**OPERATING INSTRUCTIONS**

**MODEL DSA-680 TRMS**

**.500A AC/DC Type**

**MODEL DSA-1020 TRMS**

**.1000A AC/DC Type**

**DIGISNAP SNAP-AROUND**

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**1. Features**
- Designed to meet international safety standards. IEC61010-1 & IEC61010-032 Measurement Category (CAT.) IV 600V Pollution Degree 2.
- Double-molded main body provides comfortable single handed grip.
- Data Hold Function.
- LCD Backlight function to facilitate working at dimly lit sites.
- REL function to indicate measurement variation. (Current, Voltage, Resistance measurement)
- High temperature: able to read easily at min. & max. value during measurement.
- PEAK Hi/Lo Function eliminates Peak value measurement of starting current. (only at ACA Range)
- Auto Continuity Check Function
- Capacity measurement of capacitors.
- Temperature measurement, switchable between °C and °F (with K-type temperature sensor)
- (Non Contact Voltage) Function for wiring check
- 600V input protection
- Sleep Function to extend battery life
- VFD display (max. 6000 count display)

**2. Safety Warnings**
- This instrument has been designed, manufactured and tested in accordance with IEC 61010-1. Safety requirements for Electronic Measuring apparatus, and delivered in the boxed condition after passed the inspection.
- This instruction manual contains warnings and safety rules which must be observed by the user to ensure safe operation of the instrument and maintain its safe condition.
- Therefore, read through these operating instructions before using the instrument.

**WARNING**
- Read through and understand the instructions contained in this manual before using the instrument.
- Keep the manual at hand to enable quick reference whenever necessary.
- The instrument is to be used only in its intended applications.
- Understand and follow all the safety instructions contained in this manual.
- It is essential that the above instructions are adhered to.
- Failure to follow the above instructions may cause injury, death, material damage and / or damage to equipment under test.

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**3. Specification**

**3-1. Measuring range & accuracy (accuracy guaranteed at 23ºC, humidity 45~85%)**

<table>
<thead>
<tr>
<th>Function</th>
<th>Measuring Range</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACA</td>
<td>±0.5%rdg±5dgt</td>
<td>±0.5%rdg±5dgt</td>
</tr>
<tr>
<td>DC</td>
<td>±0.1%rdg±5dgt</td>
<td>±0.1%rdg±5dgt</td>
</tr>
</tbody>
</table>

**Voltage (Range DSA-680 DSA-1020):**
- 680V AC (TRMS 6000±5%V) 5 sec
- (between lines and electrical circuit internal and enclosing)
- Insulation Resistance: 10MΩ or more
- 1000V AC
- Conductive parts, however, extra precaution should be taken to minimize the possibility of shorting.
- Never attempt to use the instrument if its surface or your skin is wet.
- Never discontinue the maximum allowable input of any measuring range.
- Never open the Battery cover during a measurement.
- The instrument is to be used only in its intended applications or conditions. Otherwise, safety functions equipped with the instrument won’t work, and the instrument damage or serious personal injury may be caused.

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**4. Preparation for measurement**

**4-1. Check the supply voltage**
- Set the Function Switch to an appropriate position before starting measurement.
- Never exceed the test limits.
- Disconnect the test leads from the instrument for current measurement.
- Do not expose the instrument to the direct sun, high temperature, or humidity.
- Be sure to power off the instrument after use. When the display is blank or showing “OFF” mark, the instrument is not in use for a long period, place it in storage after removing the batteries.
- Use a shielded cable or a meter lead for cleaning the instrument. Do not use abrasives or solvents.

**4-2. Check with Setting & Operation**
- Confirm the Function Switch is set to the correct position before starting, and the Data Hold function is disabled. Otherwise, desired measurement cannot be made.

**5. 1-C Current Measurement**
- Never make measurement in a circuit in which voltage over 600V exists to avoid getting electrical shock.
- Transformer jaw tips are designed not to short the equipment under test.

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**MEASUREMENT CATEGORIES (Over-voltage categories)**

To ensure safe operation of measuring instruments, IEC61010 establishes safety standards for various electrical environments, categorized as CAT.I to CAT.IV, and called measurement categories. Higher-numbered categories correspond to electrical environments with greater momentary energy, so a measuring instrument designed for CAT.III environments can endure greater momentary energy than one designed for CAT.I. CAT.I: Secondary electrical circuits connected to an AC electrical outlet through a transformer or similar device. CAT.II: Primary electrical circuits of the equipment connected directly to the distribution panel, and leads from the distribution panel to outlets. CAT.IV: The circuit from the service drop to the service entrance, and to the power meter and primary over current protection device (distribution panel).

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excessed conductive parts, however, extra pre- 
cautions should be taken to minimize the possibility of 
shock. 
- Do not make measurement with the Battery Cover 
removed. 
- Disconnect the test leads from the instrument for 
5-1. NCV Function 
(3) Connect the test lead to the circuit under test. Take 
the reading on the display. Pressing the "Hi/DUTY"
key while reading is indicated on the display, whether the indication in 
following sequences. 
5. DC Current Measurement 
- Never make measurement on a circuit in which 
5.6. Temperature Measurement 
(1) Connect the Function Switch to "OFF" position. 
(2) Connect the K-type Temperature Probe to the 
input terminal. Positive (+) side of Probe should be 
connected to V.DO. 
(3) Contact the Sensor (metal part) of K-type 
Temperature Probe to the object under test. Take 
the reading on the display. 
(4) Positive (+) side of Probe should be connected to V.DO. 

- Never connect the Temperature Probe to an 
en ergized circuit.

- Room temperature is shown in LCD when setting the Function Switch to "OFF" position. in cases, "OL" or anything other than room temperature is indicated, something may wrong 
with the instrument. Stop the use of instrument immediately. 
- Do not rely on the accuracy of this function in case of 
inaccurate value is detected. 

1. NCV indication is affected by external voltage, how 
the indication is shown in following sequence. 
- Measuring range) = (Measuring value) x (Input impedance) 

- Do not use abrasives or solvents. Otherwise, instrument 
will be damaged. 
- Do not submerge in water or similar harmful 
substance.
- Service; our obligation under this warranty being limited 
to repair or has been improperly assembled or used.

- Install batteries in correct polarity as indicated in the 
model number and date of purchase. 
- To the OFF position after use.
- It is required to send in for calibration after one year.
- Calibration service charges are not 
covered. 
- To the OFF position after use.
- Replace the batteries when a Low Battery warning "BAT"
indication is indicated on the display. Note that when the battery 
level is low, the "BAT" mark shown. 
- During current measurement, keep the trans- 
mformer jaws fully closed. Other wise, accurate 
measurement is impossible. 
- Never make measurement with the Battery Cover 
removed. 
- Do not make measurement with the Battery Cover 
removed. 
- Never make measurement on a circuit in which 

- Nulling resistor suppression: Measurement accuracy is 
determined by the number of turns and the type and 
size of conductor. 
- Do not use with damaged conductors. 
- Use a cloth dipped in water or neutral detergent for 
cleaning the instrument. 
- Do not use abrasives or Cleaners. 
- However, with an A/W high- 

- Pressing the trigger to open the transformer jaws and 
damping them onto the conductor under test. 
- When the test leads are open, "OL" is indicated on the display. 
- CAUTION: 
(1) Press the trigger to open the transformer jaws and 
damping them onto the conductor under test. 
- When the test leads are open, "OL" is indicated on the display. 
- CAUTION: 
2. DC Voltage Measurement 
- Never make measurement on a circuit in which 

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