust and clear case with carrying handle furnished as standard accessory.
- **Specifications**
  - **DC V**: 0.3/6.7/10/30/120/600V(20kHz) ±3% of FS
  - **AC V**: 1.2/10/100/300/60kV(3kHz) ±3% of FS
  - **DC A**: 60/µ/30/300mA ±3% of FS
  - **Ω**: 3/20/300kΩ ±3% of scale length

### KEW 1109S Accessories
- 7066A(Test leads), 8216(K-type temperature probe)(1011 Only), 8918(Ceramic fuse[0.8A/600V]) × 1 (included), R6(AA) × 2, Instruction manual

### KEW 1110 Accessories
- 7068A(Alligator clip), 8919(Ceramic fuse[10A/600V]) × 1 (included), R6(AA) × 2, Instruction manual

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*Basic accuracy: For the detailed accuracy, please see our product catalogue on our website.
### KEW 1019R

**DC V**
- 600.0mV/6.000/60.00/600.0V (Input impedance: 10MΩ)
  - ±0.8%rdg±5dgt (600.0mV/6.000/60.00V)
  - ±1.0%rdg±5dgt (600.0V)

**AC V**
- 6.000/60.00/600.0V (Input impedance: 10MΩ)
  - ±3.3%rdg±5dgt (6.000/60.00V/600.0Hz)
  - ±1.6%rdg±5dgt (600.0V/50/60Hz)

**Ω**
- 600.0Ω/6.000/60.00/600.0kΩ/6.000MΩ
  - ±0.8%rdg±5dgt (600.0Ω)
  - ±1.0%rdg±5dgt (6.000/60.00/600.0kΩ/6.000MΩ)

- Continuity buzzer: 600Ω or less.

- Capacitance test: ±3.5%rdg±5dgt (50nF - 50μF)
- ±4.5%rdg±5dgt (500μF)

**Applicable Standards**
- IEC 61010-1 CAT Ⅲ 300V, CAT Ⅱ 600V
- IEC 61010-2-033, IEC 61010-031, IEC 61326-2-2

**Power source**
- CR2032 (3V) × 1 (Auto power off: approx. 15 minutes)

**Dimensions**
- 126(L) × 85(W) × 18(D)mm (including hard case)

**Weight**
- 135g approx. (including battery and hard case)

**Accessories**
- 9188 (Hard case), CR2032 (3V) × 1, Instruction manual

### KEW 1030

**DC V**
- ±0.8%rdg±5dgt (400mV - 400V)
- ±1.0%rdg±5dgt (600V)

**AC V**
- ±1.3%rdg±5dgt (4/40V) (50/60Hz)
- ±1.6%rdg±5dgt (400/600V) (50/60Hz)

**Ω**
- ±0.8%rdg±5dgt (400Ω - 4MΩ)
- ±2.5%rdg±5dgt (40MΩ)

- Continuity buzzer: Buzzer sounds when resistance is 120Ω or less.

- Capacitance test: ±3.5%rdg±5dgt (50nF - 50μF)
- ±4.5%rdg±5dgt (500μF)

**Frequency**
- 5/50/500/5k/50k/200kHz
  - ±0.2%rdg±5dgt (Pulse width / Pulse cycle)

**Applicable Standards**
- IEC 61010-1 CAT Ⅲ 600V
- IEC 61010-2-033, IEC 61010-031, IEC 61326-1 (EMC)

**Power source**
- Button type battery LR44 (SR44) (1.5V) × 2 (Auto power off: approx. 30 minutes)

**Dimensions**
- 190(L) × 39(W) × 31(D)mm

**Weight**
- Approx. 100g (including batteries)

**Accessories**
- 9130 (Carrying case), LR44 (1.5V) × 2, Instruction manual

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**True-RMS Measurements.**

**Sturdy measurement code.**

**Easy-to-use smart structure hard case.**

**DCV, ACV, Ω capacitor Measurement.**

**Complies with IEC 61010-1 CAT Ⅲ 300V, CAT Ⅱ 600V.**

**Large display.**

**Simple range composition.**

**Compact in Size, Light in Weight and Simple in Use**

**Double moulding provides comfortable and good feeling in hand**

**Penlight illuminates brightly the point to be measured, even in dark place**

**Backlight LCD is highly visible, even in darkness**

**Unique wrapping mechanism for test lead in the rear side compartment**

**Protection cover prevents unforeseen accident**

**Wrapping mechanism for test lead in rear side compartment**

**Release test lead from holder.**

**Close the lid after taking out the test lead through upper right hand side hole.**
**DIGITAL MULTIMETERS**

**KEW 1051/1052**

**KEW 1061/1062**

![Photo: 1052](image)
![Photo: 1062](image)

**High Accuracy, High Performance and Reliable Measurements**

- **Top accuracy**
  - 0.02% basic DC accuracy for 1061/1062.
  - 0.09% basic DC accuracy for 1051/1052.
- **Dual display**
  - 1051/1052: 50,000 counts, Bar graph with 51 segments. White back light display.
  - 1061/1062: 6,000 counts, Bar graph with 31 segments. Orange back light display.
- **True-RMS Measurements**
- **Wide AC Frequency bandwidth from 10Hz to 100kHz** *only for 1062*

<table>
<thead>
<tr>
<th>1051</th>
<th>1052</th>
<th>1061</th>
<th>1062</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Detection mode</strong></td>
<td><strong>RMS</strong></td>
<td><strong>MEAN/RMS (switch)</strong></td>
<td><strong>RMS</strong></td>
</tr>
<tr>
<td>DC V</td>
<td>600.0mV/60.00mV/600.0mV/6000.0mV/1000V</td>
<td>(Input impedance: 10MΩ [600mV/60/600/1000V], 110MΩ [6V])</td>
<td>±0.99%rdg±2dgt</td>
</tr>
<tr>
<td>AC V (RMS)</td>
<td>600.0mV/60.00mV/600.0mV/6000.0mV/1000V</td>
<td>(Input impedance: 10MΩ×2=200pF [60mV], 110MΩ×50pF [6V], 10MΩ×50pF [60/600/1000V])</td>
<td>±0.5%rdg±5dgt</td>
</tr>
<tr>
<td>AC V (MEAN)</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>DCV+ACV</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>DC A</td>
<td>6.00/6000μA/600.0/440.0mA/6.00mA/10.00mA ×0.2%rdg±2dgt</td>
<td>±0.99%rdg±2dgt</td>
<td>±0.5%rdg±2dgt</td>
</tr>
<tr>
<td>AC A (RMS)</td>
<td>6.00/6000μA/600.0/440.0mA/6.00mA/10.00mA</td>
<td>±0.75%rdg±5dgt</td>
<td>±0.9%rdg±2dgt</td>
</tr>
<tr>
<td>AC A (MEAN)</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>DCA+ACA</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Ω</td>
<td>600.0Ω×6/600.0/600.0/60.0kΩ/6.00/60.0MΩ</td>
<td>±0.4%rdg±1dgt</td>
<td>±1%rdg±2dgt</td>
</tr>
<tr>
<td>LowPower-Ω</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td><strong>Continuity buzzer</strong></td>
<td>600.0Ω (The buzzer turns on for resistances lower than 50Ω/30Ω)</td>
<td>500.0Ω (The buzzer turns on for resistances lower than 100Ω/50Ω)</td>
<td>500Ω (The buzzer turns on for resistances lower than 100Ω/50Ω)</td>
</tr>
<tr>
<td><strong>Diode test</strong></td>
<td>2.000V ±1%rdg±2dgt</td>
<td>Open circuit voltage: ±3.5V (Approx. 0.5mA Measuring Current)</td>
<td>2.4000V ±1%rdg±2dgt</td>
</tr>
<tr>
<td>Capacitance</td>
<td>10.00/100.0pF/1000.0/100/1000pF/2%rdg±5dgt</td>
<td>±2%rdg±5dgt</td>
<td>±1%rdg±10dgt</td>
</tr>
<tr>
<td>Frequency</td>
<td>10.00 - 99.99/90.0 - 999.9Hz/0.00 - 9999.9Hz/99.99kHz</td>
<td>±0.02%rdg±1dgt</td>
<td>±2.00 - 9.999/9.99 - 99.99kHz</td>
</tr>
<tr>
<td><strong>DUTY</strong></td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td><strong>Temperature</strong></td>
<td>-50 - 600°C ±2%rdg±2°C (with the use of K-type Temperature probe)</td>
<td>-200 - 1372°C ±1%rdg±1.5°C (with the use of K-type Temperature probe)</td>
<td></td>
</tr>
<tr>
<td><strong>Applicable Standards</strong></td>
<td>IEC 61010-1 CAT IV 600V, CAT III 1000V</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Power source</strong></td>
<td>REL(DC5V) × 4 (with optional battery), 24VDC (100-240VAC)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>192L x 90W x 49(D)mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>Approx. 560g (including batteries)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Accessories</strong></td>
<td>Test Leads, L1×6, 4, 8928/Fuse [440mA/1000V] × 1 (included), 8927/Fuse [10A/1000V] × 1 (included), Instruction manual</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Basic accuracy: For the detailed accuracy, please see our product catalogue on our website.*

**Safety design for industrial use**

- Complies with IEC 61010-1 CAT IV 600V, CAT III 1000V
- Terminal shunter to prevent incorrect test leads' insertion in current terminals
- Very wide operating temperature range
  - From -20 to +55°C for 1061/1062
  - From -10 to +55°C for 1051/1052

**Reliable support for data management**

*except for 1051*

- Large data internal memory
- Download data and Live Monitoring on a PC via the USB interface (Option for USB Communication set)

**True-RMS or MEAN value detection mode can be selected *only for 1052, 1062***

**DC+AC TRMS Measurement *only for 1061, 1062***

**AC and DC values are displayed simultaneously via dual display.**

**Fast Peak Hold response time of 250μs *only for 1062***

**Low-pass filter *except for 1061***

**Low Power-Ω measurements *only for 1062***

**User calibration function**
Reliable support for data management

Large internal memory to store test data
- KEW1062: 10,000 data in Logging mode, 100 data manually saved.
- KEW1061: 1,000 data in Logging mode, 100 data manually saved.
- KEW1052: 1,600 data in Logging mode, 100 data manually saved.
- Logging interval can set from 1 sec. to 30 min.

Test data can be transferred to a PC or directly to a Printer
- Real-time data can be transferred and shown on a PC.
- Real-time transferring permits the saving of a considerable amount of data on a PC.
- Stored data of internal memory can be monitored by PC.

Data management with the software DMM Application
- Stored data of internal memory can be monitored by PC.
- List of measured data can be converted into Graph.
- Data can be transferred to Excel** and saved as CSV file.

**Optional accessories are required.
**Excel is a registered trademark of Microsoft in the USA.

Optimal Accessories

<table>
<thead>
<tr>
<th>Description</th>
<th>MODEL</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alligator Clip</td>
<td>7234</td>
<td>CAT IV 600V, CAT II 1000V test</td>
</tr>
<tr>
<td>USB Communication set</td>
<td>8241</td>
<td>USB adapter+USB cable+DMM Software</td>
</tr>
<tr>
<td>Thermal paper for printer</td>
<td>8247</td>
<td>10 rolls</td>
</tr>
<tr>
<td>Thermocouple Type K</td>
<td>8405</td>
<td>-40°C - 500°C (Surface type, Point material: Ceramic)</td>
</tr>
<tr>
<td></td>
<td>8406</td>
<td>-40°C - 500°C (Surface type)</td>
</tr>
<tr>
<td></td>
<td>8407</td>
<td>-40°C - 700°C (Liquid, Semi-solid)</td>
</tr>
<tr>
<td></td>
<td>8408</td>
<td>-40°C - 600°C (Air, Gas)</td>
</tr>
<tr>
<td>Clamp sensor</td>
<td>8115</td>
<td>Surface type</td>
</tr>
<tr>
<td></td>
<td>8121</td>
<td>AC 100A</td>
</tr>
<tr>
<td></td>
<td>8122</td>
<td>AC 500A</td>
</tr>
<tr>
<td></td>
<td>8123</td>
<td>AC 1000A</td>
</tr>
<tr>
<td></td>
<td>8146</td>
<td>AC 30A</td>
</tr>
<tr>
<td></td>
<td>8147</td>
<td>AC 70A</td>
</tr>
<tr>
<td></td>
<td>8148</td>
<td>AC 100A</td>
</tr>
<tr>
<td>Banana 4-mm Adjuster Plug</td>
<td>7146</td>
<td>Length: 190mm</td>
</tr>
<tr>
<td>Carrying case</td>
<td>9154</td>
<td>Soft case(For the main unit with test leads and comm. cable)</td>
</tr>
</tbody>
</table>

Thermocouple Type K Specification

<table>
<thead>
<tr>
<th>MODEL</th>
<th>Usage</th>
<th>Measurement temperature</th>
<th>Tolerance (t measurement temperature)</th>
<th>Response speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>8405</td>
<td>Surface type (Point material: Ceramic)</td>
<td>-40°C - 500°C</td>
<td>±2.5°C/±0°C -333°C, ±0.0057 ×</td>
<td>approx. 1.8 Sec.</td>
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<tr>
<td>8406</td>
<td>Surface type</td>
<td>-40°C - 500°C</td>
<td>±2.5°C/±0°C -333°C, ±0.0057 ×</td>
<td>approx. 1.0 Sec.</td>
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<tr>
<td>8407</td>
<td>Liquid, Semi-solid</td>
<td>-40°C - 700°C</td>
<td>±2.5°C/±0°C -333°C, ±0.0057 ×</td>
<td>1 Sec. or less</td>
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<tr>
<td>8408</td>
<td>Air, Gas</td>
<td>-40°C - 600°C</td>
<td>±2.5°C/±0°C -333°C, ±0.0057 ×</td>
<td>0.4 Sec.</td>
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Clamp sensor Specification

<table>
<thead>
<tr>
<th>AC/DC current sensor</th>
<th>AC current sensor</th>
<th>Leakage &amp; AC current sensor</th>
</tr>
</thead>
<tbody>
<tr>
<td>8115</td>
<td>8121*</td>
<td>8122*</td>
</tr>
<tr>
<td>8123*</td>
<td>8146*</td>
<td>8147*</td>
</tr>
<tr>
<td>8148*</td>
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<td></td>
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<table>
<thead>
<tr>
<th>Appearance</th>
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<tbody>
<tr>
<td>Conductor size</td>
<td>ø2mm</td>
<td>ø24mm</td>
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<tr>
<td></td>
<td>ø40mm</td>
<td>ø55mm</td>
</tr>
<tr>
<td></td>
<td>ø62mm</td>
<td>ø68mm</td>
</tr>
<tr>
<td>Rated current</td>
<td>AC 100A / DC 180A</td>
<td>AC 100A</td>
</tr>
<tr>
<td></td>
<td>AC 500A</td>
<td>AC 1000A</td>
</tr>
<tr>
<td></td>
<td>AC 30A</td>
<td>AC 70A</td>
</tr>
<tr>
<td></td>
<td>AC 100A</td>
<td></td>
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<tr>
<td>Output voltage</td>
<td>AC 10mA/AC 10mA</td>
<td>AC 50mA/100A</td>
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<td></td>
<td>AC 300mA/100A</td>
<td>AC 500mA/100A</td>
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<td></td>
<td>AC 1500mA/30A</td>
<td>AC 3500mA/70A</td>
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<tr>
<td></td>
<td>AC 5000mA/100A</td>
<td></td>
</tr>
<tr>
<td>Accuracy</td>
<td>±1.0%rdg±0.4mV DC</td>
<td>±1.0%rdg±0.4mV DC</td>
</tr>
<tr>
<td></td>
<td>(This accuracy is defined after a zero-adjustment)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>±2.0%rdg±0.3mV</td>
<td>±0.1%rdg±0.1mV</td>
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<tr>
<td>Frequency range</td>
<td>40Hz - 50Hz</td>
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<tr>
<td>Dimensions</td>
<td>127Lx22Wx28Dmm</td>
<td>97Lx41Wx28Dmm</td>
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<tr>
<td></td>
<td>175Lx105Wx28Dmm</td>
<td>100Lx60Wx26Dmm</td>
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<tr>
<td>Weight</td>
<td>approx. 160g</td>
<td>approx. 150g</td>
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<tr>
<td></td>
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<td>approx. 260g</td>
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<tr>
<td></td>
<td></td>
<td>approx. 360g</td>
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<tr>
<td></td>
<td></td>
<td>approx. 240g</td>
</tr>
<tr>
<td></td>
<td></td>
<td>approx. 510g</td>
</tr>
</tbody>
</table>

*Banana 4-mm adjuster plug (7146) is required to connect the clamp sensor to the DMM.
• Capable of measuring AC and DC currents with OPEN CLAMP SENSOR.
60A(2000A)/100A(2001A)/120A(2012RA)
• Increase cable strength with new rubber protective.
• Test probe can be fixed to the holster.
• Can measure AC/DC current and voltage.
• Pocket size and heavy duty design.
• With test lead cap to protect from short circuit accident.
• The open jaws are thin, perfect to clamp wires even in tight spaces.

### Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>2000A</th>
<th>2001A</th>
<th>2012RA</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC V</td>
<td>340.0mV/3.40/34.0/340.0/600V</td>
<td>600.0mV/6.00/60.0/600.0V</td>
<td>600.0mV/6.00/60.0/600.0V</td>
</tr>
<tr>
<td>AC V</td>
<td>3.40/34.0/340.0/600.0V</td>
<td>6.00/60.0/600.0V</td>
<td>6.00/60.0/600.0V</td>
</tr>
<tr>
<td>DC A</td>
<td>0.60A ±2.0%rdg±5dgt</td>
<td>60.0A ±2.0%rdg±5dgt</td>
<td>60.0A ±2.0%rdg±5dgt</td>
</tr>
<tr>
<td>AC A</td>
<td>0.60A ±2.0%rdg±5dgt</td>
<td>100.0A ±2.0%rdg±5dgt</td>
<td>100.0A ±2.0%rdg±5dgt</td>
</tr>
<tr>
<td>Ω</td>
<td>340Ω/3.4/34/340kΩ</td>
<td>600Ω/6/60/600kΩ</td>
<td>600Ω/6/60/600kΩ</td>
</tr>
<tr>
<td>Continuity buzzer</td>
<td>Buzzer sounds below 30Ω (Continuity buzzer works on 340Ω range only)</td>
<td>Buzzer sounds below 35Ω</td>
<td></td>
</tr>
<tr>
<td>Diode test</td>
<td>-</td>
<td>-</td>
<td>2.000V ±3.0%rdg±5dgt</td>
</tr>
<tr>
<td>Capacitance</td>
<td>-</td>
<td>-</td>
<td>400.0μF/40.0/4.0/400Hz</td>
</tr>
<tr>
<td>Frequency</td>
<td>3.400/10.0/100Hz</td>
<td>99.99/999.9/9999.9kHz</td>
<td>99.99/999.9/9999.9kHz</td>
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<tr>
<td>Input sensitivity</td>
<td>Current:more than 15A</td>
<td>Current:more than 15A</td>
<td></td>
</tr>
<tr>
<td>Conductor size</td>
<td>6mm max</td>
<td>10mm max</td>
<td>12mm max</td>
</tr>
<tr>
<td>Applicable standards</td>
<td>IEC61010-1 CAT III 300V, CAT II 600V</td>
<td>IEC61010-1 CAT III 300V, CAT II 600V</td>
<td></td>
</tr>
<tr>
<td>Power source</td>
<td>R03(1.5V)×2</td>
<td>R03(1.5V)×2</td>
<td>R03(1.5V)×2</td>
</tr>
<tr>
<td>Dimensions</td>
<td>128(L)×87(W)×24(D)mm</td>
<td>128(L)×92(W)×27(D)mm</td>
<td>128(L)×92(W)×27(D)mm</td>
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<tr>
<td>Weight</td>
<td>210g approx. (including batteries)</td>
<td>220g approx. (including batteries)</td>
<td>220g approx. (including batteries)</td>
</tr>
<tr>
<td>Accessories</td>
<td>R03(1.5V)×2, Instruction manual</td>
<td>R03(1.5V)×2, Instruction manual</td>
<td>R03(1.5V)×2, Instruction manual</td>
</tr>
<tr>
<td>Optional</td>
<td>9107(Carrying case)</td>
<td>-</td>
<td>-</td>
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</table>

- Test Probe can be fixed to the holster
- Forklift maintenance
- Automobile maintenance
# Selection Guide of Clamp Meters

## Appearance

<table>
<thead>
<tr>
<th></th>
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<tbody>
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<td>33mm</td>
<td>33mm</td>
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<td>45mm</td>
<td>70mm</td>
<td>150mm</td>
<td>10mm</td>
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<td>Detection method</td>
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<td>–</td>
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<td>✓</td>
<td>✓</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Frequency response</td>
<td>50/60Hz</td>
<td>40 - 1kHz</td>
<td>40 - 400Hz</td>
<td>40 - 1kHz</td>
<td>40 - 1kHz</td>
<td>45 - 65Hz (ACA)</td>
<td>45 - 1kHz (ACA)</td>
<td>45 - 50Hz (ACA)</td>
<td>40 - 1kHz</td>
<td>45 - 500Hz</td>
<td>45 - 500Hz</td>
<td>DC 50/60Hz</td>
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## Measurement

### AC A

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<td>Max</td>
<td>300A</td>
<td>200A</td>
<td>1000A</td>
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<td>400A</td>
<td>400A</td>
<td>3000A</td>
<td>100A</td>
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<td>Resolution</td>
<td>0.2A</td>
<td>0.01A</td>
<td>0.1A</td>
<td>0.01A</td>
<td>0.1A</td>
<td>0.01A</td>
<td>0.1A</td>
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<td>0.001A</td>
<td>0.1A</td>
<td>±2%R ±5D</td>
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<tr>
<td>Accuracy</td>
<td>±3% of FS</td>
<td>±2%R ±5D</td>
<td>±1.5%R ±4D</td>
<td>±1.5%R ±4D</td>
<td>±1.5%R ±6D</td>
<td>±1.5%R ±3D</td>
<td>±1.5%R ±3D</td>
<td>±1%R ±3D</td>
<td>±3%R ±5D</td>
<td>±3%R ±5D</td>
<td>±2%R ±5D</td>
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### DC A

<table>
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<td>DC Voltage</td>
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<td>600V</td>
<td>60/600V</td>
<td>60/600V</td>
<td>600V</td>
<td>600V</td>
<td>750V</td>
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<td>Resistance</td>
<td>10kΩ</td>
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<td>6kΩ</td>
<td>600kΩ</td>
<td>400kΩ</td>
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<td>2kΩ</td>
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<td>Display duty</td>
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<td>Diode test</td>
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<td>Temperature</td>
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## Other

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<tr>
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<td>0 - 40°C</td>
<td>0 - 40°C</td>
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<td>0 - 40°C</td>
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<td>Measurement categories</td>
<td>CAT III 600V</td>
<td>CAT II 600V</td>
<td>CAT III 600V</td>
<td>CAT II 600V</td>
<td>CAT III 600V</td>
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<tr>
<td>Power source</td>
<td>R6 x 1</td>
<td>LR-14 x 2</td>
<td>R03/LR03 x 2</td>
<td>R03/LR03 x 2</td>
<td>R03/LR03 x 2</td>
<td>R03/LR03 x 2</td>
<td>R03/LR03 x 2</td>
<td>R03/LR03 x 2</td>
<td>R6 x 2</td>
<td>R6 x 2</td>
<td>R03/LR03 x 2</td>
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<tr>
<td>Dimensions (LxWxD)</td>
<td>193x78x39</td>
<td>147x58.5x26</td>
<td>204x81x36</td>
<td>204x81x36</td>
<td>204x81x36</td>
<td>190x68x20</td>
<td>190x68x20</td>
<td>247x105x49</td>
<td>247x105x49</td>
<td>120x70x28</td>
<td>120x70x28</td>
<td>161x40x30</td>
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<tr>
<td>Weight (Approx.)</td>
<td>275g</td>
<td>100g</td>
<td>220g</td>
<td>220g</td>
<td>230g</td>
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<td>110g</td>
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<tr>
<td>Accessories</td>
<td>Fuse</td>
<td>8923 x 2</td>
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<td>9113</td>
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</tbody>
</table>
### Selection Guide of Clamp Meters

#### Appearance
- **Conductor size**: 
  - $\Phi 4.6 \text{ mm}$
  - $\Phi 4.6 \text{ mm}$
  - $\Phi 7.5 \text{ mm}$
  - $\Phi 24 \text{ mm}$
  - $\Phi 23 \text{ mm}$
  - $\Phi 24 \text{ mm}$
  - $\Phi 28 \text{ mm}$
  - $\Phi 40 \text{ mm}$
  - $\Phi 40 \text{ mm}$
  - $\Phi 40 \text{ mm}$

#### Measurement
- **Power source**: R6/LR6 × 4
- **Dimensions (LxWxH):**
  - 2055R: 111 x 81 x 48 (Display unit)
  - 2056R: 142 x 84 x 26 (Display unit)
  - 2003A: 147 x 59 x 25
  - 2009R: 243 x 77 x 36
  - 2433R: 254 x 82 x 38
  - 2413F: 250 x 105 x 48
- **Weight (Approx.)**: 290g
- **Accessories**
  - Test leads: 7066A
  - Filter: 2056R

#### Function
- **Non-contact voltage**: DC
- **Back light**: –
- **Data hold**: –
- **Peak hold**: –
- **Max/Min**: –
- **Relative**: –
- **Output**: –
- **Filter**: –

#### Other
- **Operating temperature**: -10 to 50°C
- **Power source**: R6/LR6 × 4
- **Dimensions (LxWxH):**
  - 2055R: 111 x 81 x 48 (Display unit)
  - 2056R: 142 x 84 x 26 (Display unit)
  - 2003A: 147 x 59 x 25
  - 2009R: 243 x 77 x 36
  - 2433R: 254 x 82 x 38
  - 2413F: 250 x 105 x 48
- **Weight (Approx.)**: 290g
- **Accessories**
  - Test leads: 7066A

#### Notes
- *1 External power is available.
- *2 In the PEAK mode, the auto-ranging feature is disabled and measuring ranges are fixed as follows.
- DC/AC: 0 - 400.0A
- DC/AC: 0 - 400.0V
ANALOGUE/DIGITAL CLAMP METERS

MODEL 2608A

- DC voltage range is also available especially for checking emergency battery operated power supply.
- Tear drop shaped transformer jaws for ease of use.
- Minimum resolution 0.2A

KEW 2007R

- Fully Safety jaw.
- Ergonomic over-molded body gives convenient one-hand operation.
- Large easy-to-read display with 0.1A resolution.
- Accurate reading with True RMS 600/1000A auto-ranging.
- Long battery life.
- Safety Standard IEC61010-1 CAT III 300V / CAT III 600V.

MODEL 2002PA/2002R

- Can measure large AC current up to 2000A.
- Peak hold function.
- 55mm-dia large tear drop shaped jaws.
- Minimum resolution 0.1A

<table>
<thead>
<tr>
<th>MODEL 2608A</th>
<th>2608A</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC A</td>
<td>6/10/15/30/300A</td>
</tr>
<tr>
<td>AC V</td>
<td>150/300/600V</td>
</tr>
<tr>
<td>DC V</td>
<td>60V</td>
</tr>
<tr>
<td>Ω</td>
<td>1/10kΩ (25/250Ω mid-scale)</td>
</tr>
</tbody>
</table>

Temperature Note: The MODEL2608A includes a temperature measurement scale, but it is not available for new customers due to the discontinue of the Temperature Probe 7060.

Cond.uctor size ≤33mmax.

Frequency response 50/60Hz

Applicable Standards IEC 61010-1 CAT III 300V Pollution degree 2 IEC 61010-031, IEC 61010-2-032, IEC 61326-2-2(EMC), IEC 60529 IP40, EN 50581(RoHS)

Power source R6(AA)(1.5V) × 1

Dimensions 193(L) × 78(W) × 39(D)mm

Weight 275g approx.

Accessories 7066A(Test leads), 8923(Fuse [0.5A/600V]) × 1 (included), 1 (spares) 9097(Carrying case), R6(AA) × 1

Instruction manual

2007R

<table>
<thead>
<tr>
<th>2002PA</th>
<th>2002R</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC A</td>
<td>400(A) - 400(A)</td>
</tr>
<tr>
<td></td>
<td>±1.5%rdg±3δ(50/60Hz)</td>
</tr>
<tr>
<td></td>
<td>±2%rdg±3δ(400Hz - 1kHz)</td>
</tr>
<tr>
<td></td>
<td>200(A) - 1500(A)</td>
</tr>
<tr>
<td></td>
<td>±1%rdg±3δ(50/60Hz)</td>
</tr>
<tr>
<td></td>
<td>±3%rdg±3δ(400Hz - 1kHz)</td>
</tr>
<tr>
<td></td>
<td>200(A)1500 - 2000(A)</td>
</tr>
<tr>
<td></td>
<td>±3.0%rdg(50/60Hz)</td>
</tr>
</tbody>
</table>

Continuity buzzer buzzer sounds below 5Ω

Conductor size ø3.5mm max.

Frequency response 40Hz - 1kHz

Output Recorder, DC400mV against AC400mA DC200mV against AC200mA

Applicable Standards IEC 61010-1 CAT III 600V, CAT II 1000V IEC 61010-031 IEC 61010-2-032 IEC 61326-1

Power source R6(AA)(1.5V) × 2

Continuous measuring time : approx. 170 hours (when R03 is used) (Auto power save : approx. 10 minutes)

Dimensions 204(L) × 81(W) × 36(D)mm

Weight 220g approx. (including batteries)

Accessories 7107A(Test leads), 9074(Carrying case) R03(AAA) × 2, Instruction manual

Optional 7256(Output cord)
Model 2031

- Can measure large AC current up to 200A.
- 24mm-dia tear drop shaped jaws.
- Minimum resolution 0.01A

KEW 2117R

- Fully Safety jaw
- Ergonomic over-molded body gives convenient one-hand operation
- Large easy-to-read display with 0.01A resolution
- Accurate reading with True RMS 60/600/1000A auto-ranging
- Long battery life
- Safety standard IEC61010-1 CAT Ⅳ 300V / CAT Ⅲ 600V

KEW 2127R

- Fully Safety jaw
- Ergonomic over-molded body gives convenient one-hand operation
- Large easy-to-read display with 0.01A resolution
- Accurate reading with True RMS 60/600/1000A auto-ranging
- Peak Hold for inrush current
- Large display with back light
- Capacitance and Diode test
- Long battery life
- Safety standard IEC 61010-1, CAT Ⅳ 300V / CAT Ⅲ 600V

2031

- AC A
  - 20A
  - ±2%rdg±5dgt[50Hz - 1kHz]
  - 200A
  - ±2%rdg±5dgt[50/60Hz]
  - ±3%rdg±10dgt[40Hz - 1kHz]
- Conductor size
  - 624mm max.
- Frequency response
  - 40Hz - 1kHz
- Applicable Standards
  - IEC 61010-1 CAT Ⅲ 300V
- Power source
  - LR-44(1.5V) × 2
  - Continuous measuring time : approx. 100 hours
  - (Auto power off : approx. 10 minutes)
- Dimensions
  - 147(L) × 58.5(W) × 26(D)mm
- Weight
  - 100g Approx.
- Accessories
  - 9090 (Carrying case)
  - Instruction manual

2117R

- AC A
  - 60.00/600.0/1000A (Auto-ranging)
  - ±1.5%rdg±4dgt [45 - 65Hz]
  - ±2.0%rdg±5dgt [40 - 1kHz]
- AC V
  - 60.00/600.0V (Auto-ranging)
  - ±1.0%rdg±2dgt [45 - 65Hz] (600V)
  - ±1.5%rdg±4dgt [40 - 1kHz] (60/600V)
- DC V
  - 60.00/600.0V (Auto-ranging)
  - ±1.0%rdg±3dgt (600V)
  - ±1.2%rdg±3dgt (6/60/600kΩ)
- Ω
  - 600.0Ω/600.0Ω/600.0Ω (Auto-ranging)
  - ±1.0%rdg±5dgt (600Ω)
  - ±2.0%rdg±3dgt (6/60/600kΩ)
- Continuity buzzer
  - 60Ω (Buzzer sounds below 90Ω)
- Capacitance test
  - 1.000/10.00/100.0μF
  - ±3.0%rdg±15dgt [1μF]
  - ±3.0%rdg±10dgt [10/100μF]
- Hz
  - 999.9Hz/9999kHz (Auto-ranging) ±0.1%rdg±3dgt
  - (Input sensitivity: Current: more than 4A Voltage: more than 2V)
- Conductor size
  - 63mm max.
- Applicable Standards
  - IEC 61010-1 CAT Ⅳ 300V, CAT Ⅲ 600V Pollution degree 2
  - IEC 61010-3-1, IEC 61010-2-032, IEC 61010-2-033, IEC 61326-2-2(EMC), IEC 60529 IP40, EN 50581(RoHS)
- Power source
  - R03/LR03(AAA)(1.5V) × 2
  - Continuous measuring time : approx. 170 hours
  - (When R03 is used)(NCV_LED, Backlight: off)(Auto power save : approx. 10 minutes)
- Dimensions
  - 204(L) × 81(W) × 36(D)mm
- Weight
  - 220g Approx. (including batteries)
- Accessories
  - 7066A (Test leads), 9079 (Carrying case), R03(AAA) × 2, Instruction manual
**DIGITAL CLAMP METERS AC**

**KEW 2200/2200R**

- Ultra Slim and lightweight Handy design
- φ33mm Tear Drop Jaw easy to use in tight places.
- 1000A AC Clamp Meter
- DMM function ACV, DCV, Ω, Continuity Buzzer.
- Fuseless electronic protection on Ω (45 ~ 65 Hz)
  up to 600V
- DMM function ACV, DCV, Ω, Continuity Buzzer.
- Safety Standard
  IEC 61010-1, 61010-2-032
- CAT IV / 300V / CAT III 600V
- Minimum resolution 0.01A

**photo : 2200R**

**KEW 2204R**

- Flexible and light weight clamp sensor
- True RMS
- MIN / MAX function
- Backlight LCD display
- IEC 61010-1 (CAT IV 600V / CAT III 1000V)
- Minimum resolution 0.001A

**Kew 2210R**

- Flexible and light weight clamp sensor
- Wide reading range up to 3000A
- True RMS
- MIN / MAX function
- Backlight LCD display
- IEC 61010-1 (CAT IV 600V / CAT III 1000V)
- Minimum resolution 0.01A

**2200**

<table>
<thead>
<tr>
<th>Detection method</th>
<th>2200</th>
<th>2200R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average value</td>
<td>±1.4%rdg±8dgt(50/60Hz)</td>
<td>±1.5%rdg±5dgt(45 ~ 65Hz)</td>
</tr>
<tr>
<td>True RMS value</td>
<td>±1.6%rdg±8dgt(45 ~ 65Hz)</td>
<td>±2.0%rdg±8dgt(40Hz ~ 1kHz)</td>
</tr>
</tbody>
</table>

**AC A**

- Range: 40.00/400.0/1000A (Auto-ranging)
- ±2.3%rdg±8dgt(65 ~ 500Hz)

**AC V**

- Range: 4.000/40.00/400.0/600V (Auto-ranging)
- ±1.0%rdg±8dgt(40Hz ~ 1kHz)

**DC V**

- Range: 400.0mV / 4.000 / 40.00 / 400.0 / 600V (Auto-ranging)
- ±0.1%rdg±8dgt

**Ω**

- Range: 400Ω/4kΩ/40kΩ/400kΩ(±3%rdg±6dgt)

**Continuity buzzer**

- Buzzer sounds below 50s ±30s

**2204R**

<table>
<thead>
<tr>
<th>Detection method</th>
<th>2204R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average value</td>
<td>±1.4%rdg±8dgt(45 ~ 500Hz)</td>
</tr>
<tr>
<td>True RMS value</td>
<td>±1.6%rdg±8dgt(45 ~ 500Hz)</td>
</tr>
</tbody>
</table>

**AC A (RMS)**

- Range: 4.000/40.00/400.0A
- Full scale CF<1.6, half scale<3.2
- Crest factor
- Effective input crest values are √2 times of the max values of each range.

**Conductor size**

- ≤0.7mm max.

**Influence of Conductor position**

- Addtional ±2% (max.) depending on the distance from the center position

**Overload protection**

- 500A AC for 10 seconds

**Applicable Standards**

- IEC 61010-1, IEC 61010-2-032
- CAT IV 600V / CAT III 1000V Pollution degree 2
- IEC 61326-1 (EMC), IEC 60529 IP40

**Operating temperature & humidity**

- 0 ~ +50°C, less than 80% RH (without condensation)

**Storage temperature & humidity**

- -10 ~ +60°C, less than 70% RH (without condensation)

**Power source**

- R03 / LR03(3AAA) (1.5V) x 2
  - Continuous measuring time: approx. 120 hours (Auto power off: approx. 15 minutes)

**Dimensions**

- 120(L) x 70(W) x 26(D) mm : Display unit
- 180(L) x 80(W) x 20(D) mm

**Weight**

- Approx. 350g (including batteries)

**Accessories**

- 7107A (Test leads), 9160 (Carrying case), R03(AAA) x 2, Instruction manual

**2210R**

<table>
<thead>
<tr>
<th>Detection method</th>
<th>2210R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average value</td>
<td>±1.4%rdg±8dgt(45 ~ 500Hz)</td>
</tr>
<tr>
<td>True RMS value</td>
<td>±1.6%rdg±8dgt(45 ~ 500Hz)</td>
</tr>
</tbody>
</table>

**AC A (RMS)**

- Range: 30.00/300.0/3000A
- Full scale CF<1.6, half scale<3.2
- Crest factor
- Effective input crest values are √2 times of the max values of each range.

**Conductor size**

- ≤1.5mm max.

**Influence of Conductor position**

- Additional ±2% (max.) depending on the distance from the center position

**Overload protection**

- 5000A AC for 10 seconds

**Applicable Standards**

- IEC 61010-1, IEC 61010-2-030
- CAT IV 600V / CAT III 1000V Pollution degree 2
- IEC 61326-1 (EMC), IEC 60529 IP40

**Operating temperature & humidity**

- 0 ~ +50°C, less than 80% RH (without condensation)

**Storage temperature & humidity**

- -10 ~ +60°C, less than 70% RH (without condensation)

**Power source**

- R03 / LR03(3AAA) (1.5V) x 2
  - Continuous measuring time: approx. 120 hours (Auto power off: approx. 15 minutes)

**Dimensions**

- 120(L) x 70(W) x 26(D) mm : Display unit
- 180(L) x 80(W) x 20(D) mm

**Weight**

- Approx. 350g (including batteries)

**Accessories**

- 8174 (Carrying case), LR03(3AAA) x 2, Instruction manual
**Kew 2003A**

- Equipped to measure both AC and DC current with transformer jaws of large diameter.
- Can measure AC and DC currents up to 2000A.
- Output terminal for connection to recorders.
- AC/DC voltage, resistance measurement and continuity functions also available.
- Minimum resolution 0.1A

**Kew 2009R**

- True RMS reading instrument ideal for accurate measurement of distorted waveforms and non-sinusoidal waveforms arising from thyristors.
- Can measure AC and DC currents up to 2000A.
- Output terminal for connection to recorders.
- Minimum resolution 0.1A

**Model 2010**

- High sensitivity, miniature AC/DC clamp meter.
- 0.1mA minimum resolution for AC current and 1mA minimum resolution for DC current.
- Output terminal for recorder connection.

---

**2003A**

- **AC A**
  - 400A/2000A (0 - 400A) ±1.5%rdg ±2dg
  - ±3%rdg ±4dg (50 - 500Hz)
  - ±5%rdg ±4dg (50Hz - 1kHz)
  - ±5%rdg ±4dg (450Hz - 5kHz)
  - ±5%rdg ±4dg (450Hz - 1kHz)
- **DC A**
  - 400/2000A ±1.5%rdg ±2dg

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**2009R**

- **AC A**
  - 400/2000A ±1.5%rdg ±2dg
  - ±2.0%rdg ±5dg (0 - 400A, 150 - 1700A)
  - ±2.3%rdg ±3dg (1701 - 2000A)
- **DC A**
  - 400/2000A ±1.5%rdg ±2dg

---

**2010**

- **AC A**
  - 200mA/20A ±5%rdg ±2dg (50Hz - 500Hz)
  - ±5%rdg ±4dg (20Hz - 2kHz)
  - ±1%rdg ±2dg (50Hz - 2kHz)
- **DC A**
  - 2/20A ±5%rdg ±2dg (0 - 20A) ±1.5%rdg ±4dg (20A)

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**Applicable Standards**

- IEC 61010-1 CAT IV 600V, CAT III 1000V
- IEC 61010-2-032, IEC 61326-1, IEC 61326-2-1

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**Power Source**

- R6(AA) x 2
- *Continuous measuring time: approx. 100 hours (Auto power save: approx. 10 minutes)

---

**Dimensions**

- 250 (L) x 105 (W) x 49 (D) mm
- Dimensions: 250(L) x 105(W) x 49(D)mm
- Power source: R6(AA) x 2
- Optional: 7256(Output cord)
- Accessories: 9094(Carrying case) R6(AA) x 2, Instruction manual

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**Accessories**

- 7107A(Test leads)
- 8023(AC adaptor)(220V)

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**Model 8022 for external power supply has been discontinued.**
DIGITAL CLAMP METERS AC/DC

MODEL 2033
- Smallest clamp meter capable of AC and DC current measurements.
- 300A auto ranging has minimum resolution of 0.01A AC/DC.
- Auto-zero function to allow one touch zero adjustment.

KEW 2046R
- Very useful for power distribution companies, power utilities and maintenance fields.
- Red LED, as “Non Contact Voltage” function, gives warning to the user on the presence of AC voltage.
- Double molding gives comfortable feeling in palm.
- 6039 counts with Bar Graph display.
- Minimum resolution 0.1A

KEW 2055/2056R
- Very useful for power distribution companies, power utilities and maintenance fields.
- Red LED, as “Non Contact Voltage” function, gives warning to the user on the presence of AC voltage.
- Double molding gives comfortable feeling in palm.
- 6039 counts with Bar Graph display.
- Minimum resolution 0.1A

2033
<table>
<thead>
<tr>
<th>AC A</th>
<th>DC A</th>
</tr>
</thead>
<tbody>
<tr>
<td>40/300A</td>
<td>±1%rdg±4.8µV(50/60Hz)</td>
</tr>
<tr>
<td>±2.5%rdg±4.8µV(20Hz - 1kHz)</td>
<td>±2.5%rdg±4.8µV(20Hz - 1kHz)</td>
</tr>
<tr>
<td>±1%rdg±4.8µV(50/60Hz)</td>
<td>±1%rdg±4.8µV(50/60Hz)</td>
</tr>
<tr>
<td>±2.5%rdg±4.8µV(20Hz - 1kHz)</td>
<td>±2.5%rdg±4.8µV(20Hz - 1kHz)</td>
</tr>
<tr>
<td>±3.5%rdg±5.9µV(200 - 300A)</td>
<td>±3.5%rdg±5.9µV(200 - 300A)</td>
</tr>
<tr>
<td>±4.9%rdg±20Hz - 1kHz</td>
<td>±4.9%rdg±20Hz - 1kHz</td>
</tr>
</tbody>
</table>

DC A
- 40/300A | ±1%rdg±4.8µV(20Hz - 1kHz) |
| ±1%rdg±4.8µV(20Hz - 20A) | ±1%rdg±4.8µV(20Hz - 20A) |
| ±2.5%rdg±4.8µV(20Hz - 1kHz) | ±2.5%rdg±4.8µV(20Hz - 1kHz) |
| ±3.5%rdg±5.9µV(200 - 300A) | ±3.5%rdg±5.9µV(200 - 300A) |

Conductor size: 0.2mm max.
Frequency response: DC 20Hz - 1kHz
Applicable Standards: IEC 61010-1 CAT III 300V
IEC 61010-2-032
Power source: LR44 (1.5V) x 2
Continuous measuring time: approx. 10 hours (Auto power off: approx. 15 minutes)
Dimensions: 147(L) x 59(W) x 25(D) mm
Weight: 100g approx.
Accessories: 7066A( Test leads) 9094( Carrying case) 2 x R03 Instruction manual

2046R
<table>
<thead>
<tr>
<th>AC A</th>
<th>DC A</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 600.0A</td>
<td>±2.0%rdg±5.9µV(20Hz - 1kHz)</td>
</tr>
<tr>
<td>±1%rdg±5.9µV(50/60Hz)</td>
<td>±2.0%rdg±5.9µV(50/60Hz)</td>
</tr>
<tr>
<td>±2.5%rdg±5.9µV(40 - 400Hz)</td>
<td>±2.5%rdg±5.9µV(40 - 400Hz)</td>
</tr>
</tbody>
</table>

DC V
- 600mA/60V/600V(Auto Ranging) | ±1.0%rdg±3µg |
- 600mA/600mA - 600V(Auto Ranging) | ±1.0%rdg±3µg |

Continuity buzzer: Buzzer Sounds at 100Ω
Duty: 1.0 - 99.9% ±2.5%rdg±5µg (Pulse width/Pulse cycle)
Capacitance test: 400nF±40%(Auto Ranging)
Temperature: -50°C - +300°C (with the use of Temperature probe 8216)
Conductor size: ø33
Applicable Standards: IEC 61010-1 CAT IV 600V
IEC 61010-2-032, IEC 61326
Power source: R03 (1.5V) x 2
Continuous measuring time: approx. 10 hours (Auto power off: approx. 15 minutes)
Dimensions: 243(L) x 77(W) x 36(D) mm
Weight: 300g approx.
Accessories: 9090 (Carrying case) 2 x R03 Instruction manual

2055
<table>
<thead>
<tr>
<th>AC A</th>
<th>DC A</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 600.0/1000A</td>
<td>±1.5%rdg±5.9µg(40 - 500Hz)</td>
</tr>
<tr>
<td>±0.5%rdg±5.9µg(40 - 400Hz)</td>
<td>±0.5%rdg±5.9µg(40 - 500Hz)</td>
</tr>
<tr>
<td>±1.0%rdg±5.9µg(40 - 400Hz)</td>
<td>±1.0%rdg±5.9µg(40 - 400Hz)</td>
</tr>
</tbody>
</table>

DC V
- 600mA/600mA - 600V(Auto Ranging) | ±1.0%rdg±3µg |
- 600mA/600mA - 600V(Auto Ranging) | ±1.0%rdg±3µg |

Continuity buzzer: Buzzer Sounds at 100Ω
Capacitance test: 400nF±40%(Auto Ranging)
Temperature: -50°C - +300°C (with the use of Temperature probe 8216)
Conductor size: ø40
Applicable Standards: IEC 61010-1 CAT IV/600V, IEC 61010-2-032, IEC 61326
Power source: LR44 (1.5V) x 2
Continuous measuring time: approx. 10 hours (Auto power off: approx. 15 minutes)
Dimensions: 243(L) x 77(W) x 36(D) mm
Weight: 300g approx.
Accessories: 9090 (Carrying case) 2 x LR44 Instruction manual

2056R
<table>
<thead>
<tr>
<th>AC A</th>
<th>DC A</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 600.0/1000A</td>
<td>±2.0%rdg±5.9µg(40 - 500Hz)</td>
</tr>
<tr>
<td>±1.5%rdg±5.9µg(40 - 500Hz)</td>
<td>±1.5%rdg±5.9µg(40 - 500Hz)</td>
</tr>
<tr>
<td>±2.5%rdg±5.9µg(40 - 400Hz)</td>
<td>±2.5%rdg±5.9µg(40 - 400Hz)</td>
</tr>
<tr>
<td>±3.0%rdg±5.9µg(40 - 400Hz)</td>
<td>±3.0%rdg±5.9µg(40 - 400Hz)</td>
</tr>
<tr>
<td>±4.0%rdg±5.9µg(40 - 400Hz)</td>
<td>±4.0%rdg±5.9µg(40 - 400Hz)</td>
</tr>
</tbody>
</table>

DC V
- 600mA/600mA - 600V(Auto Ranging) | ±1.0%rdg±3µg |
- 600mA/600mA - 600V(Auto Ranging) | ±1.0%rdg±3µg |

Continuity buzzer: Buzzer Sounds at 100Ω
Capacitance test: 400nF±40%(Auto Ranging)
Temperature: -50°C - +300°C (with the use of Temperature probe 8216)
Conductor size: ø40
Applicable Standards: IEC 61010-1 CAT IV/600V, IEC 61010-2-032, IEC 61326
Power source: R03 (1.5V) x 2
Continuous measuring time: approx. 10 hours (Auto power off: approx. 15 minutes)
Dimensions: 243(L) x 77(W) x 36(D) mm
Weight: 300g approx.
Accessories: 9090 (Carrying case) 2 x LR44 Instruction manual

Optional: 8216 (Temperature probe)

### DC MILLIAMP CLAMP METER/CLAMP LOGGER

**KEW 2500/2510**

- **0.01mA resolution for DC current**
- **Top class measurement 0.2% accuracy**
- **Ø6mm clamp jaw easy to use in tight places**
- **Measurement from 0.01mA to 120.0mA**
- **Dual display with backlight shows both mA measurement and percent of 4-20 mA span**
- **Spotlight for illuminating measurement point**
- **Analog output terminal for recorder connection**
- **Memory function stores up to 192,000 records (2510 only)**.
- **Transfer data to PC via Bluetooth (2510 only)**.

**Memory function/Communication function (2510 Only)**

- **Memory capacity up to 192,000 data**
- **Analog output terminal for recorder connection**
- **Memory function stores up to 192,000 records (2510 only)**.
- **Transfer data to PC via Bluetooth (2510 only)**.

#### Accessories

- **MODEL 9096**
  - Carrying case
- **MODEL 8320**
  - AC adapter
- **MODEL 7256**
  - Output cord
- **Software installation manual**

**Optional Accessory**

- **MODEL 7256**
  - Output cord

**DC MILLIAMP CLAMP METER/CLAMP LOGGER**

- **Ø6mm max.**
- **Max recording period**
  - 1 sec: 53 hours
  - 5 sec: 11 days
  - 10 sec: 22 days
  - 30 sec: 66 days
  - 60 sec: 133 days

**Analog output terminal for recorder connection**

- **DC10mV/DC1mA**
- **Diameter of measurable conductor: Ø6mm max.**

**Applicable to signal measurement on process and building instrumentation**

**Spotlight LED & Backlight Display**

**External Power Supply**

- **Bluetooth**

**External Power Supply Bluetooth**

- **OS**: Windows® 8/10
- **Display**: XGA (Resolution 1024 × 768 dots) or more
- **HDD**: Space required 1Gbyte or more
- **Other**: With CD-ROM drive, .NET Framework (3.5 or more)

**Note:** The Auto-power OFF can be disabled for long recording.

**Accessories**

- **MODEL 9096**
  - Carrying case
- **MODEL 8320**
  - AC adapter
- **MODEL 7256**
  - Output cord
- **Software installation manual**

**Operating temperature & humidity**

- **18 ~ +50°C < 85%**

**Storage temperature & humidity**

- **-20 ~ +60°C < 85%**

**Power source**

- **R6/LR6(AA) (1.5V) × 4**
- **R6/LR6(AA) (1.5V) × 4**
- **Approx. 60 hours continuous with Backlight and LED light OFF**
- **Approx. 50 hours continuous with alkaline batteries**
- **Communication Interface**
  - **Bluetooth® Ver2.1+EDR Class2**

**Applicable Standards**

- **IEC 61010-1, Pollution degree 2**
- **IEC 61010-2-032, IEC 61326-1(EMC)**
- **IEC 60529 IP40**

**Conductor size**

- **1 sec**: Ø6mm max.
- **Max recording period**
  - 1 sec: 53 hours
  - 5 sec: 11 days
  - 10 sec: 22 days
  - 30 sec: 66 days
  - 60 sec: 133 days

**Diameter of measurable conductor**

- ** Ø6mm max.**

**Application Area**

- **Spotlight LED & Backlight Display**
- **Applicable to signal measurement on process and building instrumentation**

**www.kew-ltd.co.jp**
**MODEL 2431**

- Frequency Selector Switch to eliminate the effect of harmonics.
- Auto power-off function
- Rotary switch for easy one finger power-on and range selection.
- Minimum resolution 0.01mA

<table>
<thead>
<tr>
<th>2431</th>
<th>2432</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC A (50/60Hz)</td>
<td>AC A (50/60Hz)</td>
</tr>
<tr>
<td>20/200mA/200A</td>
<td>4/40mA/100A</td>
</tr>
<tr>
<td>±1%rdg±5dg(14/40mA)</td>
<td>±1%rdg±5dg(0 - 350A)</td>
</tr>
<tr>
<td>±1%rdg±5dg(0 - 80A)</td>
<td>±1%rdg±5dg(350 - 399.9A)</td>
</tr>
<tr>
<td>±1%rdg±5dg(100 - 300A)</td>
<td>±5%rdg(0 - 80A)</td>
</tr>
<tr>
<td>±2%rdg(300 - 399.9A)</td>
<td>±5%rdg(80.1 - 100A)</td>
</tr>
</tbody>
</table>

- Effect of external stray magnetic field
  - 2mA AC approx. in proximity to a 15mm-dia conductor carrying 100A AC

- Applicable Standards
  - IEC 61010-1 CAT III 300V
  - IEC 61010-2-032

- Power source
  - LR4(1.5V) x 2

- Continuous measuring time: approx. 40 hours (Auto power off: approx. 10 minutes)

- Dimensions
  - 185(L) × 81(W) × 32(D)mm

- Weight
  - 290g approx.

- Accessories
  - 9097 (Carrying case) R03(1.5V) x 2 Instruction manual

**MODEL 2432**

- Frequency Selector Switch to eliminate the effect of harmonics.
- Three ranges: 4mA/40mA/100A.
- Minimum resolution 0.001mA

<table>
<thead>
<tr>
<th>2432</th>
<th>2433</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC A (50/60Hz)</td>
<td>AC A (50/60Hz)</td>
</tr>
<tr>
<td>4/40mA/100A</td>
<td>4/40mA/100A</td>
</tr>
<tr>
<td>±1%rdg±5dg(4/40mA)</td>
<td>±1%rdg±5dg(4/40mA)</td>
</tr>
<tr>
<td>±1%rdg±5dg(0 - 80A)</td>
<td>±1%rdg±5dg(80.1 - 100A)</td>
</tr>
<tr>
<td>±5%rdg[50/60Hz]</td>
<td>±5%rdg[50/60Hz]</td>
</tr>
<tr>
<td>±2.5%rdg<a href="4/40mA">40Hz - 1kHz</a></td>
<td>±2.5%rdg<a href="4/40mA">40Hz - 1kHz</a></td>
</tr>
</tbody>
</table>

- Effect of external stray magnetic field
  - 10mA AC approx. in proximity to a 15mm-dia conductor carrying 100A AC

- Applicable Standards
  - IEC 61010-1 CAT III 300V
  - IEC 61010-2-032

- Power source
  - LR4(1.5V) x 2

- Continuous measuring time: approx. 15 hours (Auto power off: approx. 10 minutes)

- Dimensions
  - 149(L) × 60(W) × 26(D)mm

- Weight
  - 120g approx.

- Accessories
  - 9090 (Carrying case) LR4 × 2 Instruction manual

**MODEL 2433/2433R**

- Frequency Selector Switch to eliminate the effect of harmonics.
- Three ranges: 40mA/400mA/400A.
- Minimum resolution 0.01mA

<table>
<thead>
<tr>
<th>2433</th>
<th>2433R</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC A (50/60Hz)</td>
<td>AC A (50/60Hz)</td>
</tr>
<tr>
<td>40.00/400.0mA/400.0A</td>
<td>40.00/400.0mA/400.0A</td>
</tr>
<tr>
<td>±1%rdg±5dg(4/400mA)</td>
<td>±1%rdg±5dg(0 - 350A)</td>
</tr>
<tr>
<td>±1%rdg±5dg(40 - 400mA)</td>
<td>±1%rdg±5dg(100 - 300A)</td>
</tr>
<tr>
<td>±2%rdg(300 - 399.9A)</td>
<td>±5%rdg(0 - 80A)</td>
</tr>
<tr>
<td>±2%rdg(80.1 - 100A)</td>
<td>±5%rdg(80.1 - 100A)</td>
</tr>
</tbody>
</table>

- Maximum circuit voltage
  - 600V AC/DC (between line/neutral)
  - 300V AC/DC (against earth)

- Conductor size
  - 40mm max.

- Frequency response
  - 20Hz - 1kHz (40Hz - 1kHz: 400A)

- Effect of external stray magnetic field
  - 10mA AC approx. in proximity to a 15mm-dia conductor carrying 100A AC

- Applicable Standards
  - IEC 61010-1 CAT III 300V
  - IEC 61010-2-032

- Power source
  - LR3(1.5V) x 2

- Continuous measuring time: approx. 24 hours (Auto power off: approx. 10 minutes)

- Dimensions
  - 185(L) × 81(W) × 32(D)mm

- Weight
  - 270g approx.

- Accessories
  - 9097 (Carrying case) R03(1.5V) x 2 Instruction manual

---

**LEAKAGE CLAMP METERS**

*Photo: 2433R*
**KEW 2413F/2413R**

- Large transformer jaws of 68mm diameter makes it possible to clamp on all three or four wires (3 phases) together for leakage current measurement.
- Frequency filter switch to eliminate the effect of the harmonics.
- 2-way analogue output terminal.
- Minimum resolution 0.1mA

**MODEL 2434**

- Least affected by external stray magnetic field.
- 20mA AC max. in proximity to a 15mm-dia conductor carrying 100A AC.
- Frequency Selector Switch to eliminate the effect of harmonics.
- Minimum resolution 0.1mA

**MODEL 2300R**

- True RMS reading is an essential feature for accurate measurement.
- “Non Contact” voltage function indicates the presence of AC voltage by warning the user with an audible signal.
- Set the DC current range to zero in one touch with the Zero Adjust function.
- Auto Power Off.
- Minimum resolution 0.1A

---

**Specifications**

### 2413F

<table>
<thead>
<tr>
<th>AC A (50/60Hz)</th>
<th>2413F</th>
<th>2413R</th>
</tr>
</thead>
<tbody>
<tr>
<td>200mA/2/20/200A/1000A</td>
<td>±1.5%rdg±2dgt(200mA/2/20A)</td>
<td>±2.5%rdg±5dgt(200mA/2/20A)</td>
</tr>
<tr>
<td>±2%rdg±2dgt(200A/0 - 500A)</td>
<td>±3.0%rdg±5dgt(200A/0 - 500A)</td>
<td></td>
</tr>
<tr>
<td>±5.5%rdg(1001 - 10000A)</td>
<td>±5.5%rdg(1001 - 10000A)</td>
<td></td>
</tr>
</tbody>
</table>

### 2434

<table>
<thead>
<tr>
<th>AC A (50/60Hz)</th>
<th>2434</th>
</tr>
</thead>
<tbody>
<tr>
<td>400mA/4/100A</td>
<td>±2%rdg±4dgt</td>
</tr>
<tr>
<td>400mA/4/100A(WIDE)</td>
<td>±2%rdg±4dgt</td>
</tr>
</tbody>
</table>

### 2300R

<table>
<thead>
<tr>
<th>Current measurement</th>
<th>2300R</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC A 0 - 100.0A</td>
<td>±2.0%rdg±5dgt(50/60Hz)</td>
</tr>
<tr>
<td>DC A 0 - ±100.0A</td>
<td>±2.0%rdg±5dgt</td>
</tr>
</tbody>
</table>

**KEW FORK CURRENT TESTER**

- True RMS reading is an essential feature for accurate measurement.
- “Non Contact” voltage function indicates the presence of AC voltage by warning the user with an audible signal.
- Set the DC current range to zero in one touch with the Zero Adjust function.
- Auto Power Off.
- Minimum resolution 0.1A

KEW FORK 2300R can be used in crowded connection boxes, where cables are very short, and space is too limited to clamp cables using with a traditional clamp meter.
The KEW leakage clamp meters

The KEW Leakage Clamp Meters enable the electrical contractor to:

- Measure earth leakage currents on single or three phase systems (see picture below)
- Identify the causes of leakage to earth
- Assess the deterioration of insulation in a live circuit without carrying out an insulation test.
- Trace faults while avoiding insulation shutdown time and possible damage to sensitive loads.
- Measure the AC current like the conventional clamp meters ranging from 100A (with model 2432) to 1000A (with KEW 2413F).

The leaked part can be found out by tracing the circuit of a large leakage current from the power source as shown in the figure below.

High frequency selector switch

This switch is designed to select "WIDE" or "50/60Hz" range. "WIDE" range covers a wide frequency band of 40Hz to 1kHz/400Hz. AC current having a fundamental waveform and harmonics can be measured over this range. "50/60Hz" is restricted to a frequency response of 40Hz to 100Hz and therefore permits measurement of AC current of fundamental frequency only by filtering harmonic content. When in doubt as to the presence of harmonics you can identify it by using this frequency selector switch. To give an example, the following shows the results of AC current measurement on an earthing wire within a switchbox where there is an inverter based airconditioner is connected at summertime. Model 2433 reads 56mA AC with the frequency selector switch set at the "WIDE" position as shown, while it displays 3mA at the "50/60Hz" switch position. The difference between the two readings (56mA - 3mA = 53mA) is considered leakage current caused by harmonics. The test also found that this leakage current is flowing into single phase, 3-wire circuits other than those connected with the inverters in the building inspected.

Fig. Results of AC current measurement on earthing wire within switchbox by using Model 2433 on the 400mA range.
**KEW 8115**

**CLAMP SENSOR/CLAMP ADAPTOR**

- **Permits extension of the AC and DC current ranges of almost any Digital Multimeters (DMMs) without breaking the circuit under test.**
- **Using KEW 8115 with KEW 1051/1052 (DMM) the display can be set for direct reading in A.**

---

**Model 8112/8112BNC**

Model 8112 clamp adaptor is designed to be an AC current/voltage conversion probe capable of measuring AC current from 0.1mA to 120A in conjunction with digital multimeters. Model 8112BNC is an AC clamp adaptor designed for use with oscilloscopes. Output cord has a BNC connector which enables direct observation of current waveform on oscilloscope. Specifications are same as those for Model 8112.

---

**KEW 8161**

- **KEW 8161 clamp sensor is designed to be an AC current / voltage conversion probe capable of measuring AC current up to 100A in conjunction with digital multimeters.**

---

### KEW 8115

**Measuring range**

- **AC 0.1 - 130A RMS**
- **DC 0 - ±180A**

**Output voltage**

- **AC 10mV/A**
- **DC 10mV/A**

**Accuracy**

- ±1.2%rdg±0.4mV (50/60Hz)
- ±2.5%rdg±0.4mV (40Hz - 1kHz)

**Frequency response**

- ±1.5%rdg±0.2mA 50Hz - 1kHz
- ±1%rdg±0.1mA 40Hz - 1kHz
- ±2.5%rdg±0.01A 50Hz - 1kHz
- ±1.5%rdg±2mA 1kHz - 10kHz

**Conductor size**

- Ø12 DC max.

**Dimensions**

- 153(L) × 18(W) × 23(D)mm

**Weight**

- 100g approx.

**Accessories**

- 9095 (Carrying case)
- Instruction manual

### 8112/8112BNC

**Range**

- **200mA**
  - **AC 0 - 500mA**
  - **AC 100mA - 1V**
  - **2.3%rdg±0.4mA 40Hz - 1kHz**
  - **±1.5%rdg±0.2mA 50Hz - 1kHz**

- **2A**
  - **AC 0 - 20A**
  - **AC100mA/A (20A = 2V)**
  - **±1.5%rdg±2mA 1kHz - 10kHz**
  - **±1%rdg±1mA 40Hz - 1kHz**

- **20A**
  - **AC 0 - 20A**
  - **AC10mA/A (20A = 1V)**
  - **±1.5%rdg±6.0fA 40Hz - 1kHz**
  - **±2.5%rdg±0.4mA 50Hz - 1kHz**

**Conductor size**

- Ø8mm max.

**Frequency characteristics**

- 10Hz - 100kHz (-3dB)

**Applicable Standard**

- IEC 61010-1 CAT III 300V Pollution degree 2
- IEC 61010-2-032, IEC 61326-1

**Power source**

- 9V (AAA) x 2

**Cord length**

- Approx. 1.2m

**Output connector**

- Ø4mm banana plug

**Dimensions**

- 127(L) × 42(W) × 22(D)mm

**Weight**

- 140g approx.

**Accessories**

- 9095 (Carrying case), LR03 (AAA) x 2, Instruction manual

---

### 8161

**Measuring range**

- **AC0 - 100A**

**Output voltage**

- **AC 1000mV/AC 100A(10mV/A)**

**Accuracy**

- ±2.0%rdg±3.0mV (45 - 65Hz)
- ±2.5%rdg±3.0mV (65 - 1kHz)

**Conductor size**

- Ø24mm max.

**Operating temperature & humidity range**

- -10 - 50°C, relative humidity: 85% or less

**Output impedance**

- Approx. 10Ω or less

**Applicable Standards**

- IEC 61010-1 CAT III 300V Pollution degree 2
- IEC 61010-2-032, IEC 61326-1, 2-2
- Withstand voltage AC3470Vrms (50/60Hz) for 5 sec.
- Insulation resistance 22Ω or less

**Dimensions**

- 97(L) × 59(W) × 26(D)mm

**Cable length**

- Approx. 1.2m

**Weight**

- 270g approx.

**Accessories**

- Instruction manual
### Selection Guide of Insulation Testers

<table>
<thead>
<tr>
<th>3165</th>
<th>3166</th>
<th>3161A</th>
<th>3431</th>
<th>3131A</th>
<th>3132A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td><img src="image" alt="3165" /></td>
<td><img src="image" alt="3166" /></td>
<td><img src="image" alt="3161A" /></td>
<td><img src="image" alt="3431" /></td>
<td><img src="image" alt="3131A" /></td>
</tr>
<tr>
<td><strong>Test voltage</strong></td>
<td>1 range</td>
<td>2 ranges</td>
<td>Variable</td>
<td>3 ranges</td>
<td>5 ranges</td>
</tr>
<tr>
<td><strong>Rated voltage (Max. measurement value)</strong></td>
<td>500V(1000MΩ)</td>
<td>1000V(2000MΩ)</td>
<td>15V(200MΩ)</td>
<td>500V(2000MΩ)</td>
<td>250V(1000MΩ)</td>
</tr>
<tr>
<td><strong>Continuity</strong></td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>2/20Ω</td>
<td>3/500Ω</td>
</tr>
<tr>
<td><strong>AC Voltage</strong></td>
<td>600V</td>
<td>600V</td>
<td>600V</td>
<td>600V</td>
<td>–</td>
</tr>
<tr>
<td><strong>DC Voltage</strong></td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>600V</td>
<td>–</td>
</tr>
<tr>
<td><strong>Back light</strong></td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td><strong>Power source</strong></td>
<td>R6 × 8</td>
<td>R6 × 8</td>
<td>R6 × 6</td>
<td>LR6 x 4</td>
<td>LR6 × 4</td>
</tr>
<tr>
<td><strong>Dimensions (L) × (W) × (D)mm</strong></td>
<td>90 × 137 × 40</td>
<td>90 × 137 × 40</td>
<td>90 × 137 × 40</td>
<td>97 × 156 × 46</td>
<td>167 × 185 × 89</td>
</tr>
<tr>
<td><strong>Weight(Approx.)</strong></td>
<td>330g</td>
<td>330g</td>
<td>340g</td>
<td>430g</td>
<td>860g</td>
</tr>
</tbody>
</table>

### Digital Insulation/Continuity Testers

<table>
<thead>
<tr>
<th>3005A</th>
<th>3007A</th>
<th>3021A</th>
<th>3022A</th>
<th>3023A</th>
<th>3551</th>
<th>3552</th>
<th>3552BT*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td><img src="image" alt="3005A" /></td>
<td><img src="image" alt="3007A" /></td>
<td><img src="image" alt="3021A" /></td>
<td><img src="image" alt="3022A" /></td>
<td><img src="image" alt="3023A" /></td>
<td><img src="image" alt="3551" /></td>
<td><img src="image" alt="3552" /></td>
</tr>
<tr>
<td><strong>Test voltage</strong></td>
<td>3 ranges</td>
<td>4 ranges</td>
<td>5 ranges</td>
<td>6 ranges</td>
<td>5 ranges</td>
<td>6 ranges</td>
<td>–</td>
</tr>
<tr>
<td><strong>Continuity</strong></td>
<td>20/200/2000Ω</td>
<td>20/200/2000Ω</td>
<td>20/200/2000Ω</td>
<td>40/400Ω</td>
<td>40/400Ω</td>
<td>40/400Ω</td>
<td>40/400Ω</td>
</tr>
<tr>
<td><strong>AC Voltage</strong></td>
<td>600V</td>
<td>600V</td>
<td>600V</td>
<td>600V</td>
<td>600V</td>
<td>600V</td>
<td>600V</td>
</tr>
<tr>
<td><strong>DC Voltage</strong></td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>-20 - 600V</td>
<td>-20 - 600V</td>
<td>-20 - 600V</td>
<td>-20 - 600V</td>
</tr>
<tr>
<td><strong>Back light</strong></td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td><strong>Communication Interface</strong></td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>USB</td>
</tr>
<tr>
<td><strong>Power source</strong></td>
<td>R6 × 8</td>
<td>R6 × 8</td>
<td>R6 × 8</td>
<td>R6 × 8</td>
<td>R6 × 8</td>
<td>LR6 x 4</td>
<td>LR6 × 4</td>
</tr>
<tr>
<td><strong>Dimensions (L) × (W) × (D)mm</strong></td>
<td>167 × 185 × 89</td>
<td>167 × 185 × 89</td>
<td>167 × 185 × 89</td>
<td>105 × 158 × 70</td>
<td>105 × 158 × 70</td>
<td>105 × 158 × 70</td>
<td>105 × 158 × 70</td>
</tr>
<tr>
<td><strong>Weight(Approx.)</strong></td>
<td>970g</td>
<td>990g</td>
<td>600g</td>
<td>600g</td>
<td>600g</td>
<td>490g</td>
<td>490g</td>
</tr>
</tbody>
</table>

*For inquiries about the purchase of 3552BT, please contact us.*
DIGITAL INSULATION/CONTINUITY TESTERS

**MODEL 3005A /3007A**

- Bar graph to display insulation resistance.
- Displays the value of external AC voltage along with flashing symbol.
- Auto null function to automatically subtract the test lead resistance before displaying the real continuity resistance value.
- Trac-Lok mode to conserve battery life on insulation and continuity tests (Model 3007A only).
- Live circuit warning beeper.
- Releasing the test button automatically discharges the charges stored in the circuit under test.
- Backlight function to view the test results in dimly lit areas (Model 3007A only).
- 200mA continuity measuring current to IEC 61557.
- Minimum 1mA current on insulation tests to IEC 61557.

**Selection Guide**

- 200mA continuity range
- Live circuit warning
- Backlight
- Automatic discharge
- Trac-Lok for extended battery life

**Accessory**

- 7123B (Test leads, 9074 (Cord case)
- 8923 (Fuse [0.5A/600V]) × 1 (included), 1 (spares)
- Instruction manual

**Optional Accessories**

- 7115 (Extension probe), 8016 (Hook type prod), 9089 (Carrying case)
- 9121 (Shoulder strap), R6(AA) × 6, Instruction manual

---

**KEW 3021A/3022A/3023A**

- Fast response and quick insulation test.
- 3 functions in one unit, insulation test with 4 voltage ranges, continuity test, AC voltage measurement.
- 200mA measuring current on continuity testing.
- Comparator function with PASS / FAIL and buzzer.
- 0% adjustment at continuity measuring range.
- Memory function up to 99 data.
- Backlight LCD provides easy reading in dark locations.
- Safety lock system prevents an erroneous operation.

**Accessory**

- 7150A (Test Lead with remote control switch set)

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**Digital Insulation/Continuity Testers**

<table>
<thead>
<tr>
<th>Model</th>
<th>3005A/3007A</th>
<th>3021A</th>
<th>3022A</th>
<th>3023A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Insulation resistance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test voltage</td>
<td>250V/300V/1000V</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measuring range</td>
<td>20MΩ/200MΩ/2000MΩ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output voltage on open circuit</td>
<td>20mA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nominal current</td>
<td>≤1.5mA DC approx.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output short circuit current</td>
<td>1.5mA DC approx.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Continuity Test</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measuring range</td>
<td>20Ω/200Ω/2000Ω</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output voltage on open circuit</td>
<td>7 - 12V DC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measuring current</td>
<td>200mA DC min.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accuracy</td>
<td>≤1.5%rdg±3dgt(20Ω)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AC voltage</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AC voltage range</td>
<td>0 - 600V AC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accuracy</td>
<td>≤1.5%rdg±3dgt</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**General**

- Applicable Standards: IEC 61010-1 CAT III 300V Pollution degree 2
- IEC 61557-1/2/4
- IEC 60529(IP54)    IEC 61326-1(EMC)
- Power source: 9V(R6)×6 or LR6×6
- Dimensions: 185(L) × 185(W) × 89(D)mm
- Weight: 990g approx.(3007A)
- Accessories: 7122B(Test leads), 9074(Cord case)
- Instruction manual

---

**Optional**

- 7115 (Extension probe), 8016 (Hook type prod), 9089 (Carrying case)
**DIGITAL INSULATION/CONTINUITY TESTERS**

**KEW 3551/3552/3552BT**

**Insulation resistance**

<table>
<thead>
<tr>
<th>Test voltage</th>
<th>50V</th>
<th>100V</th>
<th>125V</th>
<th>250V</th>
<th>500V</th>
<th>1000V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring range (Auto range)</td>
<td>4.000/40.0/100.0MΩ</td>
<td>4.000/40.0/200.0MΩ</td>
<td>4.000/40.0/250.0MΩ</td>
<td>4.000/40.0/500.0MΩ</td>
<td>4.000/40.0/1000.0MΩ</td>
<td>4.000/40.0/2000MΩ</td>
</tr>
<tr>
<td>Mid-scale value</td>
<td>2MΩ</td>
<td>5MΩ</td>
<td>10MΩ</td>
<td>100MΩ</td>
<td>1MΩ</td>
<td>10MΩ</td>
</tr>
<tr>
<td>First effective measuring ranges</td>
<td>0.10-10.0MΩ</td>
<td>0.10-20.0MΩ</td>
<td>0.10-50.0MΩ</td>
<td>0.10-100.0MΩ</td>
<td>0.10-500.0MΩ</td>
<td>0.10-1000.0MΩ</td>
</tr>
<tr>
<td>Second effective measuring ranges</td>
<td>0.05-0.99MΩ</td>
<td>0.05-4.0MΩ</td>
<td>0.05-1.0GΩ</td>
<td>0.05-4.0GΩ</td>
<td>0.05-20GΩ</td>
<td>0.05-100GΩ</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±2%rdg</td>
<td>±2%rdg</td>
<td>±2%rdg</td>
<td>±2%rdg</td>
<td>±2%rdg</td>
<td>±2%rdg</td>
</tr>
<tr>
<td>Rated current</td>
<td>1.0-1.1mA</td>
<td>1.0-1.1mA</td>
<td>1.0-1.1mA</td>
<td>1.0-1.1mA</td>
<td>1.0-1.1mA</td>
<td>1.0-1.1mA</td>
</tr>
<tr>
<td>Voltage Range</td>
<td>AC 2.0-600V/DC 2.0-600V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accuracy</td>
<td>±1%rdg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Open-circuit voltage**

| Voltage Range | 5V-6.9V |
| Accuracy | ±5%rdg |

**Rated current**

| Voltage Range | 1.0-1.1mA |
| Accuracy | ±1%rdg |

**Output short-circuit current**

| Voltage Range | 1.5mA max |
| Accuracy | ±1%rdg |

**Auto range**

| Voltage Range | 40.00/400.0/4000Ω |
| Accuracy | ±2%rdg |

**Open-circuit voltage**

| Voltage Range | 5V-6.9V |
| Accuracy | ±5%rdg |

**Measuring current**

| Voltage Range | 200mA |
| Accuracy | ±1%rdg |

**Communication Interface**

- USB*¹
- Bluetooth*²

**Dimensions/Weight**

97(L)x156(W)x46(D)mm/490g approx. (including battery)

**Power source**

LR6/R6(AA)(1.5V) x 4

**Accessories**

- 7260 (Test leads with remote control switch)
- 7261A (Test leads with alligator clip)
- 8017A (Extension prod long)
- 9173 (Cord case)
- 9121 (Shoulder strap)
- LR6(AA)x4 Instruction manual
- 9186A (Cord case)
- 9187 (Cord case)
- 7243A (L-shaped probe)
- 8016 (Hook type prod)
- 8212-USB (USB adaptor with “KEW Report(Software)“) *¹

**Diagnostic Insulation Tests**

- **Polarization Index (PI)**
  - PI = Insulation resistance value 10 min. after start / Insulation resistance value 1 min. after start
  - Criteria: 1.4 or more: Best, 1.2-1.5: Good, 1.0 or less: Warning, 1.0 or less: Bad

- **Dielectric Absorption Ratio (DAR)**
  - DAR = Insulation resistance value 1 min. after start / Insulation resistance value 15 sec. after start
  - Criteria: 1.4 or more: Best, 1.2-1.5: Good, 1.0 or less: Bad

**LED light & Display backlight**

Facilitate working at dimly illuminated location. Automatic sensor turns the LCD backlight and LED spot light ON/OFF.

**Memory/ data transfer function**

Available on KEW3552/3552BT. Internal memory up to 1000 measurements can be transferred to a PC by the optional adapter 8212-USB.

**Accessories**

- **MODEL 7260**
  - Test leads with remote control switch

- **MODEL 7261A**
  - Test leads with alligator clip

- **MODEL 8017A**
  - Extension prod long

- **MODEL 9173**
  - Carrying case

- **MODEL 9121**
  - Shoulder strap

- **MODEL 7243A**
  - L-shaped probe

- **MODEL 9186A**
  - Carrying case

- **MODEL 9187**
  - Cord case

- **MODEL 8016**
  - Hook type prod

- **MODEL 8212-USB**
  - USB adaptor with “KEW Report(Software)“

**World’s fastest measurement speed (0.5 sec.)**

**Six ranges available for insulation resistance test (50/100/125/250/500/1000 V)**

**Various lineup definitely fulfills your needs**

*Please contact us with inquiries about the purchase of 3552BT.*

*1 3552/3552BT only

*2 3552BT only, Bluetooth

*3 Low-resistance range is protected by a built-in fuse (0.5 A/1000 V, Dia. 6.3 x 32 mm)
### Model 3131A

**Insulation Resistance**
- Test voltage: 250V/500V/1000V
- Measuring ranges:
  - 100MΩ/200MΩ/400MΩ (Mid-scale value)
- Output voltage on open circuit: Rated test voltage +20%, -0%
- Nominal current: 1mA DC min.
- Output short circuit current: 1.3 mA DC approx.
- Accuracy: 0.1 - 10MΩ/20MΩ/40MΩ (Accuracy guaranteed ranges) ±5% of indicated value

**Continuity**
- Measuring ranges:
  - 2Ω/20Ω/1MΩ/10MΩ/40MΩ (Mid-scale value)
- Output voltage on open circuit: 4 - 9V DC
- Measuring current: 200mA DC min.
- Accuracy: ±3% of scale length

**General**
- Applicable Standards:
  - IEC 61010-1 CAT III 300V Pollution degree 2
  - IEC 61557-1/2/4
  - IEC 60529(IP54)
  - IEC 61326-1(EMC)
- Power source: R6(AA)(1.5V) × 6
- Dimensions: 167(L) × 185(W) × 89(D)mm
- Weight: 860g approx.
- Accessories:
  - 7122B(Test leads) 9074(Cord case)
  - 8923(Fuse[0.5A/600V]) × 1 (included), 1 (spares)
  - R6(AA) × 6, 9121(Shoulder strap), Instruction manual

### Model 3132A

**Insulation Resistance**
- Test voltage: 250V/500V/1000V
- Measuring ranges:
  - 100MΩ/200MΩ/400MΩ (Mid-scale value)
- Output voltage on open circuit: Rated test voltage +20%, -0%
- Nominal current: 1mA DC min.
- Output short circuit current: 1 - 2mA DC
- Accuracy: 0.1 - 10MΩ/20MΩ/40MΩ (Accuracy guaranteed ranges) ±5% of indicated value

**Continuity**
- Measuring ranges:
  - 3Ω/50Ω/1MΩ/20MΩ (Mid-scale value)
- Output voltage on open circuit: 4.1V DC approx.
- Measuring current: 210mA DC min.
- Accuracy: ±1.5% of scale length

**AC Voltage**
- AC voltage range: 0 - 600V AC
- Accuracy: ±5% of scale length

**General**
- Applicable Standards:
  - IEC 61010-1 CAT III 600V Pollution degree 2
  - IEC 61557-1/2/4
  - IEC 60529(IP54)
  - IEC 61326-1(EMC)
- Power source: R6(AA)(1.5V) × 6
- Dimensions: 106(L) × 160(W) × 72(D)mm
- Weight: 560g approx.
- Accessories:
  - 7122B(Test leads)* 9074(Cord case)
  - 8923(Fuse[0.5A/600V]) × 1 (included), 1 (spares)
  - R6(AA) × 6, 9121(Shoulder strap), Instruction manual

* 7217A(For Australia)

---

**Accessory**

- **Model 7122B** Test leads
- **Model 7217A** (For Australia)

---

**Selection Guide**

<table>
<thead>
<tr>
<th>Feature</th>
<th>3131A</th>
<th>3132A</th>
</tr>
</thead>
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<tr>
<td>3 range insulation test voltage</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>200mA continuity</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Live circuit warning</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>AC voltage range</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Illuminated scale</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Automatic discharge</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>IP54 rate</td>
<td>✔️</td>
<td>✔️</td>
</tr>
</tbody>
</table>
ANALOGUE INSULATION TESTERS

MODEL 3161A

- Miniature lightweight insulation tester. It weighs only 340g (battery included), but carries full measurement functions.
- Automatic discharge of circuit capacitance.
- Test leads with remote control switch.
- New robust housing case.
- Back light function.

MODEL 3165/3166

- 500V/1000MΩ (Model 3165)
- 1000V/2000MΩ (Model 3166)
- Expanded megohm scale for easy reading.
- New robust housing case to prevent damage.
- AC voltmeter scale for easy reading.

KEW 3431

- Compact and lightweight design.
- Scale light and LED spot light to facilitate working at dimly illuminated location or at nighttime work.
- Built-in illuminance sensor automatically turns on/off the lights.
- Test probe with remote control switch is supplied as standard accessory.
- Live circuit warning with blinking LED and buzzer.

### MODEL 3161A

<table>
<thead>
<tr>
<th>Test Voltage</th>
<th>Max. effective scale value</th>
<th>Mid-scale value</th>
<th>First effective measuring ranges</th>
<th>Accuracy</th>
<th>Second effective measuring ranges</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>15V/500V</td>
<td>20MΩ/100MΩ</td>
<td>0.005 - 2MΩ/0.1 - 50MΩ</td>
<td>±5% of indicated value</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Measuring ranges other than above, 0 and ∞</td>
<td>±10% of indicated value</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### MODEL 3165/3166

<table>
<thead>
<tr>
<th>Test voltage</th>
<th>Max. effective scale value</th>
<th>Mid-scale value</th>
<th>First effective measuring ranges</th>
<th>Accuracy</th>
<th>Second effective measuring ranges</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>500V/1000MΩ</td>
<td>2000MΩ</td>
<td>2 - 1000MΩ</td>
<td>±5% rdg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1000V/2000MΩ</td>
<td>1000MΩ</td>
<td>0.5/1000MΩ</td>
<td>±10% rdg</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 3431

<table>
<thead>
<tr>
<th>Test Voltage</th>
<th>Max. effective scale value</th>
<th>Mid-scale value</th>
<th>First effective measuring ranges</th>
<th>Accuracy</th>
<th>Second effective measuring ranges</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>250V/500V</td>
<td>2000MΩ</td>
<td>0.1MΩ - 100MΩ</td>
<td>±5% of indicated value</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>500V/1000V</td>
<td>2000MΩ</td>
<td>1MΩ - 1000MΩ</td>
<td>Measuring ranges other than above, 0 and ∞</td>
<td>±10% of indicated value</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Voltage measurement

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Accuracy</th>
<th>Applicable Standards</th>
<th>Power source</th>
<th>Dimensions</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC 600V (45 - 65Hz)/DC 600V</td>
<td>±5% of indicated value</td>
<td>CAT III 600V</td>
<td>LR6(R6A) x 4</td>
<td>97(L) x 156(W) x 46(D)mm</td>
<td>430g approx.</td>
</tr>
</tbody>
</table>

### Accessories

- 7260 (Test lead with remote control switch set).
- 7261A (Test lead with alligator clip).
- 9074 (Cord case).
- 7025 (Test lead).
- 9123 (Shoulder strap).

Optional

- 9186A (Carrying case).
- 9187 (Cord case).
- 7243A (L-shaped probe).
- 8016 (Hook type probe).

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Why insulation test is necessary?

All live conductors of electrical appliances and installations must be insulated to prevent electric shock hazards from inadvertent contact, fire hazards from short circuit and equipment damage. In addition, a low insulation resistance in installation will result in a leakage current, and hence causes a waste of energy which would increase the running costs of the installation. Insulation resistance must be checked by applying appliances or installations a higher voltage than its normal working voltage, because an insulation resistance is lower at higher voltage than at lower voltage. Kyoritsu’s insulation resistance testers provide measurement at high levels of test voltages. Periodical test is also important to ensure that insulation of installations or appliances is not deteriorating. Foreign matter and mechanical factors like wear or breakage may reduce insulation resistance. Regular tests and data logs can detect possible fault in insulation.

Standards and applications

The International Standard of Electrical Installation of Buildings IEC 60364 has a dedicated section named “Verification”. This can be found in part 6. This section stipulates minimum values for the insulation resistance, measured with a particular test voltage, with no equipment connected to the circuits.

<table>
<thead>
<tr>
<th>Nominal circuit voltage</th>
<th>Test voltage in d.c. applied by Insulation tester</th>
<th>Insulation resistance value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SELV, PELV (≦ 50V a.c. ≦ 120V d.c.)</td>
<td>250V</td>
<td>≧ 0.5MΩ</td>
</tr>
<tr>
<td>Up to and including 500 V (including FELV) with the exception of the above cases</td>
<td>500V</td>
<td>≧ 1MΩ</td>
</tr>
<tr>
<td>Above 500V</td>
<td>1000V</td>
<td>≧ 1MΩ</td>
</tr>
</tbody>
</table>

The testing apparatus (insulation testers) have to be capable of supplying an output current of at least 1mA at its nominal test voltage.

According to IEC 60364, a typical for 230/400V electrical installation (excluding SELV and PELV), requires that the insulation resistance at a test voltage of 500 V d.c. is larger than 1 MΩ.

A test voltage of 1000V can be used for testing the insulation resistance of large electric motors, switchboards, industrial processing machines, devices and circuits with voltages exceeding 500V (but below 1000V a.c. and 1500V d.c.).

A test voltage lower than 250V (for example 15V, 50V, 100V and 125V) may be available in some insulation testers for testing the insulation resistance in telecommunication devices and circuits, security devices, local networks, speech (audio) devices, delicate electronic circuits and PCBs.

Insulation Testing Methods

- Measurement of insulation resistance between live conductors (A)
  Prior to testing, make sure that the circuit or part of the installation to be tested is disconnected from the mains supply and not energized. It is also necessary to ensure: the point of the installation to be checked is not open due to other equipment incorporated, the load connected with a fixed load and socket outlet is disconnected from the mains supply, and relay coils, fluorescent lamps, etc do not produce continuity between conductors. Circuits or components likely to be damaged by insulation test voltage must be removed from the circuit under test. If they cannot be disconnected, an alternative testing method is to measure insulation resistance between live conductors and earth.

- Measurement of insulation resistance between live conductors and earth (B)
  The test must be carried out with equipment always disconnected, i.e., with the mains switch open it must be disconnected from the mains supply. Earth terminal must be connected to earth and Line terminal to a live conductor or conductors. Where there is insulation deterioration or an indoor electrical installation is not partly or totally insulated a variety of electric hazards may be anticipated.

To give some of the examples:

- Leakage current dangerous to the human body will develop. This is particularly the case with equipment that has no good earth and therefore is not properly protected against the potential difference.
- Overheating of conductors due to the leakage of current or microscopic discharging will cause short circuits or fires.
- RCDs will trip, with resulting damage to the equipment which will also cause short circuits and fires.

Kyoritsu’s dedicated leakage clamp meters MODEL 2431, 2432, 2433, 2433R, 2434, KEW 2413F and 2413R will be very helpful in identifying the possible causes of such accidents.
## HIGH VOLTAGE INSULATION TESTERS

### KEW 3121B/3122B

- Easy and simple operation.
- Automatic ranges, indicated by different LED's.
- Newly-designed alligator clip.
- It comes with a tough hard case.
- Safety standard IEC 61010-1 CAT IV 300V

### Specifications

<table>
<thead>
<tr>
<th>Test voltage</th>
<th>2500V</th>
<th>5000V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring ranges (automatic change)</td>
<td>2GΩ/100GΩ (auto ranging)</td>
<td>5GΩ/200GΩ (auto ranging)</td>
</tr>
<tr>
<td>First effective measuring ranges</td>
<td>0.1 - 50GΩ</td>
<td>0.2 - 100GΩ</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±5% rdg</td>
<td>±10% rdg or 0.5% of scale length</td>
</tr>
<tr>
<td>Short circuit current</td>
<td>0.08mA</td>
<td></td>
</tr>
<tr>
<td>Applicable Standards</td>
<td>IEC 61010-1, 61010-2-030 CAT IV 300V, CAT III 600V Pollution degree 2, IEC 61326-1, 61326-2-2(EMC), IEC 60529(IP40)</td>
<td></td>
</tr>
<tr>
<td>Power source</td>
<td>DC12V LR14 × 8</td>
<td></td>
</tr>
<tr>
<td>Dimensions</td>
<td>177(L) × 226(W) × 100(D) mm</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>1.9kg approx</td>
<td>1.7kg approx</td>
</tr>
<tr>
<td>Accessories</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
- 7165A(Line probe)(3m), 7264(Earth cord)(3m), 7265(Guard cord)(3m), 8019(Hook type prod), 9182(Carrying case[Hard]), LR14 × 8, Instruction manual |
- 7165A(Line probe)(3m), 7264(Earth cord)(3m), 7265(Guard cord)(3m), 8019(Hook type prod), 9183(Carrying case[Hard]), LR14 × 8, Instruction manual |
| Optional |
- 7168A(Line probe with alligator clip)(3m), 7253(Longer line probe with alligator clip)(15m), 8324(Adaptor for recorder) |

### Optional Accessories

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>7168A</strong></td>
<td>Line probe with alligator clip: 3000mm</td>
</tr>
<tr>
<td><strong>7253</strong></td>
<td>Longer line probe with alligator clip: 15m</td>
</tr>
<tr>
<td><strong>8324</strong></td>
<td>Adaptor for recorder (Output 10mV/1µA)</td>
</tr>
</tbody>
</table>

- Cable length: 200mm
- Alligator clip side: 1100mm

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**Accessories**

**Optional Accessories**

- **Model 7165A**: Line probe 3,000mm
- **Model 7224A**: Earth cord 1,500mm
- **Model 7225A**: Guard cord 1,500mm
- **Model 8019**: Hook type prod
- **Model 9158**: Carrying case (Hard)

- **Model 7168A**: Line probe with alligator clip: 3m
- **Model 7253**: Longer line probe with alligator clip: 15m
- **Model 8324**: Adaptor for recorder (Output 10mV/1µA)

**Use of Guard Terminal**

Illustrated in this Fig. is an example of the insulation resistance measurement of an electric wire. If the line probe is simply connected to the wire conductor and the earth lead to the immersion liquid container as shown, a measurement error will be introduced as this results in the measurement of the combined resistance of insulation resistance and the surface leakage resistance at the cut end of the wire. In order to remove this surface leakage current, wind a guard wire around the cut end of the conductor and connect it to the guard terminal of the instrument using the guard lead. Then, the surface leakage current will bypass the indicating meter of the insulation resistance tester.

**10000V**

<table>
<thead>
<tr>
<th>KEW 3123A</th>
<th>KEW 3124A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model 7165A</strong></td>
<td><strong>Model 7165A</strong></td>
</tr>
<tr>
<td><strong>Model 7168A</strong></td>
<td><strong>Model 7168A</strong></td>
</tr>
<tr>
<td><strong>Model 7224A</strong></td>
<td><strong>Model 7224A</strong></td>
</tr>
<tr>
<td><strong>Model 7225A</strong></td>
<td><strong>Model 7225A</strong></td>
</tr>
<tr>
<td><strong>Model 8019</strong></td>
<td><strong>Model 8019</strong></td>
</tr>
<tr>
<td><strong>Model 9158</strong></td>
<td><strong>Model 9158</strong></td>
</tr>
</tbody>
</table>

**Test voltage**

- **KEW 3123A**: 5000V (10000V)
- **KEW 3124A**: 1kV - 10kV variable

**Measuring ranges**

- **KEW 3123A**: 5GΩ/200GΩ (autorangeing)
- **KEW 3124A**: 0.05 - 50GΩ

**First effective measuring ranges**

- **KEW 3123A**: 0.2 - 100GΩ
- **KEW 3124A**: 0.5 - 50GΩ

**Accuracy**

- **KEW 3123A**: ±5% rdg
- **KEW 3124A**: ±10% rdg

**Power source**

- **KEW 3123A**: 8R6(AA)(1.5V) x 8
- **KEW 3124A**: Ni-MH rechargeable battery(1.2V) x 8

**Dimensions**

- **KEW 3123A**: 200(L) x 140(W) x 80(D)mm
- **KEW 3124A**: 200(L) x 140(W) x 80(D)mm

**Weight**

- **KEW 3123A**: 1kg approx.
- **KEW 3124A**: 1.5kg approx.

**Accessories**

- **Model 7082**: Lead for recorder 1,100mm
- **Model 7083**: Lead for Battery charging 5,200mm
- **Model 7084**: Earth and guard leads 5,000mm
- **Model 8266**: Battery charger 120V
- **Model 8267**: Battery charger 220V
- **Model 9176**: Carrying case (Hard)
### HIGH VOLTAGE INSULATION TESTERS

**KEW 3025A/3125A**

**Key Features**
- Large digital display with Bar Graph indication and back light.
- Polarization Index measurement (PI).
- Dielectric Absorption Ratio (DAR).
- Indication of Output voltage and Discharge voltage.
- Safety standard IEC 61010-1 CAT IV 300V / CAT III 600V

#### 3025A/3125A

<table>
<thead>
<tr>
<th>Range</th>
<th>Insulation resistance</th>
<th>Voltage measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test voltage</td>
<td>250V</td>
<td>500V</td>
</tr>
<tr>
<td>Insulation resistance</td>
<td>0.0 - 100.0MΩ</td>
<td>80 - 99.9MΩ</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±5% rdg ±3dgt</td>
<td>±5% rdg ±3dgt</td>
</tr>
<tr>
<td>Short circuit current</td>
<td>1.5mA</td>
<td>—</td>
</tr>
<tr>
<td>Rated test current</td>
<td>0.7mA - 0.9mA at 0.25MΩ load</td>
<td>1mA - 1.2mA at 1MΩ load</td>
</tr>
<tr>
<td>Open circuit voltage</td>
<td>250V +10%,-10%</td>
<td>500V +20%,-10%</td>
</tr>
<tr>
<td>Applicable Standard</td>
<td>IEC 61010-1, 61010-2-030 CAT IV 300V, CAT III 600V Pollution degree 2, IEC 61326-1, 2-2</td>
<td></td>
</tr>
<tr>
<td>Power source</td>
<td>DC12V LR14 × 8</td>
<td></td>
</tr>
<tr>
<td>Dimensions</td>
<td>177(L) × 226(W) × 100(D) mm</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>1.7kg approx. (3025A) 1.9kg approx. (3125A)</td>
<td></td>
</tr>
<tr>
<td>Accessories</td>
<td>7165A(Line probe)(3m), 7264(Earth cord)(3m), 7265(Guard cord)(3m), 8019(Hook type prod), 9180(Carrying case for 3025A) 9181(Carrying case for 3125A), LR14(Alkaline battery size C) × 8, Instruction manual</td>
<td></td>
</tr>
<tr>
<td>Optional</td>
<td>7168A(Line probe with alligator clip)(3m), 7253(Longer line probe with alligator clip)(15m), 8302(Adaptor for recorder)</td>
<td></td>
</tr>
</tbody>
</table>

*1) KEW3125A only

---

**Accessories**

- **MODEL 7165A**
  - Line probe, 3,000mm

- **MODEL 7264**
  - Earth cord, 3,000mm

- **MODEL 7265**
  - Guard cord, 3,000mm

- **MODEL 8019**
  - Hook type prod

- **MODEL 9180/9181**
  - Carrying case [Hard] 9180(3025A)/9181(3125A)
Diagnostic Insulation Tests

- **PI** (Polarization Index)
  - **Polarization Index** value 10 min. after start
  - **Criteria**
    - 4.0 or more: Best
    - 4.0-2.0: Good
    - 2.0-1.0: Warning
    - 1.0 or less: Bad

- **DAR** (Dielectric Absorption Ratio)
  - **Dielectric Absorption Ratio** value 1 min. after start
  - **Criteria**
    - User-Selectable 15sec. or 30sec. interval

- **DD** (Dielectric Discharge)
  - Current value 1 min. after completing (mA)
  - **Criteria**
    - User-Selectable 15sec. or 30sec. interval

---

**Insulation Resistance**

<table>
<thead>
<tr>
<th>Test voltage</th>
<th>250V</th>
<th>500V</th>
<th>1000V</th>
<th>2500V</th>
<th>5000V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accuracy</td>
<td>±5%rdg±3dgt</td>
<td>±5%rdg±3dgt</td>
<td>±5%rdg±3dgt</td>
<td>±5%rdg±3dgt</td>
<td>±5%rdg±3dgt</td>
</tr>
<tr>
<td>Short circuit current Max</td>
<td>5.0mA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output voltage</td>
<td>-10 - +10%</td>
<td>-10 - +20%</td>
<td>0 - +20%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Measuring range**

- Voltage measurement
  - AC: 30 - 600V (50/60Hz)
  - DC: ±30 - ±600V
- Current measurement
  - ±0.0mA - ±5.50mA
- Capacitance measurement
  - ±5%rdg±5dgt

**Power source**

- Rechargeable Battery (Lead-acid Battery) 12V * Charging power: DC 15VA MAX

**Accessories**

- 7165A(Line probe), 7224A(Earth cord), 7225A(Guard cord), 8019Hook type prod), 8327EU(Power adaptor 15V/1A), 9171(Carrying case[Hard]), Instruction manual
- 7168A(Line probe with alligator clp.3m), 7253(Longer line probe with alligator clip), 8258(USB communication set), 8302(Adaptor for recorder 1mV/1μA)

---

**System requirements**

- **OS**: Windows® 8/10
- **Display**: XGA (Resolution 1024 × 768 dots) or more
- **Hard disk**: Space required 100Mbyte or more
- **Others**: With CD-ROM drive and USB port

- *Windows® is a registered trademark of Microsoft in the United States.

---

**Data Communication Function**

- Transferring and showing real-time data to PC and Android tablet
- Recorded data can be transferred (PC only)
- Analyzing of the saved data (PC only)

---

**Optional Accessories**

- 7168A(3m)
- 7253(15m)
- 8258
- 8302

---

**Diagnostic Insulation Tests**

- Insulation Resistance up to 10TΩ
- Short-Circuit Current up to 5mA
- Wide Test Voltage from 250V to 5000V
- Diagnostic Insulation Tests: IR, PI, DAR, DD, SV, RAMP
- Wireless communication by Bluetooth for transferring and showing real-time data to PC and Android device.
- Memory and Logging functions.
- Filter function reduces noise interference.
- Robust design for field use with IP65 (lid closed).
- Powered by rechargeable battery.

---

**Function**

- **PI** (Polarization Index)
  - Insulation resistance value 10 min. after start
  - **Criteria**
    - 4.0 or more: Best
    - 4.0-2.0: Good
    - 2.0-1.0: Warning
    - 1.0 or less: Bad

- **DAR** (Dielectric Absorption Ratio)
  - Insulation resistance value 1 min. after start
  - **Criteria**
    - User-Selectable 15sec. or 30sec. interval

- **DD** (Dielectric Discharge)
  - Current value 1 min. after completing (mA)
  - **Criteria**
    - User-Selectable 15sec. or 30sec. interval
**HIGH VOLTAGE INSULATION TESTERS**

**KEW 3128**

- Test Voltage 12kV (max), Resistance 35TΩ (max).
- Short-Circuit Current 5mA (max).
- Graphic representation of the insulation resistance and leakage current versus time on large display with bar graph and backlight.
- Print Screen Function enables to record up to 32 display screens.
- Internal Memory can store about 43,000 data (max).
- Can be operated from internal rechargeable battery or from AC line.
- Robust design for field use with IP64 rating (with lid closed).

**Function**

**SV Measurement (Step Voltage)**

During the test, the applied voltage incrementally steps by a certain voltage taking successive 5-time measurement. Degradation of insulation may be doubted when insulation resistances become lower at higher applied voltages.

**RAMP TEST**

Voltage used in Step voltage test is raised in steps, but that used in RAMP measurement is gradually raised. The KEW 3127 Ramp test generates a rising voltage ramp up to the selected voltage.

- **[Breakdown Mode]** KEW 3127 automatically stops the test if the insulation breaks down in order to prevent damage to the object being tested.
- **[Burn Mode]** KEW 3127 allows the insulation test voltage to continue even after the insulation breaks down. This enables you to locate a fault, such as pinholes in windings, by seeing a spark or a wisp of smoke.

**SV**

**RAMP TEST**

Voltage used in Step voltage test is raised in steps, but that used in RAMP measurement is gradually raised. The KEW 3127 Ramp test generates a rising voltage ramp up to the selected voltage.

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**Large Graphical Display**

Graphic representation of the insulation resistance and leakage current versus time on large display with bar graph and backlight.

**Optional Accessory**

**MODEL 7254** (Longer line probe with alligator clip : 15m)

**KEW Windows® Software for report**

The stored data can be transferred to PC via MODEL8212-USB.

**System requirements**

- **OS:** Windows®® 8/10
- **Display:** XGA (Resolution 1024 × 768 dots) or more
- **Hard disk:** Space required 100Mbyte or more
- **Others:** With CD-ROM drive and USB port

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Voltage V is applied to the object (Resistance Rx) measured from the voltage injection transformer CT1, and the current I corresponding to the earth resistance is flowed. The current I is detected with detection transformer CT2, and object (Resistance Rx) measured can be put out by the calculation. (refer to the right diagram)

Rx, is defined as earth resistance under test, and R1, R2…Rn are defined as earth resistance of other measuring objects.

These earth resistances, R1, R2,… Rn can be considered that they are connected in parallel. And They can be regarded as a combined resistance Rs. The Rs can be regarded small enough against Rx since a combined resistance consists of several resistances.

Following is an equivalent circuit diagram of this circuit.

Voltage V is applied to the object (Resistance Rx) measured from the voltage injection transformer CT1, and the current I corresponding to the earth resistance is flowed. The current I is detected with detection transformer CT2, and object (Resistance Rx) measured can be put out by the calculation. (refer to the right diagram)
KEW 4105DL

- 3pole and 2pole Earth Resistance measurement (0.01Ω-2000Ω)
- Waterproof design (IP67)
- Rotary Switch makes the user interface very intuitive
- Large LCD Display with Backlight
- LED to monitor correct / non correct auxiliary earth spike resistance
- Earth Voltage Measurement (AC/DC 0-300V)
- CAT IV 100V

Water and dust proof: after use you can wash it to remove the mud and dust!

Adapter to enable use of other test leads

Innovative Cable reel with wire guide system to facilitate rewinding

Optional Accessories

KEW 4105DL
Cable reel set model

KEW 4105DL-H
Hard case model

### Optional Accessories

- **MODEL 7272**
  Precision measurement cord set

- **MODEL 7267**
  Cable reel for Earth resistance tester (red)

- **MODEL 7268**
  Cable reel for Earth resistance tester (yellow)

- **MODEL 7271**
  Earth resistance test leads

- **MODEL 8041**
  Auxiliary earth spikes [2spikes/1set]

- **MODEL 9192**
  Carrying case

- **MODEL 8259**
  Adapter for measurement terminal
  [red, yellow, green/1 set]

**Special Instructions**

*1 For precision measurement, auxiliary earth resistance should be 100 ±5% or less.

*2 At simplified measurement add ±0.10 Ω to the specified accuracy.

*3 Accuracy within the auxiliary earth resistance: ±5% rdg ±10 dgt.
**MODEL 4102A**

- Earth resistance measurement
  - $\times 1 \Omega$: Range 0 - 12 Ω
  - $\times 10 \Omega$: 0 - 120 Ω
  - $\times 100 \Omega$: 0 - 1200 Ω
- Accuracy $\pm 3\%$ of full scale

**MODEL 4105A**

- Earth resistance measurement
  - $\times 20 \Omega$: Range 0.00 - 1999 Ω
  - $\times 200 \Omega$: 0.0 - 199.9 Ω
  - $\times 2000 \Omega$: 0 - 1999 Ω
- Accuracy $\pm 2\%$ of reading ± 3 digits

**Earth Voltage Measurement**
- Measuring range: 0 - 200 V AC (50, 60 Hz)
- Display range: 0.0 - 199.9 V
- Accuracy: $\pm 1\%$ of reading ± 4 digits

**Overload Protection**
- Earth resistance: 276V AC/DC (10 seconds)
- Earth voltage: 276V AC/DC (10 seconds)

**Applicable Standards**
- IEC 61010-1 CAT III 300 V Pollution degree 2
- IEC 61010-2-030, IEC 61557-1,-5, IEC 60529 IP54

**Power Source**
- $\times 6$ (AA) (1.5V)

**Dimensions**
- 105(L) x 158(W) x 70(H) mm (including case lid)

**Weight**
- Approx. 600g (including batteries and case lid)

**Accessories**
- 7095A (Earth resistance test leads), 7127A, 8032, 9121, R6 (AA) x 6, Instruction manual
- Carrying case: 9084 (Soft), 9164 (Hard)

**Optional Accessories**
- 7100A (Precision measurement cord set), 8259 (Adapter for measurement terminal)

**KEW 4105A**

- Soft case model
- Hard case model

**MODEL 7095A**

- Test leads for earth resistance
- 7095A, 8032, 8200-03, 9091

**MODEL 8032**

- Cord reel 3 pcs
- Auxiliary earth spikes: 2 spikes/1 set

**MODEL 9091**

- Carrying case for cord reel

**Optional Accessories**

- Precision measurement cord set (7095A, 8032, 8200-03, 9091)
- Test leads for earth resistance
- Auxiliary earth spikes
- Cord reel (3 pcs)
- Carrying case for cord reel
**EARTH TESTERS**

**KEW 4106**

- Earth resistance measurement with six ranges covering measurements from 0.001 Ω to 200 kΩ.
- Earth resistivity ($\rho$) measurement is automatically calculated after having set the distance between Auxiliary Earth Spikes (Wenner method).
- Automatic and Manual selection of the Test Current Frequency in four bands of 94/105/111/128Hz. In Automatic mode KEW 4106 will select the most suitable Frequency.
- Advanced Filtering method (based on FFT Fast Fourier Transform) reduces noise interference for obtaining stable measurements.
- Up to 800 measurement results can be saved in the memory and recalled on the display.
- The stored results can be transferred to a PC via USB adaptor (Model 8212-USB) by using software “KEW Report” which are included.
- Robust design with IP54 protection.

**Table: 4106**

<table>
<thead>
<tr>
<th>Function</th>
<th>Range</th>
<th>Resolution</th>
<th>Measuring range</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earth resistance Re</td>
<td>0.001Ω</td>
<td>0.03Ω</td>
<td>0.03 - 209.9Ω</td>
<td>±2%rdg ±0.03Ω</td>
</tr>
<tr>
<td></td>
<td>0.01Ω</td>
<td>0.03Ω</td>
<td>0.03 - 209.9Ω</td>
<td>±2%rdg ±0.03Ω</td>
</tr>
<tr>
<td></td>
<td>0.1Ω</td>
<td>0.3Ω</td>
<td>0.3 - 209.9Ω</td>
<td>±2%rdg ±0.3Ω</td>
</tr>
<tr>
<td></td>
<td>1Ω</td>
<td>3Ω</td>
<td>3 - 209.9Ω</td>
<td>±2%rdg ±3Ω</td>
</tr>
<tr>
<td></td>
<td>10Ω</td>
<td>0.03kΩ</td>
<td>0.03k - 209.9kΩ</td>
<td>±2%rdg ±0.3Ω</td>
</tr>
<tr>
<td></td>
<td>100Ω</td>
<td>0.3kΩ</td>
<td>0.3k - 209.9kΩ</td>
<td>±2%rdg ±3Ω</td>
</tr>
<tr>
<td>Auxiliary earth resistance Rh, Rs</td>
<td>8% of Re+Rh+Rs</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**KEW 4300**

- Warning buzzer triggered at 100Ω or less.
- LED lights up when a large earth voltage is detected.
- Live circuit warning when 30V or higher voltage is detected. (KEW4300 detects voltage even when measuring resistances.)
- LED light for illuminating measurement points. (It turns on/off automatically in relation to the ambient brightness.)
- Small test current (max 2mA) not triggering RCD.

**Table: 4300**

<table>
<thead>
<tr>
<th>Function</th>
<th>Range</th>
<th>Resolution</th>
<th>Measuring range</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earth resistance ranges</td>
<td>200.0Ω</td>
<td>±3%rdg±5Ω</td>
<td>±2%rdg±5Ω</td>
<td>±1.5%rdg±0.5Ω</td>
</tr>
<tr>
<td>Voltage ranges</td>
<td>5V - 300V</td>
<td>±1%rdg±4Ω</td>
<td>±1%rdg±4Ω</td>
<td>±2%rdg±0.5Ω</td>
</tr>
<tr>
<td>DC: ±5V - 300V ±1%rdg±4Ω</td>
<td>±1%rdg±4Ω</td>
<td>±2%rdg±0.5Ω</td>
<td>±1%rdg±4Ω</td>
<td>±2%rdg±0.5Ω</td>
</tr>
</tbody>
</table>

**Applicable Standards**

- IEC 61010-1 CAT III 300V
- IEC 61557-1,-5
- IEC 61326-1,2-2, IEC 60529(IP40)

**Power source**

- LR6(AA)(1.5V) × 2

**Dimensions**

- 170(L) x 65(W) x 40(D)mm

**Weight**

- Approx. 220g (including battery)

**Accessories**

- 7246(Test lead with Alligator clip and Flat test probe)
- 8072(CAT III Standard prod)
- 8253(CAT III Standard prod)
- 8017(Extension prod long)
- 9161(Carrying case)
- Instruction manual, LR6(AA) × 2

KeW4300 is simplified earth resistance tester (based on 2-pole method) that can be used for various distribution lines and electrical appliances and it also can measure AC/DC voltage. (As for AC voltages, true rms values can be obtained.)
EARTH CLAMP TESTERS

MODEL 4200/KEW 4202

Earth resistance
Auto range

<table>
<thead>
<tr>
<th>4200</th>
<th>4202</th>
</tr>
</thead>
<tbody>
<tr>
<td>20.00/200.0/1500Ω</td>
<td>±1.5%±0.05%±20.99Ω</td>
</tr>
<tr>
<td>±2%</td>
<td>±0.5% (16.0 - 89.9Ω)</td>
</tr>
<tr>
<td>±3%</td>
<td>±2% (100.0 - 209.9Ω)</td>
</tr>
<tr>
<td>±5%</td>
<td>±5% (160 - 399Ω)</td>
</tr>
<tr>
<td>±10%</td>
<td>±10% (400 - 599Ω)</td>
</tr>
<tr>
<td>Values are displayed, but accuracy isn’t guaranteed (600 - 1580Ω)</td>
<td></td>
</tr>
</tbody>
</table>

AC current
(50Hz/60Hz)
Auto range

<table>
<thead>
<tr>
<th>4200</th>
<th>4202</th>
</tr>
</thead>
<tbody>
<tr>
<td>100A/1000mA/10.0A/30.0A</td>
<td>±2%</td>
</tr>
<tr>
<td>±2%</td>
<td>(80mA - 31.5A)</td>
</tr>
</tbody>
</table>

Operating indication
Earth resistance function: Constant voltage injection
Current detection
(Frequency: Approx.2400Hz)
Dual Integration
AC current function: Successive approximation

Over-range indication
“OL” is displayed when input exceeds the upper limit of a measuring range

Response time
Approx. 7 seconds (Earth resistance)
Approx. 2 seconds (AC current)

Sample rate
Approx. 1 times per second

Communication Interface
— | Bluetooth® Ver2.1 + EDR Class2

Power source
LR6(AA) × 4

Current consumption
Approx. 50mA (max.100mA) | Approx. 50mA (max.100mA)

Measurement time
Approx 24 hours (when LR6 is used) | Approx 5 hours (when LR6 is used)

Auto power-off
Turns power off about 10 minutes after the last button operation.

Applicable Standards
IEC 61010-1 CAT IV 300V Pollution degree 2
IEC 61010-2-032, IEC 61326 (EMC)

Conductor size
Approx. 4.52mm

Dimension
246(L) × 120(W) × 54(D)mm

Weight
Approx. 780g (including batteries)

Accessories
R6(AA) × 4, Instruction manual,
8304 (Resister for operation check)
9167 (Carrying case[Hard])

• Crest factor ≤ 2.5 (50Hz/60Hz, peak value shall not exceed 60A)
• 4 counts or less are corrected to 0.

Various useful functions are available on Android devices using Bluetooth® communication (4202 only)

Free Android software “KEW Smart 4202” is available on download site

Various useful functions are available on Android devices using Bluetooth® communication (4202 only)

Recorded data can be transferred (up to 100 measurements)

Measured data with time and location info can be sent by E-mail

Comparator function informs when the measured value is lower/higher than the preset value

Comparer function informs when the measured value is lower/higher than the preset value

Accessories

1Ω loop 100Ω loop

MODE 8304
Resister for operation check

MODE 9167
Carrying case[Hard]

Earth Clamp Line up

<table>
<thead>
<tr>
<th>4200</th>
<th>4202</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common functions</td>
<td>Earth resistance, AC current, Back light function, Data hold function, Auto power off, Memory function</td>
</tr>
<tr>
<td>Individual functions</td>
<td>—</td>
</tr>
</tbody>
</table>

Note: A single earthing can not be measured. (Only for Multiple Earthing system)

- The earth resistance from 0.05 to 1500Ω can be measured without the auxiliary earth spikes in multi-earthing systems
- True RMS leakage or phase current readings from 0.1mA to 30.0A provides vital additional information in earthing networks
- Filter function offers increased immunity to electrical noise and a Noise mark appears in excessively high noisy environments
- Memory function up to 100 data
- Bluetooth® communication (4202 only)

Available on the Android devices equipped with Bluetooth®/GPS/ Data communication function.
Max communication distance:10m
Bluetooth® is a registered trademark of the Bluetooth SIG, Inc.
Android is a registered trademark of the Google Inc.

www.kew-ltd.co.jp
**Accessories**

- Custom microprocessor controlled for highest accuracy and reliability.
- 3 LEDs for checking correct wiring status.
- 15mA LOOP measurement: LOOP impedance 2000Ω range measurement is carried out with low test current (15mA). The current will not cause tripping out involved RCD even the one with the lowest nominal differential current (30mA).
- Direct reading of Prospective Short Circuit Current (PSC).
- Measure low loop resistances (resolution of 0.01Ω).
- Automatic lock-out if test resistor overheats.
- Large custom digital display readout.
- Visual indication of reversed phase and neutral wiring at socket.
- Designed to IP54 Rating

**Loop Testing Methods**

In the buildings mainly used for private residence where low voltage power is supplied from electric utilities the fundamental protection against electric shock hazards is provided by appropriately coordinating the function of an earthing circuit with automatic switches placed at the latter stage of indoor wiring circuits. This is intended to quickly cut off the supply to an earthing circuit where a fault occurs following touch voltage exceeding an acceptable limit. Proper protection against electric shock hazards is given when the TT wiring system satisfies the requirement as expressed by the following formula:

\[ Ra \times Ia \leq 50 \]

where Ra is the sum of the resistances of earth bars and protective conductors and Ia is the maximum current of a protection system provided for installations, indicating that the value obtained by multiplying Ra with Ia is not more than 50V. This means a maximum voltage one can touch shall not exceed 50V in the event of an earth fault.

- Method of earth fault loop impedance testing at socket outlet. As shown in Fig., total earth fault loop impedance can be measured by plugging a loop tester into socket. The value of earth fault loop impedance measured represents the sum of transformer coil winding resistance, phase conductor (L3) resistance and protective conductor (PE) resistance as well as source earth resistance and installation earth resistance. With the loop tester set to any one of the PSC (prospective short circuit current) range, it is also possible to measure earth fault current.

---

**LOOP/PSC TESTERS**

**MODEL 4118A**

<table>
<thead>
<tr>
<th>Loop impedance ranges</th>
<th>20/200/2000Ω</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loop impedance accuracy</td>
<td>±2%rdg±4dgt</td>
</tr>
<tr>
<td>AC test current</td>
<td>20Ω 25A</td>
</tr>
<tr>
<td></td>
<td>200Ω 2.3A</td>
</tr>
<tr>
<td></td>
<td>2000Ω 15mA</td>
</tr>
<tr>
<td>AC test period</td>
<td>20Ω (20ms)</td>
</tr>
<tr>
<td></td>
<td>200Ω (40ms)</td>
</tr>
<tr>
<td></td>
<td>2000Ω (280ms)</td>
</tr>
<tr>
<td>PSC ranges</td>
<td>200A (2.3A 40ms)</td>
</tr>
<tr>
<td></td>
<td>2000A (25A 20ms)</td>
</tr>
<tr>
<td></td>
<td>20kA (25A 20ms)</td>
</tr>
<tr>
<td>PSC ranges accuracy</td>
<td>Consider accuracy of loop impedance</td>
</tr>
<tr>
<td>Voltage</td>
<td>110V - 260V ±2%rdg±4dgt</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>230V ±10%, -15%(195V - 253V) 50Hz</td>
</tr>
<tr>
<td>Applicable Standards</td>
<td>IEC 61010-1 CAT III 300V Pollution degree 2</td>
</tr>
<tr>
<td></td>
<td>IEC 61557-1,3, IEC 60529(IP54)</td>
</tr>
<tr>
<td>Dimensions</td>
<td>167(L) × 185(W) × 89(D)mm</td>
</tr>
<tr>
<td>Weight</td>
<td>750g approx.</td>
</tr>
<tr>
<td>Accessories</td>
<td>Molded plug test leads*</td>
</tr>
<tr>
<td></td>
<td>7121B(Distribution board test leads)</td>
</tr>
<tr>
<td></td>
<td>9147(Cord case)</td>
</tr>
<tr>
<td></td>
<td>9121(Shoulder strap)</td>
</tr>
<tr>
<td></td>
<td>Instruction manual</td>
</tr>
</tbody>
</table>

* 7123(AU): Australian plug
7125(EU): European SHUKO plug
7126(SA): South african plug
7124(UK): British plug(13A)
7126(SA): South african plug

---

**Molded plug test leads**

**MODEL 7123 (AU) Australian plug**

**MODEL 7124 (UK) British plug(13A)**

**MODEL 7125 (EU) European SHUKO plug**

**MODEL 7126 (SA) South african plug**

---

**Fig. Earth fault loop impedance testing at socket outlet.**
**KEW 4140**

- Anti-Trip Technology for complete trip free Loop testing on all RCDs rated 30mA and above.
- Dual Display allows simultaneous measurements like Loop & PFC/PSC.
- Two wire connection for Loop L-L, L-N and PSC testing is possible.
- Phase rotation, Voltage and Frequency measurements.
- Lock-down test button for ‘hands free’ testing with auto-start operation.
- Display and front panel keyboards with Backlight to be visible in dark places.
- Water and Dust proof (IP54)

### Loop Impedance

<table>
<thead>
<tr>
<th>Function</th>
<th>L-PE ATT OFF</th>
<th>L-PE ATT ON</th>
<th>L-N/L-L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage</td>
<td>230V (50/60Hz)</td>
<td>L-N: 230V (50/60Hz)</td>
<td>L-L: 400V (50/60Hz)</td>
</tr>
<tr>
<td>Operating Voltage</td>
<td>100 - 280V (45 - 65Hz)</td>
<td>100 - 500V (45 - 65Hz)</td>
<td></td>
</tr>
<tr>
<td>Accuracy</td>
<td>±3%rdg±4dgt (*1)</td>
<td>±3%rdg±4dgt</td>
<td>±3%rdg±6dgt (*1)</td>
</tr>
</tbody>
</table>

### PFC/PSC

<table>
<thead>
<tr>
<th>Function</th>
<th>PFC/PPC</th>
<th>PFC/PSC (ATT)</th>
<th>PSC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage</td>
<td>230V (50/60Hz)</td>
<td>L-N: 230V (50/60Hz)</td>
<td>L-L: 400V (50/60Hz)</td>
</tr>
<tr>
<td>Operating Voltage</td>
<td>100 - 280V (45 - 65Hz)</td>
<td>100 - 500V (45 - 65Hz)</td>
<td></td>
</tr>
<tr>
<td>Range (Auto-Ranging)</td>
<td>2000A/20kA</td>
<td>2000A/20kA (L-N&lt;20Ω)</td>
<td>2000A/20kA</td>
</tr>
<tr>
<td>Nominal Test Current at 0Ω External Loop: Magnitude/Duration at 230V</td>
<td>20Ω:2A/20ms, 200Ω:2A/20ms, 2000Ω:15mA/500ms</td>
<td>L-N:6A/60ms, N-PE:10mA/approx. 5s, 20Ω:16A/40ms, 200Ω:2A/20ms, 2000Ω:15mA/500ms</td>
<td>20Ω:16A/40ms, 200Ω:2A/20ms, 2000Ω:15mA/500ms</td>
</tr>
</tbody>
</table>

### Phase Rotation

| Operating Voltage | 50 - 500V, 45 - 65Hz |
| Remarks | Correct phase sequence : displayed “1.2.3” and mark |
| Reversed phase sequence : displayed “3.2.1” and mark |

### Volts

<table>
<thead>
<tr>
<th>Function</th>
<th>Volts</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring range</td>
<td>0 - 500V</td>
<td>45 - 65Hz</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±2%rdg±4dgt</td>
<td>±0.5%rdg±2dgt</td>
</tr>
</tbody>
</table>

### Applicable Standards

- IEC 61010-1 CAT III 300V (500V L to L)

### Power source

- LR6/AA(1.5V) x 6 *Use of alkaline batteries (LR6) is recommended.

### Dimensions

- 44L x 184(W) x 133(D)mm

### Weight

- 860g (including batteries.)

### Accessories

- Main test lead (**Model 7187A**
  - EU/European SHUKO plug)
- **Model 7218A**
  - SA/South african plug
- **Model 7221A**
  - AU/Australian plug
- **Model 7222A**
  - Middle East/Asia/Shanghai

- Distribution board test lead (**Model 7246**
  - Blue, Green, Red)
- **Model 7247**
  - Black, Green, Red

- **Model 9156**
  - Soft case

---

*1: Accuracy of L-N LOOP displayed on the Sub Display is synchronized with the one at L-N/L-L function.
*2: PFC/PSC Accuracy is derived from measured loop impedance specification and measured voltage specification.
*3: 7187A:(UK)British plug, 7218A:(EU)European SHUKO plug, 7221A:(SA)South african plug, 7222A: (AU)Australian plug
*4: 7246 : Blue, Green, Red, 7247 : Black, Green, Red
**Accessories**

**Model 5406A**

- Rated tripping current: 10/20/30/200/300/500mA
- Fault condition settings: x 1/2, x 5, x DC Auto Ramp
- Trip current duration: 1000ms, 200ms (x 5)
- Lowest resolution: 1ms
- Trip time accuracy: ±0.6% rdg ±4dgt
- Operating voltage: 230V ±10% to 253V [50Hz]
- Applicable Standards: IEC 61557-1,6
- IEC 61010-1 CAT III 300V
- IEC 61010-031 Pollution degree 2
- IEC 60529 (IP54)
- Dimensions: 167(L) × 186(W) × 89(D)mm
- Weight: Approx. 800g

**Model 7128A**

- Test leads

**Model 5410**

- Measurement of RCD trip time: Measurement of tripping current at × 1/2 Range, measuring RCD trip time at × 1 and × 5 Ranges.
- Measurement of trip out current: Measuring trip out current by varying current automatically.
- Remote Test: Enabling a user to hold the Test Leads with both hands by locking the Test Button. Measurement will automatically start when the main voltage is detected.
- Voltage Measurement: Carrying out a constant measurement of voltage in the stand-by mode at each Range.
- Auto-detection of Contact voltage: Detecting the voltage to earth of Earth electrodes or Protective conductors during RCD test - when applying test currents - at measurement using EARTH in order to prevent electrical shocks caused by the damaged earth. Measurement will be ceased at AC50V or more.
- Dust and Water proof: Dust and Water proof construction. (designed to IEC 60529 IP54)
- Backlight: Facilitating working at dimly illuminated locations.

**Model 7123(AU) Australian plug**

**Model 7124(UK) British plug(13A)**

**Model 7125(EU) European SHUKO plug**

**Model 7126(SA) South African plug**

**Model 7121B Distribution board test leads**

**Model 7121B Distribution board test leads**

- Molded plug test leads* 7121B (Distribution board test leads)
- 9121(Shoulder strap), Instruction manual
- Optional 7121B (Distribution board test leads)

(*) Only the RCD type G (without trip out time-delay) can be tested at Auto Ramp Test; type S (time-delay) cannot be tested.

**Model 7128A Test leads**

- Test leads

**Model 7129A Test lead with alligator clip**

**Model 8017 Extension prod**

---

- Custom microprocessor controlled for highest accuracy and reliability.
- 3 LEDs for checking correct wiring status.
- 0 and 180 degree phase angle switch permits quick tests and consistent readings.
- Digital read-out of tripping time.
- Test of a large kind of RCDs: Standard, Selective, AC and A(DC sensitive breakers).
- Constant current source circuitry ensures that a fluctuating mains voltage does not affect the accuracy of readings.
- Large custom digital display readout.
- Visual indication of reversed phase and neutral wiring at socket.
- Designed to IP54 Rating.
- Complies with IEC 61557
The KEW 6205 is a hand-held portable appliance tester and can test electrical safety of Class I and Class II appliances. The Tester performs tests and indicates PASS/FAIL result complying with the criteria of judgment defined in the AS/NZS 3760:2010 for In-service safety inspection and testing of electrical equipment.

**Test Function**

<table>
<thead>
<tr>
<th>Function</th>
<th>Tests of contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class I Test</td>
<td>• Protective conductor resistance (Test current 200mA DC nominal)</td>
</tr>
<tr>
<td></td>
<td>• Insulation resistance test (250V or 500V)</td>
</tr>
<tr>
<td></td>
<td>• Leakage current test (100-253V/50Hz)</td>
</tr>
<tr>
<td>Class II Test</td>
<td>• Insulation resistance test (250V or 500V)</td>
</tr>
<tr>
<td></td>
<td>• Leakage current test (100-253V/50Hz)</td>
</tr>
<tr>
<td></td>
<td>• Load current test (100-253V/50Hz)</td>
</tr>
<tr>
<td>Extension Lead Test</td>
<td>• Protective conductor resistance (Test current 200mA DC nominal)</td>
</tr>
<tr>
<td></td>
<td>• Insulation resistance test (between Line/Neutral-Earth short, Line/Neutral)</td>
</tr>
<tr>
<td></td>
<td>• Leakage current test (100-253V/50Hz)</td>
</tr>
<tr>
<td></td>
<td>• Polarity test</td>
</tr>
<tr>
<td>RCD Test</td>
<td>• RCD test (10mA/30mA)</td>
</tr>
</tbody>
</table>

**Accessories**

- **MODEL 7277** Mains lead
- **MODEL 7129A** Test lead with Alligator clip
- **MODEL 7161A** Flat test prod
- **MODEL 7276** Adaptor for Extension cord
- **MODEL 9193** Carrying case

**Optional Accessories**

- **MODEL 8263-USB** USB cable with “KEW Report(software)”
- **MODEL 7275** Printer cable
- **MODEL 7248** Test lead with Alligator clip and Flat test probe

**Color status back light**

PASS / FAIL result complying with AS/NZS 3760

**Recommended Printer**

PC-42i Plus (Honeywell)

**Power source**

LR6(AA)(1.5V) × 6

**Dimensions**

261(L) × 104(W) × 57(D)mm

**Weight**

Approx. 930g (including batteries)

**Applications**

IEC/EN61010-1 CAT II 300V, IEC/EN61010-2-030, IEC/EN61010-3-031, IEC61326-2-2, AS/NZS3760

**Memory function up to 999 data**

**Prin ter output**

**Copyright**

KEW 6205 PORTABLE APPLIANCE TESTER

KYORITSU
MULTI FUNCTION TESTERS

KEW 6516 NEW/6516BT NEW

12 in 1

Insulation
- 4 ranges available for insulation resistance test (100/250/500/1000V) Automatic discharge of circuit capacitance.
- Polarization Index (PI) and Dielectric Absorption Ratio (DAR).

Loop
- High test current range of 2Ω with 0.001Ω resolution.
- 2s Limit compares the values required by Electrical Installations Standard with measured results.

RCD
- Type AC, A, F, B (General & Selective) and Variable RCDs.
- Single and Auto test, Ramp test and Contact voltage.

Earth
- Earth resistance test 2 and 3 wires with all accessories included.

ACV
- TRMS Voltage measurements 2-600V, Mains Frequency.

Continuity
- Continuity test at 200mA or 15mA with selectable buzzer for fast judgment.

Phase rotation
- On 3-phase lines with clear indication of the sequence on the display.

SPD (Varistor)
- Surge Protective Device test, for SPD that uses varistor.

PAT
- Portable Appliance Tester function, for Insulation and Continuity.

Display
- Color LCD 3.5 inches dot matrix.

ATT
- Anti-Trip Technology (with 2 & 3 wire) for no trip LOOP L-PE testing on all RCDs.
- With 2 wire only, very useful in case of no Neutral (e.g. 3-phase motor lines).

Memory
- Display shows how to connect the instrument according to the function selected.
- Save and display up to 1000 data.

Bluetooth
- Communication by “KEW Connect” (6516BT only).

Safety
- IEC 61010-1 CATIV 300V, CATIII 600V. IEC61557-1,2,3,4,5,6,7,10.

Accessories

Main test lead
- MODEL 7281 Remote Test Lead
- MODEL 7246 Distribution Board test lead
- MODEL 7228A Earth Tests Lead
- MODEL 8041 Auxiliary Earth Spikes x 2
- MODEL 8212-USB
  Model 8212USB with PC Software
  “KEW Report” (Standard accessory for KEW 6516, optional for KEW 6516BT)

Optional Accessories

MODEL 9121 Shoulder Strap
MODEL 9199 Shoulder Pad
MODEL 9084 Test Lead Carry pouch
MODEL 9142 Carrying Bag
MODEL 7272 Precision measurement cord set (7267, 7268, 7271, 8041, 9192)
MODEL 8017A Extension prod long
MODEL 8259 Adapter for measurement terminal [red, yellow, green/1 set]
MULTI FUNCTION TESTERS

6516/6516BT

Insulation resistance

<table>
<thead>
<tr>
<th>Test voltage</th>
<th>100V</th>
<th>250V</th>
<th>500V</th>
<th>1000V</th>
<th>Max.1000V</th>
</tr>
</thead>
</table>

Measuring ranges

<table>
<thead>
<tr>
<th>2.00/20.0/200.0(MΩ)</th>
<th>500V</th>
<th>1000V</th>
</tr>
</thead>
</table>

Accuracy

<table>
<thead>
<tr>
<th>±2%rdg±6dgt (2.00/20.0/MΩ)</th>
<th>±5%rdg±6dgt (200.0/MΩ)</th>
</tr>
</thead>
</table>

Rated current

<table>
<thead>
<tr>
<th>1.0-2.1mA (60-1MΩ)</th>
<th>500V</th>
</tr>
</thead>
</table>

Rated output current

<table>
<thead>
<tr>
<th>1.5mA max</th>
<th>1000V</th>
</tr>
</thead>
</table>

Loop impedance

<table>
<thead>
<tr>
<th>LOOP ATT</th>
<th>LOOP MTH</th>
</tr>
</thead>
</table>

Rated impedance

<table>
<thead>
<tr>
<th>20.0/200.0/2000(MΩ)</th>
<th>500V</th>
<th>1000V</th>
</tr>
</thead>
</table>

Accuracy

<table>
<thead>
<tr>
<th>±2%rdg±3dgt (500MΩ)</th>
<th>±2%rdg±3dgt (2000MΩ)</th>
</tr>
</thead>
</table>

Phase Rotation Earth

<table>
<thead>
<tr>
<th>L-PE/L-N(3wire)</th>
<th>L-PE(2wire)</th>
<th>L-PE(0ΩRes)</th>
<th>L-PE(0ΩRes)</th>
</tr>
</thead>
</table>

General

Applicable Standards

<table>
<thead>
<tr>
<th>IEC 61010-1</th>
<th>CAT IV</th>
<th>300V/600V/300V/600V</th>
</tr>
</thead>
</table>

Power source

<table>
<thead>
<tr>
<th>1.8kW</th>
<th>5kV</th>
<th>8kV</th>
</tr>
</thead>
</table>

Dimensions

<table>
<thead>
<tr>
<th>936(L) x 235(W) x 114(D)mm</th>
<th>136(L) x 235(W) x 114(D)mm</th>
</tr>
</thead>
</table>

Weight

<table>
<thead>
<tr>
<th>1.5kg (including batteries)</th>
</tr>
</thead>
</table>

Communication interface

USB

<table>
<thead>
<tr>
<th>2.0 wires</th>
<th>2000mA</th>
</tr>
</thead>
</table>

Bluetooth®

<table>
<thead>
<tr>
<th>100mA x 2000mA</th>
</tr>
</thead>
</table>

Bluetooth® is a trademark or registered trademark of Bluetooth SIG. Inc.

Android™ is a trademark or registered trademark of Google Inc.

iOS is a trademark or registered trademark of Cisco Technology, Inc. in the United States and other countries.

Accessories

<table>
<thead>
<tr>
<th>9108(Cord case), 9142(Carrying Case), 9121(Shoulder strap), 9199(Shoulder pad), Buckle, Battery, Instruction manual, 8212-USB(USB adaptor with &quot;KEW Report(Software)'')*</th>
</tr>
</thead>
</table>

| Bluetooth® is a trademark or registered trademark of Bluetooth SIG. Inc. Android™ is a trademark or registered trademark of Google Inc. iOS is a trademark or registered trademark of Cisco Technology, Inc. in the United States and other countries. | Bluetooth® is a trademark or registered trademark of Bluetooth SIG. Inc. Android™ is a trademark or registered trademark of Google Inc. iOS is a trademark or registered trademark of Cisco Technology, Inc. in the United States and other countries. |

Selection Guide

<table>
<thead>
<tr>
<th>6516BT</th>
<th>6516</th>
<th>6016</th>
</tr>
</thead>
</table>

Continuity

<table>
<thead>
<tr>
<th>15mA</th>
</tr>
</thead>
</table>

Loop

<table>
<thead>
<tr>
<th>2 wires</th>
</tr>
</thead>
</table>

PSC/PFC

<table>
<thead>
<tr>
<th>Variable test current</th>
</tr>
</thead>
</table>

RCD

<table>
<thead>
<tr>
<th>Type B (63A)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Type F (63A)</th>
</tr>
</thead>
</table>

CAT I 300V CAT II 600V CAT III 300V CAT IV 600V CAT V 300V
Continuity Measurement
Continuous testing can be carried out by use of the test button lockdown feature. A selectable buzzer gives instantaneous indication of continuity. Null facility eliminates the test lead resistance from the results, the nulled value is retained even if the instrument is switched off. Live circuit warnings are given by a flashing LED, buzzer and indication on the display.

Insulation Measurement
Three selectable test voltages 250V, 500V and 1000V. An auto-discharge function ensures that circuits are not hazardous after testing. A red LED gives warning of high voltage output during testing and discharging of the circuit. In case of connecting to a live circuit, a live circuit warning is given by flashing LED, buzzer and indication on the display.

Loop Impedance Measurement
A patented (ATT) low current loop impedance test enables high accuracy loop measurements (up to 0.01 Ω) and quick testing without tripping RCDs.
A high current alternative is selectable for even higher accuracy and instantaneous results. The subsequent test will default to the low current test, this saves any inadvertent tripping of the RCD. The KEW6016 allows also for phase to phase loop tests.

PSC / PFC Measurement
The Prospective Short Circuit Current (PSC) and Prospective Fault Current (PFC) are automatically calculated and shown on the display. As loop testing, the function has low and high test current options with the default to low current to avoid inadvertent tripping of RCDs.

RCD Measurement
The KEW6016 has a comprehensive RCD test feature for RCD type AC (Alternative Currents), RCD type A (Pulsating Direct Currents), General and Selective (delayed). Measures at 1/2 x, 1 x, 5 x of nominal RCD current. It also has Ramp Test and Auto test where all results are shown on one screen. Touch voltage limit can be selected for 25V or 50V depending on application.

Earth Measurement
Using the classical Volt-Amper method with two auxiliary earth spikes and without external power source. All test leads and spikes are supplied as standard accessories.

Phase rotation
KEW6016 can check the phase rotation of three phase lines with clear indication of the sequence on the display.

Voltage Measurement
In addition to the voltage measurement, this function gives also the Frequency of the voltage under test.

Memory Function
Save and display up to 1000 data.

Hands Free Testing
The instrument features a test button in the probe and a lockdown test button for ‘hands free’ operation.

RCD (ELCB)-Auto Test
Auto test enables complete testing of RCD (6 tests) while the operator simply stands by and resets the RCD. All the results are displayed on one screen – no need to scroll.
### MULTI FUNCTION TESTERS

#### 6016

<table>
<thead>
<tr>
<th><strong>Continuity</strong></th>
<th><strong>Range</strong></th>
<th>20/200/2000Ω (Auto-ranging)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Open circuit voltage (DC)</strong></td>
<td>5V±2%</td>
<td></td>
</tr>
<tr>
<td><strong>Short circuit current</strong></td>
<td>$\pm 200\text{mA}$</td>
<td></td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
<td>$\pm 1% \text{ UL} - 0.1%$</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Insulation resistance</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Range</strong></td>
</tr>
<tr>
<td><strong>Open circuit voltage (DC)</strong></td>
</tr>
<tr>
<td><strong>Rated current</strong></td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Loop impedance</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Function</strong></td>
</tr>
<tr>
<td><strong>Rated voltage</strong></td>
</tr>
<tr>
<td><strong>Nominal test current at 20Ω</strong></td>
</tr>
<tr>
<td><strong>Magnitude/Duration at 20Ω</strong></td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>RCD</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Function</strong></td>
</tr>
<tr>
<td><strong>Trip current Duration</strong></td>
</tr>
<tr>
<td><strong>Resistance</strong></td>
</tr>
<tr>
<td><strong>Rated voltage</strong></td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Earth</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Range</strong></td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
</tr>
</tbody>
</table>

### Accessories

- **Model 7188A**: Distribution board fused test leads
- **Model 7281**: Test leads with remote control switch
- **Model 8032**: Auxiliary earth spikes [2 spikes/set]
- **Model 8212-USB**: USB adaptor with "KEW Report (Software)"

### Main test lead

- **Model 7228A**: Earth resistance test leads

### System requirements

- **OS**: Windows® 8/10
- **Display**: XGA (Resolution 1024 × 768 dots) or more
- **Hand disk**: Required 20 Megabyte or more
- **Others**: With CD-ROM drive and USB port

* "Windows®" is a registered trademark of Microsoft in the United States.

### Multi function testers

Visit our website: [www.kew-ltd.co.jp](http://www.kew-ltd.co.jp)
**KEW 6010B**

**Continuity testing**
- Measuring range: 20/200Ω (Auto-ranging)
- Open circuit voltage: >6V
- Short circuit current: >200mA
- Accuracy: ±3%rdg±3dgt

**Insulation testing**
- Measuring range: 20/200MΩ (Auto-ranging)
- Test voltage: 500/1000V
- Open circuit voltage: >20%, -0%
- Rated current: >1mA
- Accuracy: ±3%rdg±3dgt

**Uc testing**
- Measuring range: 100V
- Rated voltage: 230V +10%, -15% [50Hz]
- Test current: 5mA at IΔn=10mA
  - 15mA at IΔn=30/100mA
  - 150mA at IΔn=300/500mA
- Accuracy: ±5% to +15%rdg±8dgt

**Loop Impedance testing**
- Measuring range: 20/2000Ω
- Rated voltage: 10/30/100/300/500mA
- Test current: 1/2, ×1
- Accuracy: ±4%
- Trip time: ±1%rdg±3dgt

**RCD testing**
- Test current (Test current duration): ×1/2, ×1, 10, 30, 100, 300, 500mA (2000ms)
  - FAST: 150mA/50ms
  - DC: 10, 30, 100, 300, 500mA (2000ms), 500mA/200ms
- Auto ramp: Goes up by 10% from 20% to 110% of IΔn. 300ms × 10
- Rated voltage: 230V+10%, -15% [50Hz]
- Accuracy: Test current ×1/2: -8%, -2%
  - ×1, Fast: +2%, +8%
  - DC: ±10%
  - Auto ramp: ±4%
- Trip time: ±1%rdg±3dgt

**General**
- Applicable Standards: IEC 61010-1 CAT III 300V Pollution degree 2
- IEC 61557-1, 2, 3, 4, 6, 10, IEC 60529 (IP40)
- Power source: R6 or LR6 × 8
- Dimensions: 115(L) × 175(W) × 86(D) mm
- Weight: 840g approx.
- Accessories: 7122B (Test leads) KAMP10 (Test lead with IEC connector)
- 8923 (Fuse [0.5A/250V] × 1 (included), 1 (spares)
- 9092 (Cord case) 9148 (Shoulder strap) Shoulder pad
- Instruction manual

**System requirements**
- OS: Windows® 8/10
- Display: XGA (Resolution 1024 × 768 dots) or more
- Hard-disk: Space required 20Mbyte or more
- Others: With CD-ROM drive and USB port

* Windows® is a registered trademark of Microsoft in the United States.
The Model 6011A can perform FIVE separate test functions: insulation, continuity, earth loop impedance, prospective short circuit current and RCD trip testing in full compliance with IEC 61557.

### MODEL 6011A

<table>
<thead>
<tr>
<th>Function</th>
<th>Measuring ranges</th>
<th>Accuracy</th>
<th>Accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Continuity</strong></td>
<td>20/200/2000Ω</td>
<td>±1.5%rdg±3dgt</td>
<td>KAMP10(Test lead with IEC connector)*</td>
</tr>
<tr>
<td><strong>Loop</strong></td>
<td>250/500/1000V</td>
<td>±3%rdg±4dgt</td>
<td>7122B(Test leads), 7132A(KSLP5)(External earth probe)</td>
</tr>
<tr>
<td><strong>RCD</strong></td>
<td>20/30/100/300/500/1000mA</td>
<td>±3%rdg±8dgt</td>
<td>8923 (Fuse[0.5A/250V) × 1 (included), 1 (spares)</td>
</tr>
<tr>
<td><strong>PSC</strong></td>
<td>200/2000/20kA</td>
<td>±3%rdg±4dgt</td>
<td>9092(Cord case), 9121(Shoulder strap)</td>
</tr>
<tr>
<td><strong>Insulation</strong></td>
<td>20/200/2000Ω</td>
<td>±1.5%rdg±3dgt</td>
<td>R6(AA) × 8, Instruction manual</td>
</tr>
<tr>
<td><strong>Loop Impedance</strong></td>
<td>20/200/2000Ω</td>
<td>±3%rdg±8dgt</td>
<td>Optional</td>
</tr>
</tbody>
</table>

#### Electrical Specifications
- **Open circuit voltage**: ±8V
- **Short circuit current**: >200mA DC
- **Rated current**: >1mA
- **Rated voltage**: 220V AC
- **Test voltage**: 250/500/1000V DC
- **Self test current**: 0.5mA
- **Output voltage on open circuit**: ±2% of max current

#### Accuracies
- **Continuity**: ±1.5%rdg±3dgt
- **Insulation**: ±3%rdg±4dgt
- **Loop Impedance**: ±3%rdg±8dgt
- **RCD**: ±3%rdg±8dgt
- **PSC**: ±3%rdg±4dgt

#### Features
- **AC Voltage**: 0 - 600V
- **Earth Voltage**: 0 - 600V
- **General**: Applicable Standards IEC 61010-1, CAT III 300V pollution degree 2
- **Nominal Voltage**: 230V AC +10%, -15%
- **Power source**: R6 (AA) × 8
- **Dimensions**: 130(L) × 183(W) × 100(D)mm
- **Weight**: 1.1kg approx.

#### Optional Features
- **Distribution board test leads**

---

The Model 6018 can perform THREE separate test functions: insulation, earth and PSC testing in full compliance with IEC 61010.

### MODEL 6018

<table>
<thead>
<tr>
<th>Function</th>
<th>Measuring ranges</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Insulation</strong></td>
<td>250/500/1000V</td>
<td>±3%rdg±3dgt</td>
</tr>
<tr>
<td><strong>Earth</strong></td>
<td>2/3 POLE 12/120Ω</td>
<td>±3%rdg±3dgt</td>
</tr>
<tr>
<td><strong>ACV</strong></td>
<td>600V</td>
<td>±3%rdg±3dgt</td>
</tr>
</tbody>
</table>

#### Electrical Specifications
- **Test voltage**: 250/500/1000V
- **Accuracy**: ±3%rdg±3dgt

#### Features
- **Rated voltage**: 220V AC
- **Open circuit voltage**: 250V
- **Rated current**: >1mA
- **Rated voltage**: 220V AC

#### Accuracies
- **Insulation**: ±3%rdg±3dgt
- **Earth**: ±3%rdg±3dgt
- **AC Voltage**: ±3%rdg±3dgt

#### General
- **Applicable Standards**: IEC 61010-1, CAT III 300V pollution degree 2
- **Nominal Voltage**: 230V AC +10%, -15%
- **Power source**: R6 (AA) × 8
- **Dimensions**: 130(L) × 183(W) × 100(D)mm
- **Weight**: 1.1kg approx.

---

The Model 6011A can perform FIVE separate test functions: insulation, continuity, earth loop impedance, prospective short circuit current and RCD trip testing in full compliance with IEC 61557.
KEW 6024PV

• Accurate measuring of Insulation resistance even if the PhotoVoltaic (PV) arrays are generating power.
• No need to short circuit the PV arrays or test at night to measure the Insulation resistance.
• Earth resistance measurements with Volt/Ampetometric method at 3 and 2 pole.
• Waterproof design: Can measure in bad weather conditions.
• Memory function up to 1000 data.
• Luminescence buttons and large Backlight display.
• Elapsed time, after starting a measurement, is displayed with the measured values.
• Compact and light weight.
• Test probe with a remote control switch is supplied as standard accessory.
• Auto-discharge with voltage display and the measured value.
• Data transfer and analysis to a PC is possible by using its relative software included in the set.

Indication of test duration facilitates insulation integrity check with one-minute readings.

### 6024PV

<table>
<thead>
<tr>
<th>Insulation resistance</th>
<th>PV Insulation</th>
<th>Insulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test voltage</td>
<td>500V</td>
<td>1000V</td>
</tr>
<tr>
<td>Measuring range (Auto range)</td>
<td>20.00/200.0/2000MΩ</td>
<td>20.00/200.0/2000MΩ</td>
</tr>
<tr>
<td>Mid-scale value</td>
<td>200Ω</td>
<td>500Ω</td>
</tr>
<tr>
<td>Rated current</td>
<td>0.25MΩ</td>
<td>1.0 - 1.2mA</td>
</tr>
<tr>
<td>First effective measuring range</td>
<td>1.51 - 200.0MΩ</td>
<td>1.51 - 1000MΩ</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±1.5%rdg±5dgt</td>
<td>±1.5%rdg±5dgt</td>
</tr>
<tr>
<td>Second effective measuring range</td>
<td>0.00 - 1.50MΩ</td>
<td>0.5MΩ</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±5.0%rdg±6dgt</td>
<td>±5.0%rdg±6dgt</td>
</tr>
<tr>
<td>Open circuit voltage</td>
<td>0 - +20%</td>
<td></td>
</tr>
<tr>
<td>Short circuit current</td>
<td>Max 1.5mA</td>
<td></td>
</tr>
<tr>
<td>Earth resistance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measuring range (Auto range)</td>
<td>20.00/200.0/2000MΩ</td>
<td></td>
</tr>
<tr>
<td>Accuracy</td>
<td>±3.0%rdg±0.1Ω (20Ω range) ±3.0%rdg±3dgt (2000Ω range)</td>
<td></td>
</tr>
<tr>
<td>Voltage measurement</td>
<td>AC 5 - 600V (45 - 65Hz) DC ±5 - 1000V</td>
<td></td>
</tr>
<tr>
<td>Accuracy</td>
<td>±1.0%rdg±4dgt</td>
<td></td>
</tr>
</tbody>
</table>

- Applicable Standards: IEC 61010-1 CAT IV 300V, CAT III 600V Pollution 2
- Power source: LR6(AA)(1.5V) x 6
- Dimensions: 84(L) x 184(W) x 133(D)mm
- Weight: Approx. 900g (including batteries)
- Accessories: 7196B(Test lead with remote control switch), 7244A(Test lead with alligator clip), 8017(Extension prod long), 8072(CAT III Standard prod), 8312-US6(USB adaptor with “KEW Report Software”), 9155(shoulder strap), 8156(Carrying case), LR6(AA) x 6, Instruction manual
- Optional: 7243(All-shaped probe), 7245A(Resolution measurement cord set), 8016(Hook type prod)

*6024PV supports the PV systems up to 1000V.
PV INSULATION EARTH TESTER

Accurate measurements not influenced by the generating PV voltage

With conventional insulation testers:
- [measurement needs to short - circuit the PV arrays]
  A breaker is required and risk of arc hazard exists.
- [measurement without short - circuit the PV arrays]
  Low-risk, but not accurate.

KEW 6024PV makes safe & accurate insulation resistance measurement possible!
- Increase your efficiency at work: no need waiting for the dark or compromising the accuracy of measurement.
- Safe: no need to short circuit the PV arrays.

Accurate and quick results also in case of large capacitance effects.

Analyzing and processing the recorded data with a PC.

Can measure under the bad weather condition.

PV arrays / strings
Connection box (Junction box)
Disconnection switch
Insulation
Photovoltaic array
Solar Inverter
DC
AC
Junction box
Capacitance effect to earth may increase in wet condition or be influenced by the earthing system.
Static capacitance may prolong measurement time or cause unstable readings.

Accessories

Model 7196B
Test leads with remote control switch
Model 7244A
Test lead with alligator clip
Model 9156
Soft Case
Model 8016
Hook type prod
Model 8017
Extension prod long
Model 8072
CAT II Standard prod
Model 8212-USB
USB adaptor with “KEW Report (Software)”

Optional Accessories

Model 7243A
L-shaped probe
Model 7245A
Precision measurement cord set
Model 8016
Hook type prod

www.kew-ltd.co.jp
POWER QUALITY ANALYZER
KEW 2060BT

Wireless communication with smartphone or tablet.

• Current up to 1000A rms
• Voltage up to 1000V rms
• Harmonics up to 30th

Extremely large jaw with tear drop shape: ideal solution for busbar and large currents!

Use the application KEW Power+(asterisk) to improve work efficiency

Download and install our special application “KEW Power+(asterisk)” in your smartphone or tablet device for logging the measured values. Remote monitoring of voltage, current, power, trend graph of harmonics, and wave form is possible with “KEW Power+(asterisk)”; this is helpful for simple Power Quality check. Measured values can be saved in your smartphone or tablet device in csv format: the data is editable in excel format.

Power measurement on any wiring system is possible.

* E.g.: 3P4W(Balance)

KEW 2060BT can perform 1P2W measurement and balance and unbalance measurements of 3P3W / 3P4W.

The double display can simultaneously show many parameters like W & PF, W & deg, W & VA, W & Var, V & A, etc.

Wiring configuration:
1P2W, 1P3W, 3P3W, 3P4W

Measurements and parameters:
Voltage, Current, Frequency, Active power, Reactive power, Apparent power, Power factor (cos \( \theta \)), Phase angle, Harmonics (THD-R/THD-F), Phase rotation

ACV
- Range: 1000V
- Accuracy: ±0.7% rdg±3dgt (40.0 - 70.0Hz)
  ±3.0% rdg±5dgt (70.1 - 1kHz)
- Crest factor: 1.7 or less

ACA
- Range: 40.00/400.0/1000A (3 range auto)
- Accuracy: ±1.0% rdg±3dgt (40.0 - 70.0Hz)
  ±2.0% rdg±5dgt (70.0 - 1kHz)
- Crest factor: 3 or less (40.00A/400.0A), 1.5 or less (1000A)

Frequency
- Range: 40.0-999.9Hz
- Accuracy: ±0.3% rdg±3dgt

Active power
- Range: 40.00/400.0/1000kW
- Accuracy: ±1.7% rdg±5dgt (PF1, sine wave, 45-65Hz)

Apparent power
- Range: 40.00/400.0/1000kVA

Reactive power
- Range: 40.00/400.0/1000kVar

Power factor
- Range: -1.000 - 0.000 - 1.000

Phase angle (1P2W only)
- Range: -180.0 - 0.0 - +179.9

Harmonics RMS (Content rate)
- Analysis order: 1st - 30th order
- Effective frequency: 50/60Hz
- Accuracy: ±5.0% rdg±10dgt (1 - 10th)
  ±10% rdg±10dgt (11 - 20th)
  ±20% rdg±10dgt (21 - 30th)

Harmonics THD-R/THD-F
- Display range: 0.0% - 100.0%
- Accuracy: ±1 against the calculated results of each measured value.

Phase rotation
- ACV: 80 - 1100V (45 - 65Hz)
- ACA: Current up to 1000A rms
- Voltage up to 1000V rms
- Harmonics up to 30th

Other functions: MAX/MIN/AVG/PEAK, Data hold, Bluetooth®, Back light, Auto power off

General
- Communication interface: Bluetooth® 5.0LE (Bluetooth Low Energy)
- Android™ 5.0 or more, iOS 10.0 or more *
- Power source: LR6(AAA) × 2
- Continuous measuring time: Approx. 50 hours
- Conductor size: φ 75mm max. (bus bar 80×30mm)
- Dimensions / Weight: 283(L)×143(W)×50(D)mm / approx. 590g
- Applicable Standards: IEC61010-1, IEC61010-2-032 CAT IV 600V, CAT III 1000V, Pollution degree 2, IEC61326-1, -2-2 ClassB
- Accessories: MODEL7290 (test lead), MODEL9198 (Carrying case), LR6(2AAA)×2, Instruction Manual

*1 Please contact us with inquiries about the purchase of 2060BT.

Bluetooth® is a trademark or registered trademark of Bluetooth SIG. Inc.
Android™ is a trademark or registered trademark of Google Inc.
iOS is a trademark or registered trademark of Cisco Technology, Inc. in the United States and other countries.

Model 7290
Model 9198

www.kew-ltd.co.jp

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**POWER METER**

**KEW 6305**

- Comprehensive real-time monitoring, recording and analysis of single and 3-phase systems
- Voltage, Current, Power Factor and Frequency measurements
- Power analysis (Active, Apparent and Reactive power)
- Energy analysis (Active, Apparent and Reactive energy)
- Active power accuracy: ±0.3%rdg±0.2%f.s.
- Automatic wiring check function to prevent incorrect connections
- Large memory capability (2 GB) using built-in SD card Interface
- Recording interval can be set between 1 second and 1 hour.
- Real time & remote measurements using Android application
- Windows software for data analysis and setting via USB port or Bluetooth®
- Synchronous measurements between two units of KEW6305
- Wide selection of clamp sensors allow measurements from 0.1A to 3000A
- The instrument automatically recognizes what kind of clamp sensor is connected to it
- Double power supply system via AC line and batteries

---

**As easy as 1 ➜ 2 ➜ 3!**

Starting from OFF position and rotating the Rotary switch clockwise, KEW6305 is ready to use in 3 simple steps

1. **SET UP**
   - Rotate the Rotary switch to SET UP. All the instrument settings can be easily selected by using instrument buttons. All the settings can also be selected by connecting KEW6305 to a PC via USB or Bluetooth®.

2. **WIRING CHECK**
   - Rotate the Rotary switch to WIRING CHECK. The Automatic Wiring check function will prevent incorrect connections, check the connections and display the results on the LCD. Error messages appear on display to indicate wrong orientation of clamp sensors or incorrect connections.

   - Everything is OK
   - Error is found

   - Starts from OFF position and rotating the Rotary switch clockwise, KEW6305 is ready to use in 3 simple steps

3. **W/Wh/DEMAND Measurements**
   - Rotate the Rotary switch to W/Wh/DEMAND. The instrument can perform Instantaneous, Integration and DEMAND measurements. START / STOP button to start / stop recording

---

**6305**

<table>
<thead>
<tr>
<th>Wiring connections</th>
<th>1P2W, 1P3W, 3P3W, 3P3W3A, 3P4W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurements</td>
<td>Voltage, Current, Frequency, Active power</td>
</tr>
<tr>
<td>Parameters</td>
<td>Apparent power, Reactive power, Active energy, Apparent energy, Reactive energy, Power factor (cos φ), Neutral current</td>
</tr>
<tr>
<td>Voltage range (RMS)</td>
<td>0.0 / 300.0 / 600.0 V</td>
</tr>
<tr>
<td>Voltage accuracy</td>
<td>±0.2%rdg±0.2%f.s. (sine wave, 45 - 65 Hz)</td>
</tr>
<tr>
<td>Current range (RMS)</td>
<td>10.0 / 50.0 / 100.0 / 250.0 / 500.0 A (Auto with clamp sensor MODEL8125)</td>
</tr>
<tr>
<td>Current accuracy</td>
<td>±0.2%rdg±0.2%f.s. + Accuracy of Clamp sensor (sine wave, 45 - 65 Hz) + 1%f.s. at the lowest range.</td>
</tr>
<tr>
<td>Effective input range</td>
<td>10 - 110% of rating range</td>
</tr>
<tr>
<td>Display range</td>
<td>0 - 130% of each range (Voltage) 1 - 130% of each range (Current)</td>
</tr>
<tr>
<td>Crest factor</td>
<td>Voltage: up to 2.5, Current: up to 3.0 (with 90% fs or less)</td>
</tr>
<tr>
<td>Active power accuracy</td>
<td>±0.3%rdg±0.2%f.s. + Accuracy of Clamp sensor + 1%f.s. when the lowest current ranges is selected.</td>
</tr>
<tr>
<td>Effect of power factor</td>
<td>Active power: ±1.0%rdg cos φ =±0.5 (PF=1)</td>
</tr>
<tr>
<td>Frequency meter range</td>
<td>40.0 - 70.0 Hz</td>
</tr>
<tr>
<td>Frequency meter accuracy</td>
<td>±0.3°F</td>
</tr>
<tr>
<td>Accuracy precondition</td>
<td>PF=1, Sine wave, 45 - 65 Hz, 23°C±5°C</td>
</tr>
<tr>
<td>Display update period</td>
<td>1 second</td>
</tr>
<tr>
<td>Operating temperature and humidity range</td>
<td>0 - +50°C, less than 85% RH (without condensation)</td>
</tr>
<tr>
<td>Storage temperature and humidity range</td>
<td>-20 - +60°C, less than 85% RH (without condensation)</td>
</tr>
<tr>
<td>PC communication interface</td>
<td>USB, Bluetooth®</td>
</tr>
<tr>
<td>PC card interface</td>
<td>SD card (2GB)</td>
</tr>
<tr>
<td>Safety standard</td>
<td>IEC 61010-1 CAT III 600V</td>
</tr>
<tr>
<td>Power source (AC Line)</td>
<td>AC100 - 240V±10% (50/60Hz)</td>
</tr>
<tr>
<td>Power source (DC battery)</td>
<td>LR6 or Ni-MH (HR-15-51) × 6 (Battery charger not included), Battery life approx. 15h (LR6)</td>
</tr>
<tr>
<td>Power consumption</td>
<td>10VA (max.)</td>
</tr>
<tr>
<td>Dimension</td>
<td>175(L) × 120(W) × 65(D)mm</td>
</tr>
<tr>
<td>Weight</td>
<td>Approx. 800g (including batteries)</td>
</tr>
<tr>
<td>Accessories</td>
<td>7141B (Voltage test lead set: 4pcs), 7148 (USB cable), 7170(PS-30), 9125(Carrying case), 8326-02 (SD card 2GB), KEW Windows (PC Software), Battery(LR6) × 6, Quick manual</td>
</tr>
<tr>
<td>Optional</td>
<td>8124, 8125, 8126, 8127, 8128 (Clamp sensor), 8130, 8133 (Flexible clamp sensor), 8312 (Power supply adaptor), 9132 (Magnetic carrying case)</td>
</tr>
</tbody>
</table>
Bluetooth® communication with Android application

Real time & remote measurements using Android application

Measurement can be displayed in graphic or numeric forms on Android devices in real-time via Bluetooth® communication. Remote checking of measurements is possible without accessing KEW6305.

Windows software

Automatic creation of graph and list from recorded data. Uniform management of setting and recorded data acquired from multiple devices. Data can be expressed in crude oil and CO₂ equivalent values in the report.

Selection Guide of Power Meters

![Selection Guide of Power Meters](image)

**Set Model**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>KEW 6305-01</td>
<td>KEW 6305 x 1&lt;br&gt;MODEL 8125 x 3&lt;br&gt;Carrying case : 9125</td>
</tr>
<tr>
<td>KEW 6305-03</td>
<td>KEW 6305 x 1&lt;br&gt;MODEL 8130 x 3&lt;br&gt;Carrying case : 9135</td>
</tr>
<tr>
<td>KEW 6305-05</td>
<td>KEW 6305 x 1&lt;br&gt;MODEL 8133 x 3&lt;br&gt;Carrying case : 9135</td>
</tr>
</tbody>
</table>

![Set Model](image)

Optional

- **Load current clamp sensors**
  - **Model 8128**
  - **Model 8127**
  - **Model 8126**
  - **Model 8125**
  - **Model 8124**

- **Load current flexible clamp sensors**
  - **Model 8130**
  - **Model 8133**

- **Power supply adaptor**
  - **Model 8132**
  - For taking single phase supply (100-240V) from the test leads to power the instrument (FUSE: 8923)

- **Magnetic carrying case**
  - **Model 9132**
  - For mounting inside metal distribution boards

SD card Interface

<table>
<thead>
<tr>
<th>Capacity</th>
<th>SD card</th>
<th>Internal memory</th>
</tr>
</thead>
<tbody>
<tr>
<td>2GB</td>
<td></td>
<td>3MB</td>
</tr>
<tr>
<td>4GB</td>
<td></td>
<td>6MB</td>
</tr>
<tr>
<td>8GB</td>
<td></td>
<td>12MB</td>
</tr>
<tr>
<td>16GB</td>
<td></td>
<td>24MB</td>
</tr>
<tr>
<td>32GB</td>
<td></td>
<td>48MB</td>
</tr>
<tr>
<td>64GB</td>
<td></td>
<td>96MB</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Integration / demand measurement interval</th>
<th>1 sec</th>
<th>1 min</th>
<th>10 min</th>
<th>30 min</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 sec</td>
<td>17 days</td>
<td>33 minutes</td>
<td>992 days</td>
<td>33 hours</td>
</tr>
<tr>
<td>10 min</td>
<td>3 years or more</td>
<td>42 days</td>
<td>7 years</td>
<td>2 years</td>
</tr>
</tbody>
</table>

| Max number of file | 815 | 48 |

*in case the SD card is empty

SD cards up to 2GB can be used.

Optional

- **Load current clamp sensors**
  - **Model 8128**
  - **Model 8127**
  - **Model 8126**
  - **Model 8125**
  - **Model 8124**

- **Load current flexible clamp sensors**
  - **Model 8130**
  - **Model 8133**

- **Power supply adaptor**
  - **Model 8132**
  - For taking single phase supply (100-240V) from the test leads to power the instrument (FUSE: 8923)

- **Magnetic carrying case**
  - **Model 9132**
  - For mounting inside metal distribution boards
Simultaneous Power & Power quality measurements

<table>
<thead>
<tr>
<th>KEW 6315</th>
</tr>
</thead>
</table>

- **Simultaneous Power & Power quality measurements**
  - Power/Harmonics/Waveform/Power quality are recorded at all CHs.
  - Voltage:3ch, Current 4ch
  - Screen: 320 × 240(RGB)Pixel, 3.5inch color TFT display

- **Helpful support functions**
  - Quick Start Guide, Wiring check and Sensor detection for easy and reliable measurement.
  - Trend and demand graphs for easy recognition, TFT color display with high resolution.
  - IEC 61010-1 CAT IV  300V, CAT III 600V, CAT II 1000V

### Measurements

<table>
<thead>
<tr>
<th>Measurements and parameters</th>
<th>6315</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage, Current, Frequency, Active power, Reactive power, Apparent power, Active energy, Reactive energy, Apparent energy, Power factor (cosθ), Neutral current, Transients/Over Demand, Harmonics, Quality/Swell/Dip/Interruption, voltage, Inrush current, Unbalance rate, Phase advance condenser, IEC Flicker</td>
<td></td>
</tr>
</tbody>
</table>
Quick Start Guide

One-Touch START/STOP Key for Quick Start Guide providing easy setup guides.

Guide start → Connect to the circuit → Wiring check → Select interval → Set recording time → Start recording

Windows software for data analysis and setting via USB port

- Automatic creation of graph and list from recorded data.
- Uniform management of setting and recorded data acquired from multiple devices.
- Data can be expressed in crude oil and CO₂ equivalent values in the report.
- EN50160 report can be generated after survey.

(System requirements)
- OS: Windows™ 8/10
- Display: XGA (Resolution 1024 × 768 dots) or more
- Hard disk: Space required 1 Gbyte or more
- Other: With CD-ROM drive and USB port, .NET Framework (3.5 or more)

※ Windows is a registered trademark of Microsoft in the United States.

Real time and Remote measurements

- Measurements can be graphically displayed on Android devices or PC in real-time via Bluetooth® communication.

Optional Accessories

Load current clamp sensors
- Model 8128 (1000A) × 3
- Carrying case: 9135
- Model 8130 (1000A) × 3
- Carrying case: 9135

Load current flexible clamp sensors
- Model 8130
- Model 8133

Leakage & Load current clamp
- Model 8146
- Model 8147
- Model 8148

SD card Interface

SD cards up to 2 GB can be used
Possible recording time
When the 2 GB of SD is used

<table>
<thead>
<tr>
<th>Interval</th>
<th>REC Item</th>
<th>Power</th>
<th>Harmonics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 sec</td>
<td>13 days</td>
<td>1 year or more</td>
<td>3 months</td>
</tr>
<tr>
<td>1 min</td>
<td>1 year or more</td>
<td>7 year or more</td>
<td>7 year or more</td>
</tr>
<tr>
<td>30 min</td>
<td>10 year or more</td>
<td>7 year or more</td>
<td>7 year or more</td>
</tr>
</tbody>
</table>

Data of power quality events are not considered to estimate the possible recording time. The max possible time will be shortened by recording such events.

Set Model

KEW 6315-01
8125 (500A) × 3
Carrying case: 9125

KEW 6315-03
8130 (1000A) × 3
Carrying case: 9135

KEW 6315-04
8130 (1000A) × 4
Carrying case: 9135

KEW 6315-05
8133 (3000A) × 3
Carrying case: 9135

※ Bluetooth® is a registered trademark of the Bluetooth SIG, Inc.

Android™ is a registered trademark of the Google Inc.

Can you close your distribution board door during surveys?
The KEW6315 facilitates safe testing by being extremely compact and with two clever option extras: a magnetic case (9132) for attaching it to the sides of metal enclosures and a power supply adaptor (8312) which takes the power for the instrument from the supply being measured.
Selection of One-time mode or Endless mode

One-time on: ⌚️
Recording will stop when memory is used up.

One-time off: ⌠
Overwrite the old data, and store the latest data.

Non Volatile Memory
Recorded data will be retained even if the batteries are exhausted or replaced due to the presence of a nonvolatile memory (guaranteed for 10 years)

Battery power indicator
Indicates battery voltage in 4-levels.
(It is possible to use the logger for a further approx 24 hours even after the warning symbol is flashing.)

The user friendly PC software " KEW LOG Soft " is supplied.

- Supplied with the user friendly software " KEW LOG Soft 2 ".
- This permits editing, analysis and graphical display of data.
- The recorded data is downloadable onto a PC via USB cable.
- Variation of the measured voltage and current data can be confirmed simultaneously on the PC display monitor. (only on KEW 5020)
- Simplified Power Integration
(The "KEW LOG Soft 2" uses current and voltage recorded to calculate the integral power consumption)
- Continuous measuring time : Approx. 10 days (Alkaline Battery)

Normal Recording Mode

Range | RMS Accuracy | Accuracy
--- | --- | ---
100.0mA | ±2.0%rdg±0.9%fs. + Accuracy of sensor | ±2.0%rdg±0.8%fs. + Accuracy of sensor
Other ranges | ±1.5%rdg±0.7%fs. + Accuracy of sensor | ±1.5%rdg±0.6%fs. + Accuracy of sensor
Crest factor | 2.5 or less RMS accuracy (sinewave) | 2.5 or less RMS accuracy (sinewave)

*Max, Min and Instant Peak values in Normal recording mode are just reference values; their accuracies aren’t guaranteed.

Trigger Recording Mode

Range | Accuracy | Accuracy
--- | --- | ---
100.0mA | ±3.5%rdg±2.2%fs. + Accuracy of sensor | ±3.5%rdg±2.1%fs. + Accuracy of sensor
Other ranges | ±3.0%rdg±2.2%fs. + Accuracy of sensor | ±3.0%rdg±2.1%fs. + Accuracy of sensor

Capture/ Power Quality Analysis Recording Mode

Range | Accuracy | Accuracy
--- | --- | ---
100.0mA | ±3.0%rdg±1.7%fs. + Accuracy of sensor | ±3.0%rdg±1.6%fs. + Accuracy of sensor
Other ranges | ±2.5%rdg±1.5%fs. + Accuracy of sensor | ±2.5%rdg±1.5%fs. + Accuracy of sensor

LOGGERS

KEW 5010 (for Current) KEW 5020 (for Current/Voltage)

3 channel inputs for the simultaneous recording of Leakage Current, Load Current and Voltage

Power Quality analysis. (only on KEW 5020)
(Power Quality: Reference voltage, Swell, Dip, Short power Interruptions)

Large capacity for storing 60,000 data points
60,000 data points can be recorded when 1ch is used, and when all the three channels are used, 20,000 data points per channel can be recorded.

Lowpass Filter will filter out the harmonics.
(Cutoff Frequency = Approx. 160Hz)

LED flickers when the preset current / voltage value is exceeded.
(Available for Trigger / Capture Recording, Power Quality Analysis modes)

CALL : Confirmation of recorded data

• The following can be displayed: number of recorded data points, (max+ min+ peak) value for each channel complete with time/date information in the Normal recording mode. (Detected values (i.e. when values are outside preset limits) can be displayed in other recording modes)
• RECALL: The last 10 recorded data points including time/date can be recalled on the logger display.

Variation of the measured voltage and current data can be confirmed simultaneously on the PC display monitor. (only on KEW 5020)

The user friendly PC software " KEW LOG Soft " is supplied.

- Supplied with the user friendly software " KEW LOG Soft 2 ".
- This permits editing, analysis and graphical display of data.
- The recorded data is downloadable onto a PC via USB cable.
- Variation of the measured voltage and current data can be confirmed simultaneously on the PC display monitor. (only on KEW 5020)
- Simplified Power Integration
(The "KEW LOG Soft 2" uses current and voltage recorded to calculate the integral power consumption)
- Continuous measuring time : Approx. 10 days (Alkaline Battery)

The user friendly PC software " KEW LOG Soft " is supplied.

- Supplied with the user friendly software " KEW LOG Soft 2 ".
- This permits editing, analysis and graphical display of data.
- The recorded data is downloadable onto a PC via USB cable.
- Variation of the measured voltage and current data can be confirmed simultaneously on the PC display monitor. (only on KEW 5020)
- Simplified Power Integration
(The "KEW LOG Soft 2" uses current and voltage recorded to calculate the integral power consumption)
- Continuous measuring time : Approx. 10 days (Alkaline Battery)
4 recording modes make various measurements possible

**Normal recording mode**
For monitoring power line status or an intermittent leakage.
- Records the variation of the current / voltage in a given interval (For monitoring the variation of the current / voltage against time.)
- A choice of 15 recording intervals are available: 1 sec. to 60 min. (1, 2, 5, 10, 15, 20, 30 sec, 1, 2, 5, 10, 15, 20, 30, 60 min.)
- The average of the measured value in every recording interval is recorded. The Max., Min. and Peak values (sampled crest value converted to sine RMS value) are recorded every 10 readings.

**Capture recording mode**
For observing waveforms easily.
- Waveform display via a PC by sampling the inputs every 0.55ms.
- When the preset current / voltage value is exceeded, instantaneous values are recorded for 280ms (from 10/50Hz to 12/60Hz waveforms) before and after preset value is exceeded.
- LED flickers when the measured values exceed the preset current / voltage value.

**Trigger recording mode**
For observing an irregular operation of an ELCB/RCD, an irregular current / voltage.
- Detects the value, time and frequency of the current / voltage when the preset value is exceeded.
- When the detection level (i.e. preset value) is exceeded, 8 data points (True RMS values for approx. 0.8 sec) and peak value are recorded before and after the preset value is exceeded.
- Inrush current or an abnormal current / voltage can be detected by sampling the inputs at every 1.6ms.
- LED flickers when the measured values exceed the preset current / voltage value.

**Power Quality Analysis Mode**
For monitoring and observing voltage fluctuations.
- Detects the reference voltage, Swell, Dip and Short Interruption. Records the values detected with the start time and end time.
- Samples the inputs every 0.55ms and detects the voltage fluctuation every 10ms.
- LED flickers when the voltage fluctuation is detected.

Analyzing and processing the recorded data with a PC
The user friendly PC software “KEW LOG Soft 2” is supplied.

Software is Enhanced!

A graph can be made by just one click

Display of Power Quality

<table>
<thead>
<tr>
<th>Selection Guide of Loggers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Loggers</strong></td>
</tr>
<tr>
<td><strong>Appearance</strong></td>
</tr>
<tr>
<td><strong>5010</strong></td>
</tr>
<tr>
<td><strong>5020</strong></td>
</tr>
<tr>
<td><strong>5050</strong></td>
</tr>
<tr>
<td>Voltage [V]</td>
</tr>
<tr>
<td>Current [A]</td>
</tr>
<tr>
<td>for Resistive leakage current [mA]</td>
</tr>
<tr>
<td>Frequency [Hz]</td>
</tr>
<tr>
<td>Power Quality</td>
</tr>
<tr>
<td>Dip</td>
</tr>
<tr>
<td>Interruption</td>
</tr>
<tr>
<td>Inrush current</td>
</tr>
<tr>
<td>Memory</td>
</tr>
<tr>
<td>Number of Input Channel</td>
</tr>
</tbody>
</table>

System requirements
- OS: Windows® 8/10
- Display: XGA (Resolution 1024 x 768 dots) or more
- Hard-disk: Space required 1000 Kbyte or more
- Others: With CD-ROM drive and USB port

* Windows® is a registered trademark of Microsoft in the United States.
Ior LOGGER

KEW 5050 is an innovative Leakage Current Logger that can identify the resistive component of leakage current (Ior) in an electrical installation. Despite the capacitive component, the Ior is the dangerous component of leakage current because Ior consumes power and then it can cause a rise in temperature that can lead to a fire and electric shock.

- Provides simultaneous measurements and logs up to 4 channels
- Supports various wiring systems (Single-phase 2&3-wire, Three-phase 3&4-wire)
- World’s fastest 200ms interval for leakage current measurement
- Offers both traditional leakage/load current measurements
- Large graphic display and magnet on the back case to attach it on metal enclosures

Can measure up to 4 channels simultaneously!

Best to diagnose unwanted RCD tripping

The RCD often trips. Caused by capacitive leakage current? Or caused by the dangerous resistive leakage current of a degraded insulation?

Gapless continuous measurement

Performs fast sampling (24.4 μsec) continuously with gapless during logging to prevent intermittent leakages being overlooked as an event or max value.

In case of 3P3W and 3P4W, for a correct Ior reading, the capacitance effect of each phase must be equal.

Display value is just for reference since the measurement method differs from insulation resistance testers and methods. Ior measurement)

Accuracy ±0.2%rdg±0.2%f.s.+ clamp sensor amplitude accuracy

It cannot be used for
- Measurement

Shows insulation resistance (R) values determined by the following formula.

Φ 30 - 70Hz

Frequency meter range

External supply

Power source

Display / update period

PC card interface

PC communication interface

Temperature and humidity range

Operating temperature and humidity range

Storage temperature and humidity range

Applicable Standards

Dimension/Weight

Accessories

Optional

Optional sensors

5050

| Measurements and parameters | Ior : Leakage current (Trms) with resistive components only | Ilo : Leakage current (Trms) with basic wave of 40 - 70Hz
Iom : Leakage current (Trms) including harmonic components
V : Reference voltage (Trms) with basic wave of 40 - 70Hz
Vm : Reference voltage (Trms) including harmonic components
R : Insulation resistance, Frequency(Hz), Phase angle(θ) |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Other functions</td>
<td>Digital output, Print screen, Back light, Data hold</td>
</tr>
<tr>
<td>Recording Interval</td>
<td>200/400ms/1/5/30s/1/15/30s/1/5/10/30m/1/2hours</td>
</tr>
<tr>
<td>For</td>
<td>1% - 110% (Trms) of each range, and 200% (peak) of the range</td>
</tr>
<tr>
<td>Display range</td>
<td>0.15% - 130% (display “0” for less than 0.15%, &quot;OL&quot; if the range is exceeded)</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±0.2%rdg±0.2%f.s. + clamp sensor amplitude accuracy</td>
</tr>
<tr>
<td>Io Range, Allowable input and Display Range are the same as Ior.</td>
<td></td>
</tr>
<tr>
<td>Accuracy</td>
<td>±0.2%rdg±0.2%f.s. + clamp sensor amplitude accuracy</td>
</tr>
<tr>
<td>Measurement method</td>
<td>Sampling speed 40.96kops (every 24.4μs), gapless, calculate Trms values every 200ms.</td>
</tr>
<tr>
<td>Voltage</td>
<td>1000.0V</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±0.2%rdg±0.2%f.s. * for waveforms of sine wave 40 - 70Hz</td>
</tr>
<tr>
<td>Allowable input</td>
<td>10 - 1000V Trms, and 2000V peak</td>
</tr>
<tr>
<td>Display range</td>
<td>0.9V - 1100.0V Trms (display “0” far less than 0.9V, “OL” if the range is exceeded)</td>
</tr>
<tr>
<td>Phase angle(θ)</td>
<td></td>
</tr>
<tr>
<td>Display range</td>
<td>0.0° - ±180.0° (regarding the phase of reference voltage as 0.0°)</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±0.5° for the inputs of 10% or higher of leakage current range, sine wave 40 - 70Hz, reference voltage of 90V Trms or higher.</td>
</tr>
<tr>
<td>Frequency meter range</td>
<td>40 - 70Hz</td>
</tr>
<tr>
<td>External supply</td>
<td>AC100 - 240V(50/60Hz) 7VA max</td>
</tr>
<tr>
<td>Power source</td>
<td>LR6(AA)×6 (Battery life approx. 11h)</td>
</tr>
<tr>
<td>Display / update period</td>
<td>160 x 160dots, FSTN monochrome display / 500ms</td>
</tr>
<tr>
<td>PC card interface</td>
<td>SD card (2GB) *standard accessory</td>
</tr>
<tr>
<td>PC communication interface</td>
<td>USB Ver2.0</td>
</tr>
<tr>
<td>Temperature and humidity range</td>
<td>±3±5°C, less than 85%RH(without condensation)</td>
</tr>
<tr>
<td>Operating temperature and humidity range</td>
<td>10 - 50°C less than 85%RH(without condensation)</td>
</tr>
<tr>
<td>Storage temperature and humidity range</td>
<td>20 - 60°C less than 85%RH(without condensation)</td>
</tr>
<tr>
<td>Applicable Standards</td>
<td>IEC61010-1 CAT IV, 300V CAT III 600V Pollution degree 2</td>
</tr>
<tr>
<td>IEC61010-1-2030, IEC61010-3, IEC61326</td>
<td></td>
</tr>
<tr>
<td>Dimension/Weight</td>
<td>165(L) x 115(W) x 57(D)mm/approx. 680g (including batteries)</td>
</tr>
</tbody>
</table>

| Wiring configuration | 1P2W, 1P3W, 3P3W, 3P4W |

| KEW Windows for KEW 5050/software |
| KEW 5050 |
Quickly displays occurred events

Detailed information on the occurred events are displayed on the LCD. Different threshold values can be set for each channel and each event.

<table>
<thead>
<tr>
<th>V:</th>
<th>10.16%</th>
<th>10.15%</th>
<th>10.15%</th>
<th>10.15%</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1:</td>
<td>9.16%</td>
<td>10.15%</td>
<td>10.15%</td>
<td>10.15%</td>
</tr>
<tr>
<td>A2:</td>
<td>9.16%</td>
<td>10.15%</td>
<td>10.15%</td>
<td>10.15%</td>
</tr>
<tr>
<td>A3:</td>
<td>9.16%</td>
<td>10.15%</td>
<td>10.15%</td>
<td>10.15%</td>
</tr>
<tr>
<td>A4:</td>
<td>9.16%</td>
<td>10.15%</td>
<td>10.15%</td>
<td>10.15%</td>
</tr>
</tbody>
</table>

New Measurement method with FFT

Modern loads use inverter and can create distorted leakage currents.

Unlike to traditional measuring apparatus, less susceptible to harmonics noises. Successfully achieving logging with no effects of harmonics by True RMS calculation every 200 ms using FFT (Fast Fourier Transform).

Various display modes

User-friendly graphical display of connections and phase differences

Windows software

One-click graph and list generation. Visualizes timeline based graphs for easy analysis. Data can be checked without using this software by changing the file extension to csv or others.

SD card interface

Achieves long period of data logging. In case of sudden power interruption, data stored in the SD card aren’t lost.

<table>
<thead>
<tr>
<th>Interval</th>
<th>REC Item</th>
<th>Possible recording time (with 2GB SD card)</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 ms</td>
<td>1P3W x 1</td>
<td>1 day</td>
</tr>
<tr>
<td>1 sec</td>
<td>1P3W x 4</td>
<td>22 days</td>
</tr>
<tr>
<td>5 sec</td>
<td>3P4W x 4</td>
<td>1 year or more</td>
</tr>
<tr>
<td>15 sec</td>
<td>1-year or more</td>
<td>1-year or more</td>
</tr>
<tr>
<td>30 sec</td>
<td>1-year or more</td>
<td>1-year or more</td>
</tr>
</tbody>
</table>

Accessories

- **MODEL 7273** Voltage test lead 3000mm
- **MODEL 8262** AC adapter
- **MODEL 7278** Earth cable 1500mm
- **MODEL 7219** USB cable 1950mm
- **MODEL 8326-02** SD card
- **MODEL 9125** Carrying case
- KEW Windows for KEW 5550

Optional Accessories

- Ior Leakage clamp sensor **KEW 8178**
- Power supply adaptor **MODEL 8329**

Set Model

- **KEW 5050-01**
- **KEW 5050-02**

www.kew-ltd.co.jp
Optional Accessories of Loggers, Power Meter and Power Quality Analyzer

Applicable model table

<table>
<thead>
<tr>
<th>Sensor</th>
<th>Load current</th>
<th>5010</th>
<th>5020</th>
<th>5030</th>
<th>6305</th>
<th>6315</th>
</tr>
</thead>
<tbody>
<tr>
<td>8121</td>
<td>✓</td>
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<td></td>
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<tr>
<td>8122</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8123</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<td></td>
<td></td>
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<td>8124</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>8125</td>
<td>✓, ✓</td>
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<tr>
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<tr>
<td>8127</td>
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<td>✓, ✓</td>
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<tr>
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<td>✓</td>
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<tr>
<td>8129</td>
<td>✓, ✓</td>
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<td>✓</td>
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<td>✓</td>
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<tr>
<td>8130</td>
<td>✓, ✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>8133</td>
<td>✓, ✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>8146</td>
<td>✓</td>
<td>✓</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>8147</td>
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<tr>
<td>8148</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Adaptor</td>
<td>8312</td>
<td>✓</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>8320</td>
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<td>✓</td>
<td>✓</td>
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<td></td>
<td></td>
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<tr>
<td>8329</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<td></td>
</tr>
<tr>
<td>Case</td>
<td>9132</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>9135</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*1: Can use with after the following serial numbers.  
*2: 812 No.02637  
*3: 812 No.00151  
*4: 5010 No.8020/792  
*5: 5020 No.8021/560  
*6: Cannot be used for power measurement.  
*7: Cannot be used for Ior measurement.

Leakage & Load current

<table>
<thead>
<tr>
<th>Sensor</th>
<th>8177</th>
<th>8178</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage sensor</td>
<td>8309</td>
<td></td>
</tr>
</tbody>
</table>

Ior Leakage current Clamp sensors

KEW 8177

Max. input voltage: 600Vrms(sin), 848.4Vpeak  
Input system: Differential input (can measure floating voltage)  
Output voltage: AC 0 - 60mV (output/input: 0.1mV/V)  
Measuring ranges: 6 - 600V  
Accuracy: ±1.0%rdg±0.1mV (50/60Hz)  
Operating temperature & humidity ranges: -10 to 50°C, less than 85% RH (no condensation)  
Input impedance: Approx. 3.4MΩ  
Cable length: Approx. 3m: MINI DIN 6PIN  
Applicable Standards: IEC 61010-1 CAT. III 600V Pollution degree 2, IEC 61010-031, IEC 61326 (EMC)  
Dimensions/Weight: 87(L) × 26(W) × 17(D)mm(Approx. 135g)  
Accessories: Instruction manual, Cable marker

KEW 8178

Max. input voltage: 600Vrms(sin), 848.4Vpeak  
Input system: Differential input (can measure floating voltage)  
Output voltage: AC 0 - 60mV (output/input: 0.1mV/V)  
Measuring ranges: 6 - 600V  
Accuracy: ±1.0%rdg±0.1mV (50/60Hz)  
Operating temperature & humidity ranges: -10 to 50°C, less than 85% RH (no condensation)  
Input impedance: Approx. 3.4MΩ  
Cable length: Approx. 3m: MINI DIN 6PIN  
Applicable Standards: IEC 61010-1 CAT. III 600V Pollution degree 2, IEC 61010-031, IEC 61326 (EMC)  
Dimensions/Weight: 87(L) × 26(W) × 17(D)mm(Approx. 135g)  
Accessories: Instruction manual, Cable marker

Voltage sensor

KEW 8309

Max. input voltage: AC 600Vrms(sin), 848.4Vpeak  
Input system: Differential input (can measure floating voltage)  
Output voltage: AC 0 - 60mV (output/input: 0.1mV/V)  
Measuring ranges: 6 - 600V  
Accuracy: ±1.0%rdg±0.1mV (50/60Hz)  
Operating temperature & humidity ranges: -10 to 50°C, less than 85% RH (no condensation)  
Input impedance: Approx. 3.4MΩ  
Cable length: Approx. 3m: MINI DIN 6PIN  
Applicable Standards: IEC 61010-1 CAT. III 600V Pollution degree 2, IEC 61010-031, IEC 61326 (EMC)  
Dimensions/Weight: 87(L) × 26(W) × 17(D)mm(Approx. 135g)  
Accessories: Instruction manual, Cable marker

Accessory: 7185 (Extension cable)
Load current Clamp sensors

**KEW 8130**

- **Conductor size**: max. ø110mm, max. ø170mm
- **Rated current**: AC 1000A
- **Output voltage**: AC 500mV/1000A (AC 0.5mV/V)
- **Accuracy**: ±0.8%±0.2mV (45 - 65Hz)
- **Phase shift**: within ±2.0° (45 - 65Hz), within ±3.0° (40Hz - 1kHz)
- **Cable length**: Approx. 3m - MINI DIN 6pin
- **Operating temperature & humidity ranges**: -10 - 50˚C, relative humidity 85% or less (no condensation)
- **Output impedance**: 100Ω or less
- **Applicable Standards**: IEC 61010-1, IEC 61010-2-030, IEC 61010-2-032
- **Dimensions**: AMP box 65(L) × 24(W) × 22(D)mm (except for protrusions)
- **Weight**: Approx. 180g
- **Accessories**: Instruction manual

**KEW 8133**

- **Conductor size**: max. ø110mm, max. ø170mm
- **Rated current**: AC 3000A
- **Output voltage**: AC 500mV/3000A (AC 0.167mV/V)
- **Accuracy**: ±1.5%±0.5mV (45 - 65Hz)
- **Phase shift**: within ±2.0° (45 - 65Hz), within ±3.0° (40Hz - 1kHz)
- **Cable length**: Approx. 3m - MINI DIN 6pin
- **Operating temperature & humidity ranges**: -10 - 50˚C, relative humidity 85% or less (no condensation)
- **Output impedance**: 100Ω or less
- **Applicable Standards**: IEC 61010-1, IEC 61010-2-030, IEC 61010-2-032
- **Dimensions**: AMP box 65(L) × 24(W) × 22(D)mm (except for protrusions)
- **Weight**: Approx. 200g
- **Accessories**: Instruction manual, Cable marker

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**Model 8128**

- **Conductor size**: ø24mm, ø24mm, ø40mm, ø40mm, ø68mm
- **Rated current**: AC 5A (Max. 50A), AC 100A, AC 200A, AC 500A, AC 1000A
- **Output voltage**: AC 50mV/5A (Max. 1000A), AC 500mV/100A (AC 5mV/V), AC 500mV/200A (AC 2.5mV/V), AC 500mV/500A (AC 1mV/V), AC 500mV/1000A (AC 0.5mV/V)
- **Accuracy**: ±1.0%±0.2mV (90/60Hz), ±1.5%±0.4mV (40Hz - 1kHz)
- **Phase shift**: within ±2.0° (45 - 65Hz), within ±1.0° (45 - 65Hz)
- **Cable length**: Approx. 3m - MINI DIN 6pin
- **Operating temperature & humidity ranges**: -5 - 50˚C, less than 85% RH (without condensation)
- **Output impedance**: Approx. 20Ω, Approx. 5Ω, Approx. 5Ω, Approx. 5Ω, Approx. 2Ω
- **Applicable Standards**: IEC 61010-1, IEC 61010-2-030, IEC 61010-2-032
- **Dimensions**: 100(L) × 60(W) × 26(D)mm, 128(L) × 81(W) × 36(D)mm, 186(L) × 129(W) × 53(D)mm
- **Weight**: Approx. 160g, Approx. 260g, Approx. 510g
- **Accessories**: 9095 (Carrying case), Instruction manual, Cable marker
- **Optional**: 7146 (Banana plug), 7185 (Extension cable)
- **Applicable models**: 5010, 5020, 5050 (Cannot be used for load measurement), 6305, 6315

**Model 8127**

- **Conductor size**: ø24mm, ø24mm, ø40mm, ø40mm
- **Rated current**: AC 5A, AC 100A, AC 200A, AC 500A
- **Output voltage**: AC 50mV/5A (Max. 500A), AC 500mV/100A (AC 5mV/V), AC 500mV/200A (AC 2.5mV/V), AC 500mV/500A (AC 1mV/V), AC 500mV/1000A (AC 0.5mV/V)
- **Accuracy**: ±0.5%±0.1mV (50/60Hz), ±1.0%±0.2mV (40Hz - 1kHz)
- **Phase shift**: within ±2.0° (45 - 65Hz)
- **Cable length**: Approx. 3m - MINI DIN 6pin
- **Operating temperature & humidity ranges**: -5 - 50˚C, less than 85% RH (without condensation)
- **Output impedance**: Approx. 20Ω, Approx. 5Ω, Approx. 5Ω, Approx. 5Ω
- **Applicable Standards**: IEC 61010-1, IEC 61010-2-030, IEC 61010-2-032
- **Dimensions**: 128(L) × 81(W) × 36(D)mm
- **Weight**: Approx. 160g, Approx. 260g
- **Accessories**: 9095 (Carrying case), Instruction manual, Cable marker

**Model 8126**

- **Conductor size**: ø24mm, ø24mm
- **Rated current**: AC 5A, AC 100A
- **Output voltage**: AC 50mV/5A (Max. 1000A), AC 500mV/100A (AC 5mV/V), AC 500mV/200A (AC 2.5mV/V), AC 500mV/500A (AC 1mW/V), AC 500mV/1000A (AC 0.5mW/V)
- **Accuracy**: ±0.5%±0.1mV (50/60Hz)
- **Phase shift**: within ±2.0° (45 - 65Hz)
- **Cable length**: Approx. 3m - MINI DIN 6pin
- **Operating temperature & humidity ranges**: -5 - 50˚C, less than 85% RH (without condensation)
- **Output impedance**: Approx. 20Ω, Approx. 5Ω
- **Applicable Standards**: IEC 61010-1, IEC 61010-2-030, IEC 61010-2-032
- **Dimensions**: 128(L) × 81(W) × 36(D)mm
- **Weight**: Approx. 160g, Approx. 260g
- **Accessories**: 9095 (Carrying case), Instruction manual, Cable marker

**Model 8125**

- **Conductor size**: ø24mm
- **Rated current**: AC 5A
- **Output voltage**: AC 50mV/5A (Max. 1000A), AC 500mV/100A (AC 5mV/V), AC 500mV/200A (AC 2.5mV/V), AC 500mV/500A (AC 1mW/V), AC 500mV/1000A (AC 0.5mW/V)
- **Accuracy**: ±0.5%±0.1mV (50/60Hz)
- **Phase shift**: within ±2.0° (45 - 65Hz)
- **Cable length**: Approx. 3m - MINI DIN 6pin
- **Operating temperature & humidity ranges**: -5 - 50˚C, less than 85% RH (without condensation)
- **Output impedance**: Approx. 20Ω
- **Applicable Standards**: IEC 61010-1, IEC 61010-2-030, IEC 61010-2-032
- **Dimensions**: 128(L) × 81(W) × 36(D)mm
- **Weight**: Approx. 160g
- **Accessories**: 9095 (Carrying case), Instruction manual, Cable marker

**Model 8124**

- **Conductor size**: ø24mm
- **Rated current**: AC 5A (Max. 50A)
- **Output voltage**: AC 50mV/5A (Max. 500A/50Ω), AC 500mV/100A (AC 5mΩ/V), AC 500mV/200A (AC 2.5mΩ/V), AC 500mV/500A (AC 1mΩ/V), AC 500mV/1000A (AC 0.5mΩ/V)
- **Accuracy**: ±0.5%±0.1mV (50/60Hz)
- **Phase shift**: within ±2.0° (45 - 65Hz)
- **Cable length**: Approx. 3m - MINI DIN 6pin
- **Operating temperature & humidity ranges**: -5 - 50˚C, less than 85% RH (without condensation)
- **Output impedance**: Approx. 20Ω
- **Applicable Standards**: IEC 61010-1, IEC 61010-2-030, IEC 61010-2-032
- **Dimensions**: 128(L) × 81(W) × 36(D)mm
- **Weight**: Approx. 160g
- **Accessories**: 9095 (Carrying case), Instruction manual, Cable marker
Leakage & Load current Clamp sensors

<table>
<thead>
<tr>
<th>KEW 8146</th>
<th>KEW 8147</th>
<th>KEW 8148</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conductor size</strong></td>
<td>24 mm</td>
<td>40 mm</td>
</tr>
<tr>
<td><strong>Rated current</strong></td>
<td>30 A</td>
<td>70 A</td>
</tr>
<tr>
<td><strong>Output voltage</strong></td>
<td>AC 1500 mV/30 A (AC 50 mV/A)</td>
<td>AC 3500 mV/70 A (AC 50 mV/A)</td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
<td>±1.0% rdg ± 0.1 mV (50/60 Hz) ± 0.2% rdg ± 0.2 mV (40 Hz - 1 kHz)</td>
<td>±1.0% rdg ± 0.1 mV (50/60 Hz) ± 0.2% rdg ± 0.2 mV (40 Hz - 1 kHz)</td>
</tr>
<tr>
<td><strong>Cable length</strong></td>
<td>Approx. 2 m</td>
<td>Approx. 2 m</td>
</tr>
<tr>
<td><strong>Operating temperature ranges</strong></td>
<td>-50°C to 60°C</td>
<td>-50°C to 60°C</td>
</tr>
<tr>
<td><strong>Output impedance</strong></td>
<td>Approx. 90 kΩ</td>
<td>Approx. 100 kΩ</td>
</tr>
<tr>
<td><strong>Applicable Standards</strong></td>
<td>IEC 61010-1, IEC 61010-2-032, CAT III 300 V Pollution degree 2, IEC 61326</td>
<td>IEC 61010-1, IEC 61010-2-032, CAT III 300 V Pollution degree 2, IEC 61326</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>100 (L) × 60 (W) × 26 (D) mm</td>
<td>128 (L) × 81 (W) × 36 (D) mm</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>Approx. 150 g</td>
<td>Approx. 240 g</td>
</tr>
<tr>
<td><strong>Accessories</strong></td>
<td>9095 (Carrying case), Instruction manual, Cable marker</td>
<td>9094 (Carrying case), Instruction manual, Cable marker</td>
</tr>
<tr>
<td><strong>Optional</strong></td>
<td>7146 (Banana 4 adjuster plug), 7185 (Extension cable)</td>
<td>7146 (Banana 4 adjuster plug), 7185 (Extension cable)</td>
</tr>
<tr>
<td><strong>Applicable models</strong></td>
<td>5010, 5020, 5050 (Cannot be used for Ior measurement.), 6315 (Cannot be used for power measurements.)</td>
<td>5010, 5020, 5050 (Cannot be used for Ior measurement.), 6315 (Cannot be used for power measurements.)</td>
</tr>
</tbody>
</table>

Load current Clamp sensors

<table>
<thead>
<tr>
<th>KEW 8121</th>
<th>KEW 8122</th>
<th>KEW 8123</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conductor size</strong></td>
<td>24 mm</td>
<td>40 mm</td>
</tr>
<tr>
<td><strong>Rated current</strong></td>
<td>100 A</td>
<td>500 A</td>
</tr>
<tr>
<td><strong>Output voltage</strong></td>
<td>AC 500 mV/100 A (AC 5 mV/A)</td>
<td>AC 500 mV/500 A (AC 1 mV/A)</td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
<td>±2.0% rdg ± 0.3 mV (50/60 Hz), ±3.0% rdg ± 0.5 mV (40 Hz - 1 kHz)</td>
<td>±2.0% rdg ± 0.3 mV (50/60 Hz), ±3.0% rdg ± 0.5 mV (40 Hz - 1 kHz)</td>
</tr>
<tr>
<td><strong>Cable length</strong></td>
<td>Approx. 2 m</td>
<td>Approx. 2 m</td>
</tr>
<tr>
<td><strong>Operating temperature ranges</strong></td>
<td>-6°C to 40°C</td>
<td>-6°C to 40°C</td>
</tr>
<tr>
<td><strong>Output impedance</strong></td>
<td>Approx. 9.5 kΩ</td>
<td>Approx. 1.9 kΩ</td>
</tr>
<tr>
<td><strong>Applicable Standards</strong></td>
<td>IEC 61010-1, IEC 61010-2-032, CAT III 600 V Pollution degree 2, IEC 61326</td>
<td>IEC 61010-1, IEC 61010-2-032, CAT III 600 V Pollution degree 2, IEC 61326</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>97 (L) × 59 (W) × 26 (D) mm</td>
<td>128 (L) × 81 (W) × 36 (D) mm</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>Approx. 150 g</td>
<td>Approx. 240 g</td>
</tr>
<tr>
<td><strong>Accessories</strong></td>
<td>9095 (Carrying case), Instruction manual, Cable marker</td>
<td>9094 (Carrying case), Instruction manual, Cable marker</td>
</tr>
<tr>
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</tr>
</tbody>
</table>
# Kew 5204

**Digital Light Meter**

- **Model**: 5204
- **Measuring Range**: 0.0 - 19990 lx
- **Ranges**: 199.9/1999/19990/199900 lx
- **Accuracy**: ±4%rdg±5dgt (23°C±2°C)
- **Angle deviation from cosine characteristics**:
  - 10° ±1.5%
  - 30° ±3%
  - 60° ±10%
  - 80° ±30%
- **Relative spectral sensitivity characteristics**:
  - Deviation from spectral luminous efficiency: 9% or less
- **Response time**:
  - Auto range: 5s or less
  - Manual range: 2s or less
- **Operation Temperature/Humidity**
  - 0°C - 40°C, 80% RH or less (without condensation)
- **Storage Temperature/Humidity**
  - -10°C - 60°C, 70% RH or less (without condensation)
- **Applicable Standards**
  - IEC 61326, JIS C 1609-1:2006
- **Power source**: R6(AA) × 2
- **Dimensions**: 169(L) × 63(W) × 37(D)mm
- **Weight**: 210g approx.
- **Accessories**: 9195(Carrying case), Instruction Manual

### 5202

**Digital Light Meter**

- **Model**: 5202
- **Ranges**: 0.1 - 19980Lux
- **Lux Accuracy**:
  - 200 ±4%rdg±5dgt
  - 2000 ±4%rdg±5dgt
  - 20000 ±5%rdg±4dgt
- **Current consumption**: 2mA approx.
- **Response time**: 2.5 times / sec.
- **Operating temperature range**: 0 - 50°C Below 80% RH
- **Storage temperature range**: 0°C - 60°C
- **Angular incident light characteristics**:
  - 30° Less than ±3%
  - 60° Less than ±10%
  - 80° Less than ±30%
- **Power source**: 6F22(9V) × 1
- **Dimensions**:
  - Meter: 148(L) × 71(W) × 36(H)mm
  - Light receiving sensor: 85(L) × 67(W) × 32(H)mm
- **Weight**: 270g approx.
- **Accessories**: Carrying case, Photocell cover, Instruction Manual

### Features

- **• Detachable & Rotatable Light Sensor**
- **• Data Hold Function**
- **• MAX/MIN Function**
- **• Large LCD with BackLight**
- **• 3 ranges changeable from low to high illuminance** (200/2000/20000 Lux)
- **• Data hold function**
- **• Digital light meter with separate light receiving sensor and meter.**
**MODEL 5510**

**Waterproof handheld Infrared Thermometer**
- Safe even if getting wet. Dustproof and waterproof structure of IP67.
- Possible to wash
- Please feel secure to use the product on the spot, made from ABS resin of antibacterial specification.
- Shock-proof structure: No damage even if dropped from the height of 1m.
- With auto-power-off function, preventing consumption of the battery
- Wide Temperature Range of -40°C to 300°C
- Small and light: Possible to measure easily by one hand.
- Portable type: Convenient to carry

**Relation of Distance and Measuring Diameter**

<table>
<thead>
<tr>
<th>Measuring range</th>
<th>5510</th>
</tr>
</thead>
<tbody>
<tr>
<td>-40°C - 300°C</td>
<td></td>
</tr>
</tbody>
</table>

**Detecting element**
Thermopile

**Spectral range**
8.5µm or more

**Display resolution**
0.5°C 1°C for below -20°C and over 100°C

**Measuring accuracy**
- When the ambient temperature is 25±2°C and the emissivity (ε) is 1,
  - 0 - 300°C : bigger value of either of ±1% of the measured value ±1dgt or ±2°C ±1dgt.
  - 0 - 30°C : ±3°C ±1dgt
  - below -30°C : ±5°C ±1dgt

**Repeatability**
within 1°C ±1dgt

**Response**
1 sec(90% response)

**Measuring diameter**
φ45mm/500mm(Optical sensitivity: 90%)

**Collimation**
Before shipment: 0.95. The value can be altered between 0.8 and 1.0 (by 0.05 steps).

**Laser beam(650nm 1mW JIS class2)specifies the center.**

**Auto power off**
If no key is pressed for 30 seconds, the power is shut off automatically.

**Operating temperature**
0 - 50°C

**Operating humidity**
90%RH and below(no condensation)

**Storage temperature**
20 - 55°C(no condensation)

**Battery**
LR03(AAA)(1.5V) × 2

**Battery life**
Approximately 10 hours for continuous use

**Dimensions**
120 × 60 × 54mm(Maximum value for each direction)

**Weight**
123g approx.

**Accessories**
LR03(AAA) × 2, instruction manual, strap

**Approved standard**
CE marking:EMI EN61326 Class B EMS EN61326 Annex C Stability:±5°C under EMC test environment at 25°C

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**KEW 5711**

**Voltage Detector**

- Senses AC voltage through insulation
- Buzzer sounds and tip glows upon AC voltage detection
- Powerful flashlight
- Dual range (Hi/Lo) sensitivity
- Ready to use without power-on
- Designed to meet IEC61010-1

**5711**

<table>
<thead>
<tr>
<th>Operating voltage</th>
<th>5711</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC 50 - 1000V(Lo sensitivity)</td>
<td></td>
</tr>
<tr>
<td>AC 20 - 1000V(Hi sensitivity)</td>
<td></td>
</tr>
</tbody>
</table>

**Frequency range**
50/60Hz

**Operating temperature**
-10 - 50°C

**Storage temperature**
-20 - 60°C

**Applicable Standards**
IEC 61010-1 CAT IV 600V / CAT III 1000V

**Pollution degree**
2

**Power source**
LR03 / R03(AAA)(1.5V) × 2

**Dimensions**
153(L) × ø20mm

**Weight**
Approx. 40g (including batteries)

**Accessories**
LR03(AAA) × 2, Instruction manual

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**LED light**

**Bright Red Indicator**
KEW 8035
Non-Contact Safety Phase Indicator

- New technology permits safe testing, without the need of direct contact between probes and live wires.
- The insulated crocodile clips can clip insulated cables from φ2.4 to 30mm.
- Phase rotation is indicated by the rotary illumination of LEDs and logical audible tones.
- The instrument can be fixed to a metal panel via the magnet on the back side.
- Wide measuring range for 3-phase installations from 70V to 1000V AC.
- Super brightness function permits clear LEDs indication also in sunshine.

**Functions**
- Phase rotation (Clockwise or Counter Clockwise),
- Presence of open phase

**Detection method**
- Electrostatic induction

**Measuring voltage range**
- From 70 - 1000V AC phase to phase (sine wave, continuous input)

**Clamp diameter range**
- From φ2.4 to 30mm insulated cables

**Measuring frequency range**
- 45 to 60Hz

**Phase rotation**
- Clockwise:
  - Green arrow LEDs “rotate” in clockwise, Green symbol “CW” lits, Intermittent buzzer
- Counter Clockwise:
  - Red arrow LEDs “rotate” in counter clockwise, Red symbol “CCW” lits, continuous buzzer

**Visual indication**
- Via LEDs with Super brightness function

**Battery voltage warning**
- Power LED blinks if battery voltage is too low.

**Operating temperature & humidity range**
- -10 to 50ºC, relative humidity 80% or less (no condensation)

**Storage temperature & humidity range**
- -20 to 60ºC, relative humidity 80% or less (no condensation)

**Applicable Standards**
- IEC 61010-1 CAT IV 600V, CAT III 1000V Pollution degree 2

**Power source**
- LR6(“AA”) x 4 (Continuous use: Approx. 100 hours (Auto power off in about 10 min.)

**Dimensions**
- 112(L) × 61(W) × 36(D) mm

**Weight**
- 380g approx.

**Test leads**
- Double insulated cables, length approx. 70cm

**Colours code**

**Accessories**
- 9096 (Carrying case), LR6(“AA”) x 4, Instruction manual

### MODEL 8030

**DIGITAL PHASE INDICATOR with open phase checker**

- Operational voltage
  - 200 - 480V AC
- Time limit for continuous
  - 200V: within 60 minutes
  - 480V: within 4 minutes
- Frequency response
  - 20 - 400Hz
- Dimensions
  - 112(L) × 61(W) × 36(D) mm
- Weight
  - 380g approx.
- Cord
  - 1m(R: red S : white T : blue)
- Accessories
  - 9070(Carrying case) Pins for test leads Instruction manual

### MODEL 8031/KEW 8031F

**PHASE INDICATOR with open phase checker**

- Operational voltage
  - 110 - 600V AC
- Fuse
  - —
- Time limit for continuous
  - >500V: within 5 minutes
- Frequency response
  - 50/60Hz
- Applicable Standards
  - CE Type: EC 61010-1 CAT III 600V Pollution degree 2
  - Standard Type: EC 61010-1 CAT III 600V Pollution degree 2
- Dimensions
  - 106(L) × 75(W) × 40(D) mm
- Weight
  - 350g approx.
- Cord
  - 1.5m(R: red S : white T : blue)
- Accessories
  - 9029(Carrying case) Instruction manual

**Phase indicator designed to check the presence of open phase and also the phase sequence by LED and buzzer at the same time.**

**Small, lightweight, and portable.**

### 8031

<table>
<thead>
<tr>
<th>CE Type</th>
<th>Standard Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>8031F</td>
<td></td>
</tr>
</tbody>
</table>

**Operational voltage**
- 110 - 600V AC

**Fuse**
- —

**Time limit for continuous**
- >500V: within 5 minutes

**Frequency response**
- 50/60Hz

**Applicable Standards**
- CE Type: EC 61010-1 CAT III 600V Pollution degree 2
- Standard Type: EC 61010-1 CAT III 600V Pollution degree 2

**Dimensions**
- 106(L) × 75(W) × 40(D) mm

**Weight**
- 350g approx.

**Cord**
- 1.5m(R: red S : white T : blue)

**Accessories**
- 9029(Carrying case) Instruction manual

### 8031F

<table>
<thead>
<tr>
<th>CE Type</th>
<th>Standard Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>8031F</td>
<td></td>
</tr>
</tbody>
</table>

**Operational voltage**
- 110 - 600V AC

**Fuse**
- 0.5A/600V (F)

**Time limit for continuous**
- >500V: within 5 minutes

**Frequency response**
- 50/60Hz

**Applicable Standards**
- CE Type: EC 61010-1 CAT III 600V Pollution degree 2
- Standard Type: EC 61010-1 CAT III 600V Pollution degree 2

**Dimensions**
- 106(L) × 75(W) × 40(D) mm

**Weight**
- 350g approx.

**Cord**
- 1.5m(R: red S : white T : blue)

**Accessories**
- 9029(Carrying case) Instruction manual

**OTHERS**

www.kew-ltd.co.jp
### KT 200

**AC Clamp Meter**

- Small and handy clamp meter
- IEC 61010-1 Safety Standard CAT Ⅲ 300V, CAT Ⅱ 600V
- 400A AC Clamp meter
- DMM function ACV, DCV, Continuity Buzzer.

#### Specifications

<table>
<thead>
<tr>
<th>Function</th>
<th>AC A</th>
<th>AC V</th>
<th>DC V</th>
<th>Ω</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC A</td>
<td>40.00/400.0A (Auto-ranging)</td>
<td>±2.0%rdg±6dgt(50/60Hz)</td>
<td>400.0/600V (Auto-ranging)</td>
<td>±2.0%rdg±5dgt</td>
</tr>
<tr>
<td>AC V</td>
<td>400.0/600V (Auto-ranging)</td>
<td>±2.0%rdg±5dgt(50/60Hz)</td>
<td>400.0/600V (Auto-ranging)</td>
<td>±1.5%rdg±5dgt</td>
</tr>
<tr>
<td>DC V</td>
<td>400.0/600V (Auto-ranging)</td>
<td>±2.0%rdg±5dgt(50/60Hz)</td>
<td>400.0/600V (Auto-ranging)</td>
<td>±2.0%rdg±5dgt</td>
</tr>
<tr>
<td>Ω</td>
<td>400.0/4000 (Auto-ranging)</td>
<td>±2.0%rdg±5dgt(50/60Hz)</td>
<td>400.0/4000 (Auto-ranging)</td>
<td>±2.0%rdg±5dgt</td>
</tr>
</tbody>
</table>

#### Additional Information

- Conductor size: ø30mm max.
- Applicable Standards: IEC 61010-1 CAT Ⅲ 300V, CAT Ⅱ 600V, IEC 61010-2-032, IEC 61326-1
- Power source: R03(1.5V)(AAA) × 2
- Continuous measuring time: approx. 200 hours (Auto power save: approx. 10 minutes)
- Dimensions: 184(L) × 68.6(W) × 38.5(D)mm
- Weight: Approx. 190g (including batteries)
- Accessories: 7066A (Test leads), R03(3AAA) × 2, Instruction manual
- Optional: 9105 (Carrying case)

### KT 203

**AC/DC Clamp Meter**

- Small and handy clamp meter
- IEC 61010-1 Safety Standard CAT Ⅲ 300V, CAT Ⅱ 600V
- 400A AC/DC Clamp meter
- DMM function ACV, DCV, Continuity Buzzer.

#### Specifications

<table>
<thead>
<tr>
<th>Function</th>
<th>AC A</th>
<th>DC A</th>
<th>AC V</th>
<th>DC V</th>
<th>Ω</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC A</td>
<td>40.00/400.0A (Auto-ranging)</td>
<td>±3.0%rdg±8dgt(0 ~ 40.00A)</td>
<td>±3.5%rdg±6dgt(15.0 ~ 299.9A)</td>
<td>±4.0%rdg±6dgt(300.0 ~ 400.0A)</td>
<td></td>
</tr>
<tr>
<td>DC A</td>
<td>400.0/400A (Auto-ranging)</td>
<td>±3.0%rdg±8dgt(0 ~ 40.00A)</td>
<td>±3.5%rdg±6dgt(15.0 ~ 299.9A)</td>
<td>±4.0%rdg±6dgt(300.0 ~ 400.0A)</td>
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</tr>
<tr>
<td>AC V</td>
<td>400.0/600V (Auto-ranging)</td>
<td>±2.0%rdg±5dgt(50/60Hz)</td>
<td>±2.0%rdg±5dgt(50/60Hz)</td>
<td>±2.0%rdg±5dgt(50/60Hz)</td>
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</tr>
<tr>
<td>DC V</td>
<td>400.0/600V (Auto-ranging)</td>
<td>±1.5%rdg±5dgt</td>
<td>±1.5%rdg±5dgt</td>
<td>±1.5%rdg±5dgt</td>
<td></td>
</tr>
<tr>
<td>Ω</td>
<td>400.0/4000 (Auto-ranging)</td>
<td>±2.0%rdg±5dgt(50/60Hz)</td>
<td>±2.0%rdg±5dgt(50/60Hz)</td>
<td>±2.0%rdg±5dgt(50/60Hz)</td>
<td></td>
</tr>
</tbody>
</table>

#### Additional Information

- Conductor size: ø30mm max.
- Applicable Standards: IEC 61010-1 CAT Ⅲ 300V, CAT Ⅱ 600V, IEC 61010-2-032, IEC 61326-1
- Power source: R03(1.5V)(AAA) × 2
- Continuous measuring time: approx. 35 hours (Auto power save: approx. 10 minutes)
- Dimensions: 187(L) × 68.5(W) × 38.5(D)mm
- Weight: Approx. 200g (including batteries)
- Accessories: 7066A (Test leads), R03(3AAA) × 2, Instruction manual
- Optional: 9105 (Carrying case)
VOLTAGE TESTER
KEWTECH
www.kew-ltd.co.jp

KT 170/171
Voltage test
Voltage range
12 - 690V AC/DC
LED
Nominal voltage
12/24/50/120/230/400/690V
AC(16 - 400Hz, DC(±)
Tolerance
(Threshold voltage)
Light on at more than:
7±3V (12V LED)
16±3V (24V LED)
37.5±4V (50V LED)
75±5% of nominal voltage (120/230/400/690V LED)
Response time
< 0.6s at 100% of each nominal voltage
LCD (KT171 only)
Range / Resolution
(Auto-range)
900V AC/DC (8.0 - 299.9)/ 0.1V
690V AC (270 - 759)/ 1V
690V DC (270 - 710)/ 1V
Accuracy (23±5°C)
±1±5% (100 - 690V)
AC(16 - 400Hz, DC(±)
Over limit indication
“OL”
Response time
Approx. 1s at 80% - 100% of each voltage
Peak current
I<0.3mA (at 690V)
Measurement duty
30s ON (operation time)
240s OFF (recovery time)
Phase rotation test
System
Three-phase 4-wire system
Phase range
120±5 degree
Continuity test
Detection range
0 - 400kΩ + 50%
Test current
Approx. 1.5mA (battery 3V, DC)
Operating temperature
and humidity ranges
15 - 55°C, max 85% RH (No condensation)
Storage temperature
and humidity ranges
20 - 70°C, max 85% RH (No condensation)(KT170)
20 - 60°C, max 85% RH (No condensation)(KT171)
Applicable Standards
IEC 61243-3, IEC 61010-1, IEC 61557-7
CAT IV 600V / CAT III 690V
Pollution degree 2, IEC 60529 (IP65)
Power source
LR03(AAA) × 2
Dimensions
246(L) × 64(W) × 26(D)mm
Weight
195g (including batteries)
Accessories
LR03(AAA) × 2, KTA01(4mm metal tips[2pcs/set]),
KTA02(4mm rubber caps[2pcs/set]), Instruction manual

KT170AUS is available for Australia and New Zealand market.

Voltage Test (Double-pole Test)
• The voltage is indicated by LEDs.
• Buzzer sounds and Live circuit LED lights up when a threshold voltage of 50V is exceeded.
• Voltage polarity is indicated in following manner.

Bright LEDs and Penlight

Probe Protection Cover

Variable top tips

Store the attachment of caps

Single-pole Phase Test

photo : KT170
photo : KT171

- Comply with the latest standards IEC 61243 and IEC 61010
- Novel design
  Large and bright LEDs: Values are visible in the dark place. Ergonomic design fits in the hand.
  Two functions are available in one model. “Measurement without battery” and “Self Test (all LED on)”
  Test leads withstand harsh environments at low temperature.
  Penlight (white LED)
  Auto-power ON / OFF
  Audible indication
  Variable test tips, φ2mm or φ4mm
  Probe protection cover can store the attachment of caps.
  IP65 (IEC 60529)

- LCD (KT171 only)
  Range / Resolution
  (Auto-range)
  900V AC/DC (8.0 - 299.9)/ 0.1V
  690V AC (270 - 759)/ 1V
  690V DC (270 - 710)/ 1V
  Accuracy (23±5°C)
  ±1±5% (100 - 690V)
  AC(16 - 400Hz, DC(±)
  Over limit indication
  “OL”
  Response time
  Approx. 1s at 80% - 100% of each voltage
  Peak current
  I<0.3mA (at 690V)
  Measurement duty
  30s ON (operation time)
  240s OFF (recovery time)
  Phase rotation test
  System
  Three-phase 4-wire system
  Phase range
  120±5 degree
  Continuity test
  Detection range
  0 - 400kΩ + 50%
  Test current
  Approx. 1.5mA (battery 3V, DC)
  Operating temperature
  and humidity ranges
  15 - 55°C, max 85% RH (No condensation)
  Storage temperature
  and humidity ranges
  20 - 70°C, max 85% RH (No condensation)(KT170)
  20 - 60°C, max 85% RH (No condensation)(KT171)
  Applicable Standards
  IEC 61243-3, IEC 61010-1, IEC 61557-7
  CAT IV 600V / CAT III 690V
  Pollution degree 2, IEC 60529 (IP65)
  Power source
  LR03(AAA) × 2
  Dimensions
  246(L) × 64(W) × 26(D)mm
  Weight
  195g (including batteries)
  Accessories
  LR03(AAA) × 2, KTA01(4mm metal tips[2pcs/set]),
  KTA02(4mm rubber caps[2pcs/set]), Instruction manual

KT170AUS is available for Australia and New Zealand market.
### ACCESSORIES

<table>
<thead>
<tr>
<th>Accessory</th>
<th>Length</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7025</td>
<td>1,500mm</td>
<td>Plug</td>
</tr>
<tr>
<td>7066A</td>
<td>1,100mm</td>
<td>Plug</td>
</tr>
<tr>
<td>7073</td>
<td>2,120mm</td>
<td>Plug</td>
</tr>
<tr>
<td>7082</td>
<td>1,100mm</td>
<td>Plug</td>
</tr>
<tr>
<td>7083</td>
<td>5,200mm</td>
<td>Plug</td>
</tr>
<tr>
<td>7084</td>
<td>5,000mm</td>
<td>Plug</td>
</tr>
<tr>
<td>7095A</td>
<td></td>
<td>Plug</td>
</tr>
<tr>
<td>7100A</td>
<td></td>
<td>Plug</td>
</tr>
<tr>
<td>7103A/7139A</td>
<td></td>
<td>Plug</td>
</tr>
<tr>
<td>7107A</td>
<td>1,100mm</td>
<td>Plug</td>
</tr>
<tr>
<td>7115/7116</td>
<td>1,000mm</td>
<td>Plug</td>
</tr>
<tr>
<td>7121B</td>
<td>1,500mm</td>
<td>Plug</td>
</tr>
<tr>
<td>7122B/7217A</td>
<td>1,220mm</td>
<td>Plug</td>
</tr>
<tr>
<td>7123/7124/7125/7126</td>
<td>1,500mm</td>
<td>Plug</td>
</tr>
</tbody>
</table>

### Leads and Accessories
- **7025**: Suitable for use with models 3165 and 3166.
- **7066A**: Suitable for use with models 1009, 1011, 1012, 1020R, 10218, 11095, 1110, 1110 KT200, and KT203.
- **7073**: 2WAY Output cord suitable for use with models 2413F and 2413R.
- **7082**: Lead for recording, suitable for use with model 3124A.
- **7083**: Lead for battery charging, suitable for use with model 3124A.
- **7084**: Earth and guard leads, suitable for use with model 3124A.
- **7095A**: Earth resistance test leads, suitable for use with models 4102A, 4105A, and 6018.
- **7100A**: Line 1,000mm Earth 1,550mm, suitable for use with models 4102A, 4105A, and 6018.
- **7103A/7139A**: Test leads with remote control switch, suitable for use with models 3122A, 3161A, and 3162A.
- **7115/7116**: Distribution board test leads, suitable for use with models 3021A, 3022A, and 3023A.
- **7121B**: Molded plug test leads, suitable for use with models 4118A and 5406A.

### Accessories
- **7107A**: Photo: 7122B
- **7115**: Photo: 7115
- **7121B**: Photo: 7115
- **7122B/7217A**: Photo: 7122B
- **7123/7124/7125/7126**: Photo: 7123
- **7123**: (AU) Australian plug
- **7124**: (UK) British plug (3A)
- **7125**: (EU) European SHUKO plug
- **7126**: (SA) South African plug

### Leads and Cables
- **Green**: 5m
- **Yellow**: 10m
- **Red**: 20m

### Lead Specifications
- 7095A: Consists of: Earth resistance test leads, auxiliary earth spikes, cord reels (3pcs), carrying case for cord reels.
- 7100A: Consists of: Extension leads, test leads with remote control switch.
- 7122B/7217A: For Australia.
- 7123: (AU) Australian plug
- 7124: (UK) British plug (3A)
- 7125: (EU) European SHUKO plug
- 7126: (SA) South African plug
**ACCESSORIES**

**7127A** 1,570mm
- Simplified measurement probe
- Applicable model:
  - 4102A
  - 4105A

**7127B** 1,570mm
- Simplified measurement probe
- Applicable model:
  - 4105DL

**7128A** 1,390mm
- Applicable model:
  - 5410

**7129A** 1,450mm
- Applicable model:
  - 5410
  - 6205

**7132A (KSLP5)** 1,200mm
- Applicable model:
  - 6011A

**7133B (OMA DIEC)** 1,500mm
- Applicable model:
  - 6010B
  - 6011A

**7141B** 3,000mm
- Voltage test lead set
- Applicable model:
  - 6305
  - 6315

**7146** 190mm
- Banana 4 adjuster plug
- Applicable model:
  - 8121
  - 8122
  - 8123
  - 8124
  - 8125
  - 8126

**7149A/7150A**
- Test leads with remote control switch set
- Line 1,000mm
- Earth 1,550mm
- Applicable model:
  - 7149A
  - 7150A

**7153B** 1,220mm
- Safety test leads
- Applicable model:
  - 1009
  - 1011
  - 1012
  - 1021R
  - 1110
  - 2007R
  - 2046R
  - 2056R

**7154B** 1,220mm
- Safety test leads
- Applicable model:
  - 1009
  - 1011
  - 1012
  - 1021R
  - 1110
  - 2007R
  - 2046R
  - 2055
  - 2056R

**7155B**
- Safety test leads with fuse
- Applicable model:
  - 7153B
  - 7154B

**7156B** 1,220mm
- Safety test leads with fuse
- Applicable model:
  - 1009
  - 1011
  - 1012
  - 1021R
  - 1110
  - 2007R
  - 2046R
  - 2055
  - 2056R

**7157B/7158B**
- Safety test leads with fuse
- Applicable model:
  - 7153B
  - 7154B
  - 7155B
  - 7156B

**7159B** 1,220mm
- Safety test leads with fuse
- Applicable model:
  - 1009
  - 1011
  - 1012
  - 1021R
  - 1110
  - 2007R
  - 2046R
  - 2055
  - 2056R

**7132A (KSLP5)**
- Applicable model:
  - 6011A

**7149A/7150A**
- Applicable model:
  - 3161A
  - 3021A
  - 3022A
  - 3023A

**7153B**
- Applicable model:
  - 1009
  - 1011
  - 1012
  - 1021R
  - 1110
  - 2007R
  - 2046R
  - 2055
  - 2056R

**7154B**
- Applicable model:
  - 1009
  - 1011
  - 1012
  - 1021R
  - 1110
  - 2007R
  - 2046R
  - 2055
  - 2056R

**7155B**
- Applicable model:
  - 7153B
  - 7154B

**7156B**
- Applicable model:
  - 1009
  - 1011
  - 1012
  - 1021R
  - 1110
  - 2007R
  - 2046R
  - 2055
  - 2056R

**7157B/7158B**
- Applicable model:
  - 7153B
  - 7154B
  - 7155B
  - 7156B

**7159B**
- Applicable model:
  - 1009
  - 1011
  - 1012
  - 1021R
  - 1110
  - 2007R
  - 2046R
  - 2055
  - 2056R
<table>
<thead>
<tr>
<th>Accessory</th>
<th>Description</th>
<th>Length</th>
<th>Applicable Models</th>
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<tbody>
<tr>
<td><strong>7229A</strong></td>
<td>Earth resistance test leads</td>
<td>1,650mm</td>
<td>406, Green: 20m, Yellow: 20m, Red: 40m</td>
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<tr>
<td><strong>7234</strong></td>
<td>Alligator clip</td>
<td>1,080mm</td>
<td>1009, 1051, 1011, 1053, 1012, 1061, 1020R, 1062, 1021R</td>
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<tr>
<td><strong>7238A</strong></td>
<td>Simplified measurement test leads</td>
<td>1,570mm</td>
<td>406</td>
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<tr>
<td><strong>7243A</strong></td>
<td>L-shaped probe</td>
<td>1,650mm</td>
<td>3431, 3551, 3552, 3552BT, 6024PV</td>
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<tr>
<td><strong>7244A</strong></td>
<td>1,400mm</td>
<td>6024PV</td>
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<tr>
<td><strong>7245A</strong></td>
<td>Distribution board test lead</td>
<td></td>
<td>Consists of: 7226A (Earth resistance test leads), 8020 (Auxiliary earth spikes (2 spikes per set)), 8200-03 (Cord reel (3 pcs)), 9142 (Carrying bag)</td>
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<tr>
<td><strong>7248</strong></td>
<td>2,000mm</td>
<td>4300, 6205</td>
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<tr>
<td><strong>7253/7254</strong></td>
<td>Longer line probe with alligator clip</td>
<td>15m</td>
<td>3121B, 3122B, 3125A, 3127A, 3128A</td>
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<tr>
<td><strong>7260</strong></td>
<td>Test leads with remote control switch</td>
<td>1,400mm</td>
<td>3431, 3551, 3552, 3552BT</td>
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<tr>
<td><strong>7261A</strong></td>
<td>2,000mm</td>
<td>3431, 3551, 3552, 3552BT</td>
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<td><strong>7264</strong></td>
<td>Earth cord</td>
<td>3,000mm</td>
<td>3025A, 3121B, 3122B, 3125A</td>
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<td><strong>7265</strong></td>
<td>Guard cord</td>
<td>3,000mm</td>
<td>3025A, 3121B, 3122B, 3125A</td>
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<tr>
<td><strong>7266</strong></td>
<td>Earth resistance test leads</td>
<td>4,000mm</td>
<td>4010SD, Green: 5m, Yellow: 10m, Red: 20m</td>
</tr>
<tr>
<td><strong>ACCESSORIES</strong></td>
<td></td>
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<tr>
<td>------------------</td>
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<tr>
<td><strong>7267/7268</strong></td>
<td><strong>7269</strong></td>
<td><strong>7270</strong></td>
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<tr>
<td>Applicable model 4105DL</td>
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<td><strong>7267</strong></td>
<td><strong>7269</strong></td>
<td><strong>7270</strong></td>
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</tr>
<tr>
<td>Red: 20m</td>
<td>20m</td>
<td>10m</td>
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</tr>
<tr>
<td><strong>Plug 4</strong></td>
<td><strong>Plug 4</strong></td>
<td><strong>Plug 4</strong></td>
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<td><strong>7268</strong></td>
<td><strong>7269</strong></td>
<td><strong>7270</strong></td>
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<tr>
<td>Yellow: 10m</td>
<td><strong>Plug 4</strong></td>
<td><strong>Plug 4</strong></td>
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<tr>
<td><strong>7271</strong></td>
<td><strong>7272</strong></td>
<td><strong>7273</strong></td>
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<tr>
<td>5m</td>
<td><strong>Precision measurement Cord set</strong></td>
<td><strong>Voltage test leads</strong></td>
<td></td>
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<tr>
<td><strong>Applicable model 4105DL</strong></td>
<td><strong>Consists of:</strong></td>
<td><strong>Applicable model 5050</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Plug 4</strong></td>
<td><strong>7267/Cable reel for Earth resistance tester (Red)</strong></td>
<td><strong>Plug 4</strong></td>
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</tr>
<tr>
<td><strong>7268/Cable reel for Earth resistance tester (Yellow)</strong></td>
<td><strong>7271/Earth resistance test lead (Green)</strong></td>
<td><strong>7272</strong></td>
<td></td>
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<tr>
<td><strong>8041/Auxiliary earth spikes (2 spikes/1set)</strong></td>
<td><strong>9150/Carrying case for cord reels</strong></td>
<td><strong>Plug 4</strong></td>
<td></td>
</tr>
<tr>
<td><strong>7275</strong></td>
<td><strong>7276</strong></td>
<td><strong>7277</strong></td>
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<tr>
<td>2,000mm</td>
<td><strong>Extension leads adaptor</strong></td>
<td><strong>Mains Lead</strong></td>
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<tr>
<td><strong>Applicable model 6205</strong></td>
<td><strong>Applicable model 6205</strong></td>
<td><strong>Applicable model 6205</strong></td>
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<td><strong>7278</strong></td>
<td><strong>7281</strong></td>
<td><strong>7290</strong></td>
<td></td>
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<tr>
<td>1,500mm</td>
<td><strong>Test leads with remote control switch</strong></td>
<td><strong>Voltage test lead set</strong></td>
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<tr>
<td><strong>Applicable model 5050</strong></td>
<td><strong>Applicable model 6016</strong></td>
<td><strong>Applicable model 2060BT</strong></td>
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<td><strong>Plug 4</strong></td>
<td><strong>6516</strong></td>
<td><strong>1,500mm</strong></td>
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<tr>
<td><strong>6516BT</strong></td>
<td><strong>Plug 4</strong></td>
<td><strong>1,500mm</strong></td>
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<tr>
<td><strong>7279</strong></td>
<td><strong>8216</strong></td>
<td><strong>KAMP10</strong></td>
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<tr>
<td>1,500mm</td>
<td><strong>Temperature probe</strong></td>
<td><strong>Test lead with IEC connector</strong></td>
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<tr>
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Accuracy
The accuracy of a digital tester is defined as the difference between the reading and the true value for a quantity measured in reference conditions. Accuracy is specified in the format: (±xxx% rdg ±xx dgt)
The first portion identifies a percentage error relative to the reading, which means it is proportional to the input. The second portion is an error, in digits, that is constant regardless of the input.
*rdg* is for reading and *dgt* is for digits. Dgt indicates the counts on the last significant digit of the digital display and is typically used to represent an error factor of a digital tester.

Auto-discharge Function
A function used immediately after an insulation test to automatically release charges stored within the circuit under test during measurement. Voltage remaining in the circuit under test can be monitored during auto-discharging process by the showing display.

Auto-ranging
A function of a tester to automatically select the appropriate measuring range based on the input signal.

Average Value
The average of an AC waveform's instantaneous values taken over a half cycle. Ordinary testers respond to the average value.

For sinusoidal wave:
Average value = Maximum value \times \frac{2}{\pi} = Maximum value \times 0.637

When the true RMS value is 100V;
Average value = Maximum value \times \frac{2}{\pi} = 141 \times 0.637 = 90(V)
The reading of ordinary testers is calibrated in terms of the effective value of a sinusoidal wave even though they are responding to the average value. They are called average-responding-RMS-calibrated type of testers. As opposed to these, true-RMS type testers respond and show the true RMS value.

Crest Factor
The ratio of the maximum value to the effective value. It represents the range of input in which a tester maintains linear operation, expressed by a multiple of the full scale value of the range being used.
Crest factor = Maximum value/True RMS value
For sinusoidal wave;
Crest factor = 141/100 = 1.41

Data Hold
A function to freeze the reading on a digital display for ease of checking or recording even in a difficult-to-read situation for a tester.

Decibel: dB
A unit used to express the magnitude of change in level of electric signal or sound intensity.
A voltage ratio of 1 to 10 is equal to -20dB, 10 to 1 to 20dB, 100 to 1 to 40dB and 1000 to 1 to 60dB. A power ratio of 10 to 1 is not 20dB, but 10dB, since power (P) is proportional to the square of voltage (V).

Diode Test
A function to apply a diode or a transistor a constant current having a value needed to turn it on in order to check the diode’s or the transistor’s forward voltage drop and identifying the connection direction of the device.

Distortion Factor
A degree of distortion of a waveform, typically expressed as the ratio of the effective value of harmonic components to the effective value of the fundamental component.

Dual Integration Method
A technique to convert voltage into time. The first integration time (Ts) and the second integration time (Tx) are used. First, the input voltage (Vx) is integrated on a certain time interval (Ts) and then, the resulting voltage is “reverse-integrated” using a reference voltage (Vf) until it becomes 0 (zero).
The “reverse-integration time” (Tx) is proportional to input voltage (Vx). Therefore, the input voltage (Vx) can be determined by measuring Tx.
With this technique, stable measurements can be taken with high accuracy, resolution and noise rejection ratio. One particular advantage is high noise rejection ratio at 50 or 60Hz power line frequency.

Effective Measuring Range of Insulation Tester
The measuring range for which the accuracy of an insulation tester is guaranteed. There are two kinds of effective measuring ranges: the first and second effective measuring ranges.

First effective measuring range
From 1/1000 to 1/2 the maximum effective scale value
(When there is no major scale division for 1/2 the maximum effective scale value, the nearest major scale division is used.)
(except for 3431, 3021A series)

Second effective measuring range
Scales divisions not included in the first effective measuring range
For example for a 500V/100MΩ insulation tester;
First effective measuring range: 0.1-50MΩ (±5% of indicated value)
Second effective measuring range: other than above, 0 and ∞ (±10% of indicated value)

Form Factor
The ratio of the effective value to the average value.
Form factor = Effective value/Average value

Frequency Response
The manner in which a device changes its output quantity it, its indication for a measured quantity or its response over a range of frequencies.
AC signals to measure with a tester can be of one frequency or from a wide frequency band ranging from low to high frequencies. To measure these frequencies, it is better to use a tester having a wide frequency response range.

Hall Element
When a current-carrying conductor is placed in a magnetic field so that the direction of the magnetic field is perpendicular.
to the direction of the current flow, voltage is developed in the direction perpendicular to both the magnetic field and the current flow. This is called the Hall effect and the Hall element is a device that utilizes the effect. Almost all of the Kyoritsu AC/DC clamp meters and clamp sensors employ the Hall element.

**Harmonics**

Power line AC voltage from a utility company has near sinusoidal waveform of fundamental frequency with little distortion. When only a load consisting of resistors, capacitors and coils, called a linear load (its constant is fixed regardless of the amount of current flowing through it), is connected to mains supply, no distortion is introduced into the load current waveform. However, when a non-linear load, such as a semiconductor or a saturable reactor, is connected, distortion appears in the load current waveform. The current with a waveform containing distortion, or harmonic current, flows in the direction toward the low impedance side and in the process, produces voltage drop over the impedance of the current path, causing the load voltage to also contain harmonics.

**Indicated Value**

The value indicated by a tester for a measured quantity.

**Peak Hold**

A function to memorize the peak value over a certain period of time.

*Response time is normally approx. 10ms.

Reading in the peak hold mode are two types. (the peak of current crest value and the peak current value multiplies by \(\frac{1}{\sqrt{2}}\))

**Peak Value**

The value at a point where a waveform has the maximum amplitude.

**Resolution**

The minimum increments in which a tester can take measurements.

**Sample Rate**

Frequency at which an A/D converter circuit senses the quantity to measure: typically, twice or three times per second.

**Sensitivity**

The ability of a tester to respond to the quantity to measure, expressed as the ratio of a change induced in the reading to a change in the input:

\[
\text{Sensitivity} = \frac{\text{Change in reading}}{\text{Change in quantity to measure}}
\]

**Shock Hazard**

Also referred to as electric shock. When a person touches a motor that has a “leak”, a path can be created from the motor frame to the hand, body and feet of the person to the floor he is standing on to allow a current to flow through it, sometimes resulting in a fatal accident.

The seriousness of a shock hazard widely varies depending on the amount and duration of the current that flows through the person’s body. His constitution, age and medical condition are also variation factors, but in general, at a frequency of 50 or 60Hz, stimulus to the skin is felt at 1mA, considerable pain occurs at 5mA, pain is unbearable at 10mA, there is difficulty in releasing the “leaking” object because of intense muscle contraction at 20mA, it is considerably dangerous at 50mA and fatality is likely at 100mA. For the safety limit for a fatal current, which causes ventricular fibrillation, Professor Dalziel proposed the following equation from numbers of experiments on animals.

\[
I = 165 \sqrt{t}
\]

Where, \(I = \text{current (mA)}\) and \(t = \text{time (sec)}\).

From this theory, the maximum duration for a current of 165mA is 1 second.

**Thermocouple**

A device that uses the voltage developed by the junction of two dissimilar metals to measure temperature. One junction, called the measuring junction, is placed at the point where temperature is to be measured. The other junction, called the reference junction, is maintained at a reference temperature. The voltage developed between the two junctions varies depending on the difference between the temperatures of the two junctions and the type of thermocouple.

**True RMS Value**

The square root of the average of the square of a periodic waveform’s instantaneous values taken over one cycle. It is also called the rms value and the most closely relates to such form of energy as force and heat.

(The effective value of an alternating current is expressed as the value of the direct current which produces the same amount of heat as the alternation current does.)

For sinusoidal wave:

\[
\text{True RMS} = \text{Maximum value} \times \frac{1}{\sqrt{2}} = \text{Maximum value} \times 0.707
\]

When a True RMS is 100V:

\[
\text{Maximum value} = \text{True RMS} \times \sqrt{2} = 100 \times 1.41 = 141(V)
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<td>9166</td>
<td>Carrying case [Hard]</td>
<td>47</td>
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<tr>
<td>9167</td>
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<td>9168</td>
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<td>9171</td>
<td>Carrying case [Hard]</td>
<td>40</td>
</tr>
<tr>
<td>9173</td>
<td>Carrying case</td>
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<td>9174</td>
<td>Carrying case</td>
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<td>9176</td>
<td>Carrying case [Hard]</td>
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<td>9181</td>
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<td>9182</td>
<td>Carrying case [Hard]</td>
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<td>9186A</td>
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<tr>
<td>9187</td>
<td>Cord case</td>
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<td>9188</td>
<td>Hard case</td>
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<td>9189</td>
<td>Magnet hanger strap</td>
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<td>9190</td>
<td>Carrying case</td>
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<tr>
<td>9191</td>
<td>Hard case</td>
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<tr>
<td>9192</td>
<td>Carrying case for cord reels</td>
<td>44,84</td>
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<td>9199</td>
<td>Shoulder pad</td>
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<tr>
<td>KAMP10</td>
<td>Test lead with IEC connector</td>
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<td>KT170</td>
<td>Voltage Tester</td>
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<td>Voltage Tester</td>
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<td>KT200</td>
<td>Digital Clamp Meter</td>
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<td>KT203</td>
<td>Digital Clamp Meter</td>
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</tr>
<tr>
<td>KTA01</td>
<td>4mm metal tips [2pcs/set]</td>
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</tr>
<tr>
<td>KTA02</td>
<td>4mm rubber caps [2pcs/set]</td>
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<tr>
<td>Ni-MH rechargeable battery</td>
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</table>
Kyoritsu started early an effort to establish system that ensures traceability to the national standards in order to produce reliable instruments as well as instruments that can assure reliability of other equipment and installations.

When traceability is in place, measurements taken with an instrument any time and anywhere in any situation can be related to the appropriate national measurement standards through a clear and unbroken chain of comparisons.

For example, in terms on measurement defined by JIS (Japanese Industrial Standards), traceability is specified as a condition in which a calibration path is established from instruments produced or in-house standards to higher level standards to the national standards. Kyoritsu currently has a system in place as shown in the figure below.

Our calibrator (standard) is calibrated at Japan Electric Meters Inspection Corporation (JEMIC), Japan Quality Assurance Organization (JQA) and Fluke Japan who perform calibration based on the units established and maintained by National Institute of Advanced Industrial Science and Technology (AIST). The standard is used as the in-house standard to calibrate all the test and measuring equipments which are used in-house.

Voltage: Precision calibrators are used as in-house DC and AC voltage standards.
Current: DC or AC current is converted to a voltage by a standard resistor, and the voltage is calibrated with a precision digital multimeter.
Resistance: Calibration resisters are calibrated with a DC standard current generator and the precision digital multimeter.

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**Calibration System for Electrical Measuring Instruments**

- **National Institute of Standards and Technology (NIST)**
- **National Institute of Advanced Industrial Science and Technology (AIST)**
- **Japan Electric Meters Inspection Corporation (JEMIC)**
- **Calibration Laboratories**
- **Precision Calibrator**
- **Standard resisters**
- **AC standard voltage and current generator**
- **DC standard voltage and current generator**
- **Calibration resisters**
- **Instruments used in design & development, production, inspection and service departments.**

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**CE Marking:** signifies conformance to
EMC directive (2014/30/EU)
LVD directive (2014/35/EU)
RoHS directive (2011/65/EU)