

OPERATING INSTRUCTIONS
MODEL DSA-500
DIGISNAP
SNAP AROUND



A.W. SPERRY INSTRUMENTS INC.
The Professional's Choice®

1. FEATURES


- Safety design conforming to the following provisions of IEC61010.
- Overvoltage category III 300V, pollution degree 2.
- Overvoltage category III 600V, pollution degree 2.
- Data hold switch for easy reading in dimly light or hard-to-read locations.
- “Sleep” feature to extend battery life.
- Beeper permits easy continuity check.
- Provides a dynamic range of 4.000 counts full scale.
- Uses shrouded transformer jaws to further improve safety.


2. SAFETY WARNINGS


- This instrument has been designed and tested according to IEC Publication 61010: Safety Requirements for Electronic Measuring Apparatus. This instruction manual contains warnings and safety rules which must be observed by the user to ensure safe operation of the instrument and retain it in safe condition. Therefore, read through these operating instructions before using the instrument.


WARNING

- Read through and understand instructions contained in this manual before using the instrument.
- Save and keep the manual handy to enable quick reference whenever necessary.
- Be sure to use the instrument only in its intended applications and to follow measurement procedures described in the manual.
- Be sure to understand and follow all safety instructions contained in the manual.
- Failure to follow the above instructions may cause injury, instrument damage and/or damage to equipment under test.

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

 **DANGER** is reserved for conditions and actions that are likely to cause serious or fatal injury.

 **WARNING** is reserved for conditions and actions that can cause serious or fatal injury.

 **CAUTION** is reserved for conditions and actions that can cause minor injury or instrument damage.

● **DANGER**

- Never make measurement on a circuit with a voltage higher than 600 VAC/DC.
- Do not attempt to make measurement in the presence of flammable gasses, fumes, vapor or dust. Otherwise, the use of the instrument may cause sparking, which can lead to an explosion.
- Transformer jaws are made of metal and their tips are not insulated. Where equipment under test has exposed conductive parts, be especially careful to avoid the hazard of possible shorting.
- Never attempt to use the instrument if its surface or your hand is wet.
- Do not exceed the maximum allowable input of any measurement range.
- Never open the battery compartment cover when making measurement.

● **WARNING**

- Never attempt to make any measurement if any abnormal conditions are noted, such as broken case, cracked test leads and exposed metal part.
- Do not turn the function selector switch with plugged in test leads connected to the circuit under test.
- Do not install substitute parts or make any modification to the instrument. Return the instrument to your distributor for repair or recalibration.
- Do not try to replace the batteries if the surface of the instrument is wet.
- Always switch off the instrument before opening the battery compartment cover for battery replacement.

● **CAUTION**

- Make sure that the function selector switch is set to the appropriate position before making measurement.
- Always make sure to insert each plug of the test leads fully into the appropriate terminal on the instrument.
- Make sure to remove the test leads from the instrument before making current measurement.
- Do not expose the instrument to the direct sun, extreme temperatures or dew fall.
- Be sure to set the function selector switch to the “OFF” position after use. When the instrument will not be in use for a long period of time, place it in storage after removing the battery.
- Use a damp cloth and detergent for cleaning the instrument. Do not use abrasives or solvents.

3. SPECIFICATIONS

Measuring Ranges and Accuracy (at 23±5°C, 45 – 75% relative humidity)

AC CURRENT (A)

Range	Measuring Range	Accuracy
40A	0 - 39,99A	±2,0% rdg ±6 dgt (50/60Hz)
400A	0 - 399,9A	

AC VOLTAGE (V) Auto-ranging

Range	Measuring Range	Accuracy
400V	0 - 399,9V	±2,0% rdg ±6 dgt (50/60Hz)
600V	150 - 599V	

DC VOLTAGE (V) Auto-ranging

Range	Measuring Range	Accuracy
400V	0 - 399,9V	±1,5% rdg ±5 dgt
600V	150 - 599V	

Resistance (Ω /Continuity) Auto-ranging (Buzzer beeps below 50 $\pm 35\Omega$)

Range	Measuring Range	Accuracy
400 Ω	0 - 399,9 Ω	±2,0% rdg ±5 dgt
4000 Ω	150 - 3999 Ω	

- **EMC (IEC61000-4-3):**
RF electromagnetic field <1V/m; total accuracy = specified accuracy
RF electromagnetic field = 3V/m; total accuracy = specified accuracy +2% of range
- **Operating System:**
Dual Integration
- **Display:**
Liquid crystal display (maximum count: 3999)
- **Low Battery Warning:**
“BAT” is shown on the display.
- **Overrange Indication:**
“OL” is shown on the display.
- **Response Time:**
Approx. 2 seconds
- **Sample Rate:**
About 2.5 times per second
- **Temperature and Humidity for Guaranteed Accuracy:**

23±5°C, relative humidity up to 85% without condensation.

- **Operating Temperature and Humidity:**
-20 – 60°C, relative humidity up to 85% without condensation.
- **Power Source:**
Two R03 or equivalent (DC1.5V) batteries
- **Current Consumption:**
Approx. 2.5mA max.
- **Sleep Function:**
Automatically powered down in about 10 minutes after the last switch operation (power consumption in the sleep mode is about 20µA).
- **Standards:**
IEC61010 – 1
CAT.III 300V, pollution degree 2
CAT.III 600V, pollution degree 2
IEC61010 – 2 – 031
IEC61010 – 2 – 032
- **Overload Protection:**
AC current ranges: 480A AC/DC for 10 sec
AC voltage ranges: 720V AC/DC for 10 sec
Resistance ranges: 300V AC/DC for 10 sec
- **Altitude up to 2000M:**
Indoor use
- **Withstand Voltage:**
3700 VAC (RMS, 50/60 Hz) for 1 minute between electrical circuit and housing case
- **Insulation Resistance:**
10MΩ or greater at 1000V between electrical circuit and housing case.
- **Conductor Size:**
Approx. 30mm diameter max.
- **Dimensions:**
184 (L) X 44 (W) X 27 (D) mm

- **Weight:**
Approx. 190g (including batteries)

- **Accessories:**
Test Leads
Two R03 AAA batteries
Instruction manual

4. Preparation for Measurement

4.1 Checking Battery Voltage

Set the function selector switch to any position other than “OFF”. When the display is clear without “BAT” showing, proceed to measurement. When the display blanks or “BAT” is indicated, replace the batteries according to the instructions described in section 7 (Battery Replacement).

NOTE

The sleep feature automatically turns the instrument off in a certain period of time after the last switch operation. Therefore, the display may be blank with the function selector switch set to a position other than “OFF”. To operate the instrument in this case, set the switch back to the “OFF” position, then to the desired position, or press any switch. If the display still blanks, the batteries are exhausted. Replace the batteries.

4.2 Checking Switch Setting and Operation

Make sure that the function selector switch is set to the correct position and the data hold switch is deactivated. Otherwise, desired measurement cannot be made.

5. Measurement

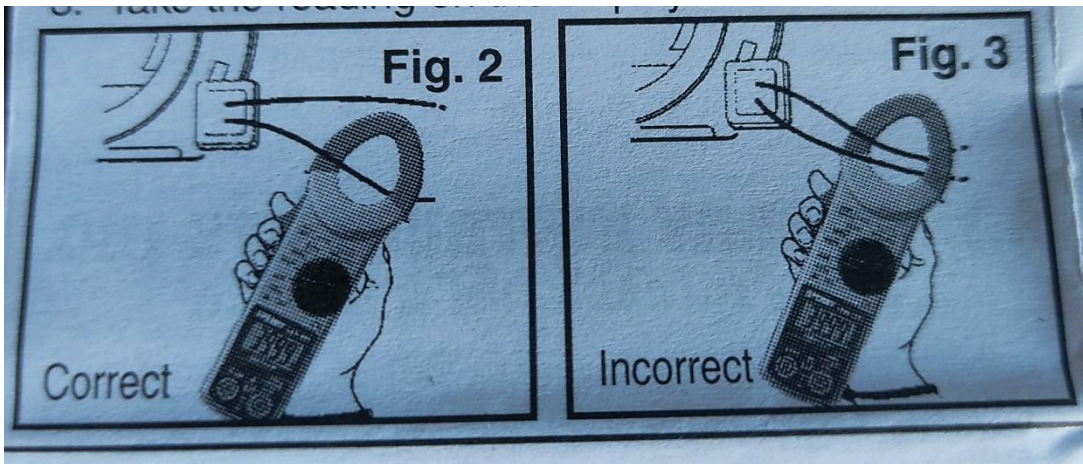
5.1 AC Current Measurement

● WARNING

- Do not make measurement on a circuit with a voltage higher than 600 VAC. Otherwise, shock hazard or damage to the instrument or equipment under test may result.
- Transformer jaw tips are designed to minimize the possibility of shorting conductors in the circuit under test. If equipment under test has exposed conductive parts, however, extra precaution should be taken to avoid possible shorting.
- Do not make measurement with the battery compartment cover removed.
- Do not make current measurement with the test leads connected to the instrument.

1. Set the function selector switch to the “40A” or “400A” position.
2. Press the trigger to open the transformer jaws and clamp onto one conductor only.

3. Take the reading on the display.



NOTE

- During current measurement, keep the transformer jaws fully closed. Otherwise, accurate measurement cannot be made. The maximum conductor size is 30 mm in diameter.
- When measuring a larger current, the transformer jaws may buzz. This does not affect the instrument accuracy.

5.2 AC Voltage Measurement

• DANGER

- Never use the instrument on a circuit with a voltage higher than 600VDC. Otherwise, electric shock hazard or damage to the instrument or the circuit under test may result.
- Do not make measurement with the battery compartment cover removed.

1. Set the function selector switch to the "600V" position.
2. Plug the red test lead into the V/ Ω terminal and the black test lead into the COM terminal.
3. Connect the test lead prods to the circuit under test and take the reading on the display.

5.3 DC Voltage Measurement

• DANGER

- Never use the instrument on a circuit with a voltage higher than 600 VDC.
- Otherwise, electric shock hazard or damage to the instrument or the circuit under test may result.
- Do not make measurement with the battery compartment cover removed.

1. Set the function selector switch to the "600V" position.

2. Plug the red test lead into the V/ Ω terminal and the black test lead into the COM terminal.
3. Connect the test lead prods to the circuit under test and take the reading on the display.

5.4 Resistance Measurement

- **DANGER**

- Always make sure that the circuit under test is powered off.
- Do not make measurement with the battery compartment cover removed.

1. Set the function selector to the " Ω (•)" position.
2. Plug the red test lead into the V/ Ω terminal and the black test lead into the COM terminal.
3. Check that the display reads OL with the test lead prods shorted together, also check that the buzzer beeps and the display reads 0.
4. Connect the test lead prods to the circuit under test and take the reading on the display. The buzzer beeps the reading is below $50 \pm 35 \Omega$.

NOTE

- When shorting the test lead prods together, the display may show a very small resistance instead of "0". This is the resistance of the test leads.
- If one of the test leads has an open, the display reads "OL".

6. Other Functions

6.1 Sleep Function

NOTE

The instrument still consumes small amount of battery power in the sleep mode. Make sure to set the function selector switch to the "OFF" position after use.

(1) Sleep Mode

This is a function to prevent the instrument from being left powered on in order to conserve battery life. This function causes the instrument to automatically enter the sleep (powered down) mode about 10 minutes after the last switch or button operation. To exit the sleep mode, turn the function selector switch back to "OFF", then to any other position, or press any button.

(2) How to disable the sleep mode

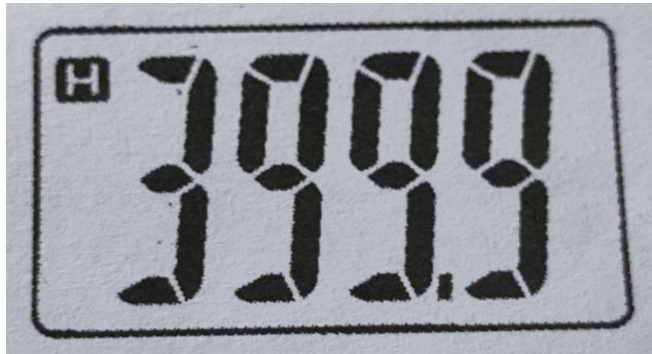
To disable the sleep mode, Power the instrument on with the data hold switch pressed. "P.OFF" is shown on the display for about 3 seconds after the instrument is powered on.

To enable the sleep mode, power the instrument off, then power it on without pressing the data hold switch.

6.2 Data Hold Function

This is a function used to freeze the measured value on the display. Press the data hold switch to freeze the reading. The reading will be held regardless of subsequent changes in input “H” is shown on the upper left corner of the display while the instrument is in the data hold mode.

To exit the data hold mode, press the data hold switch again.



NOTE

If the instrument in the data hold mode enters the sleep mode, the data hold mode will be cancelled.

6. Battery Replacement

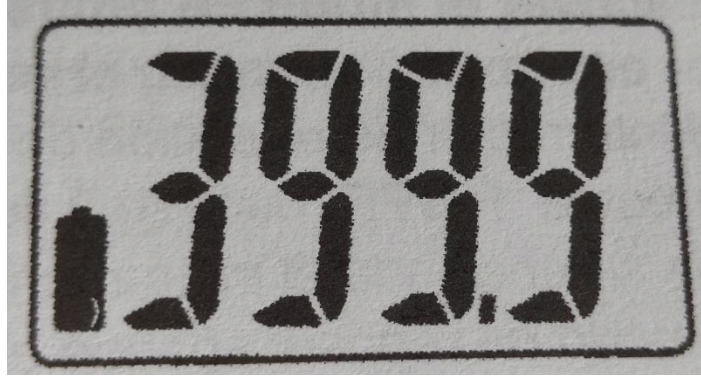
To avoid electric shock hazard, make sure to set the function selector switch to “OFF” and remove the test leads from the instrument before trying to replace the batteries.

CAUTION

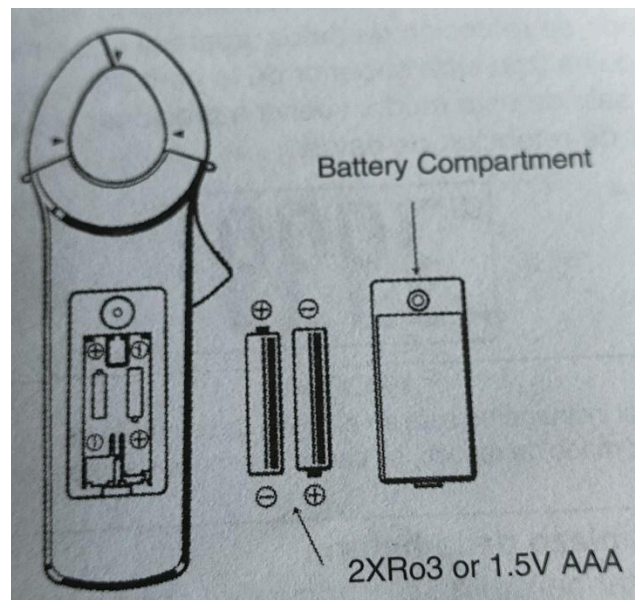
Do not mix new and old batteries.

Make sure to install battery in correct polarity as indicated inside the battery compartment.

When “BAT” is shown on the display, replace the batteries. Note that when the battery is completely exhausted, the display blanks without “BAT” shown.



1. Set the function selector switch to the **"OFF"** position.
2. Unscrew and remove the battery compartment on the bottom of the instrument.
3. Replace the batteries observing correct polarity. Use two new R03 or equivalent batteries.
4. Mount and screw the battery compartment cover.



LIFETIME LIMITED WARRANTY

The attention to detail of this fin snap-around instrument is further enhanced by the application of A.W. Sperry's unmatched service and concern for detail and reliability. These A.W. Sperry's snap-arounds are internationally accepted by craftsmen and servicemen for their unmatched performance. All A.W. Sperry's snap-around instruments are unconditionally warranted against defects in material and workmanship under normal conditions of use and service; our obligations under this warranty being limited to repairing or replacing, free of charge, at A.W. Sperry's sole option, any such A.W. Sperry snap-around instrument that malfunctions under normal operating conditions at rated use 1.

REPLACEMENT PROCEDURE

Securely wrap the instrument and its accessories in a box or mailing bag and ship prepaid to the address below. Be sure to include your name and address, as well as the name of the distributor, with a copy of your invoice from whom the unit was purchased, clearly identifying the model number and date of purchase.

A.W. SPERRY INSTRUMENTS INC.

ATTN:Customer Service Dept.

245 Marcus Boulevard

Hauppauge, N.Y. 11788 – 2075

1. Warranty is not applicable if the instrument has been misused, abused, subjected to loads in excess of specifications, has had unauthorized repair or has been improperly assembled or used.
 - NOTE: Recommended calibration interval should not exceed one year. Calibration service charges are not covered under terms and conditions of warranty.

A.W. SPERRY INSTRUMENTS INC.

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