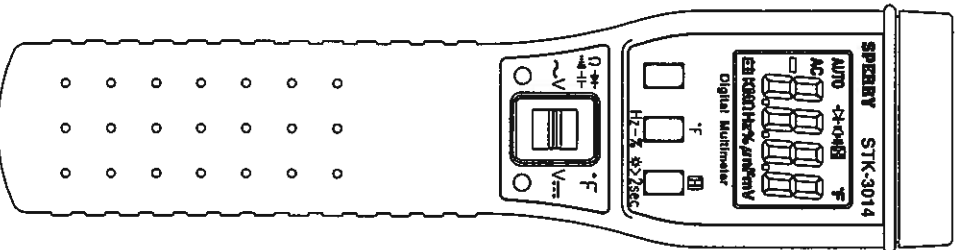


# OPERATING INSTRUCTIONS

## SPERRY STK-3014

### DIGITAL MULTIMETER

Form #294



**PLEASE READ THESE OPERATING INSTRUCTIONS CAREFULLY**  
 Misuse and/or abuse of these instruments cannot be prevented by any printed word and may cause injury and/or equipment damage. Please follow all these instructions and measurement procedures faithfully and adhere to all standard industry safety rules and practices.

## A.W. SPERRY INSTRUMENTS INC.

The Professionals' Choice

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## SAFETY INFORMATION

The following safety information must be observed to insure maximum personal safety during the operation at this meter:

1. Do not use the meter if the meter or test leads look damaged, or if you suspect that the meter is not operating properly.
2. This meter is not recommended for high voltage industrial use; for example, not for measurements of 440 VAC or 600 VAC industrial power mains. The unit is intended for use with low energy circuits to 600V AC/DC or high energy circuit to 250 VAC or DC.
3. Use caution when working above 60V dc or 30V ac rms. Such voltages pose a shock hazard.
4. When using the probes, keep your fingers behind the finger guards on the probes.
5. Measuring voltage which exceeds the limits of the meter may cause damage and expose the operator to a shock hazard. Always respect the voltage limits as stated on the meter.
6. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

## SPECIFICATIONS

Display: Liquid crystal display (LCD) with a maximum reading of 2500.

Polarity: Automatic, positive implied, negative polarity indication.

Overrange: "OL" or "OL" is displayed.

Low battery indication: The "BAT" is displayed when the battery voltage drops below the operating level.

Measurement rate: 2.5 times per second, nominal.

Operating Environment: 32°F to 104°F at < 70% relative humidity.

Storage Temperature: -4°F to 140°F, 0 to 80% R.H. with battery removed from meter.

Accuracy: Stated accuracy at 73.4°F ± 9°F, < 75% relative humidity.

Auto Power off: 30minutes after moving switch and push button no changes turn the meter off then on to resume operation.

Safety: According to EN61010-1 protection class II over-voltage category (CAT II 600V) pollution degree 2.

Power: 4 pcs 1.5V (AAA size) UM-4 R03.

Battery life: 500 hours typical with alkaline.

Dimensions: 170mm (H) x 44mm (W) x 40mm (D).  
 Weight: 140g including batteries.

## DC VOLTS

Ranges: 250mV, 2.5V, 25V, 250V, 600V

Resolution: 100 $\mu$ V.

Accuracy:  $\pm(0.25\% \text{ rdg} + 5\text{dgt})$  on 250mV range.  
 $\pm(0.25\% \text{ rdg} + 1\text{dgt})$  on other ranges.

Input impedance: > 10M $\Omega$ .

Overload & protection: 600VDC or AC rms.

## AC VOLTS (50Hz - 500Hz)

Ranges: 250mV, 2.5V, 25V, 250V, 600V

Resolution: 1mV(100 $\mu$ A on 250mV range).

Accuracy:  $\pm(0.75\% \text{ of reading} + 4\text{dgt})$  on 2.5V to 600V no specification on 250mV range.

Input impedance: 10M $\Omega$ .

Overload & protection: 600VDC or AC rms.

## RESISTANCE

Ranges: 250 $\Omega$ , 2.5K $\Omega$ , 25K $\Omega$ , 250K $\Omega$ , 2.5M $\Omega$ , 25M $\Omega$

Resolution: 100m $\Omega$ .

Accuracy:

$\pm(0.3\% \text{ rdg} + 3\text{dgt})$  on 250 $\Omega$  range.

$\pm(0.3\% \text{ rdg} + 1\text{dgt})$  on 2.5K $\Omega$  to 2.5M $\Omega$  ranges.

$\pm(3.5\% \text{ rdg} + 4\text{dgt})$  on 25M $\Omega$  range.

Open circuit volts: 0.4Vdc.

Overload protection: 500VDC or AC rms.

## CONTINUITY

Audible indication: < 100 $\Omega$ .

Overload protection: 500VDC or AC rms.

## DIODE TEST

Accuracy:  $\pm(3.0\% \text{ rdg} + 3\text{dgt})$ .

Resolution: 1mV.

Test current: 0.25 $\pm$ 0.2mA.

Test voltage: < 1.6V.

## CAPACITANCE (Autoranging)

Ranges: 250nF, 2.5 $\mu$ F, 25 $\mu$ F

Accuracy:  $\pm(5.0\% \text{ rdg} + 10\text{dgt})$

Overload protection: 500VDC or AC rms.

## FREQUENCY (Autoranging)

Ranges: 5.000Hz, 50.00Hz, 500.0Hz, 5.000KHz.

Resolution: 0.001Hz.

Accuracy:  $\pm(0.05\% \text{ rdg} + 2\text{dgt})$ .

Sensitivity: 1.0V rms min.

Alternating Pulse or SINE wave signal on all range.

Overload protection: 500VDC or AC rms.

## OPERATION

Before taking any measurements, read the Safety Information Section. Always examine the instrument for damage, contamination (excessive dirt, grease, etc.) and defects. Examine the test leads for cracked or frayed insulation. If any abnormal conditions exist do not attempt to make any measurements.

### Auto Power-down mode

If unused for about 30 minutes, the tester will power-down automatically. If you should disable Auto Power-down mode, press SELECT button when you turn on the meter.

**Back-Light and Data-Hold Switch** (☞ > 2sec), (H): Press this button briefly to activate DATA-HOLD mode. The "H" annunciator is displayed.

Press this button for 2 seconds to turn the Back-Light on. As this also activates the DATA-HOLD mode, briefly press the button to return to normal display. To turn the Back-Light off press again for 2 seconds.

**SELECT Function Button (DC/AC), (Ω/∞), (→/←/—/—)**: The SELECT Function button is Yellow in color. Press it to toggle to the alternate function (AC, Audible continuity, Diode and capacitance) shown in Yellow on the meter face.

## CONTINUITY MEASUREMENTS

1. Set the Function/Range switch to  $\Omega/∞$  /  $\rightarrow/←/—/—$  position.
2. Remove power from the equipment under test.
3. To toggle the  $\Omega$ /continuity/diode/capacitance modes, press SELECT switch.
4. Connect the test leads to the two points at which continuity is to be tested. The buzzer will sound if the resistance is less than approximately 100 $\Omega$ .

## CAPACITANCE MEASUREMENTS

1. Set the Function/Range switch to  $\Omega/∞$  /  $\rightarrow/←/—/—$  position.
2. Remove power from the equipment under test.
3. To toggle the  $\Omega$ /continuity/diode/capacitance modes, press SELECT switch.
4. Discharge capacitors before trying to measure it.
5. Connect the "+" lead to the "V $\Omega$ " jack and the "-" lead to the "COM" jack.
6. Read the capacitance directly from the display.

## TEMPERATURE MEASUREMENTS

1. Set the Function/Range switch to the "°F" position, and then press °F button toggle the ohm/°F mode.
2. Connect the probe thermocouple to the jack on the instrument. Place the probe or thermocouple tip on or in the material to be measured and take the temperature reading directly from the display.

## VOLTAGE MEASUREMENTS

1. Connect the red test lead to the "V $\Omega$ " jack and the black test lead to the "COM" jack.
2. Set the Function/Range switch to the desired voltage function.
3. Connect the test leads to the device or circuit being measured.
4. For dc, a (-) sign is displayed for negative polarity; positive polarity is implied.

## FREQUENCY MEASUREMENTS

1. Set the Function/Range switch to the ACV position, and then press Hz-% button toggle the voltage/frequency/duty cycle mode.
2. Connect the red test lead to the "V $\Omega$ " jack and the black test lead to the "COM" jack.
3. Connect the test leads to the point of measurement and read the frequency from the display.

## DUTY CYCLE MEASUREMENTS

1. Set the Function/Range switch to the ACV position, and then press Hz-% button toggle the voltage/frequency/duty cycle mode.
2. Connect the red test lead to the "V $\Omega$ " jack and the black test lead to the "COM" jack.
3. Connect the test leads to the point of measurement. The display will indicate 0.1% to 99.9% of the frequency duty cycle.

## RESISTANCE MEASUREMENTS

1. Set the Function/Range switch to  $\Omega/∞$  /  $\rightarrow/←/—/—$  position.
2. Remove power from the equipment under test.
3. Connect the red test lead to the "V $\Omega$ " jack and the black test lead to the "COM" jack.
4. Touch the probes to the test points. In ohms, the value indicated in the display is the measured value of resistance.

### WARNING

The accuracy of the functions might be slightly affected, when exposed to a radiated electromagnetic field environment, eg. radio, telephone or similar.

## DIODE TESTS

1. Set the Function/Range switch to  $\Omega/∞$  /  $\rightarrow/←/—/—$  position.
2. Remove power from the equipment under test.
3. To toggle the  $\Omega$ /continuity/diode/capacitance modes, press SELECT switch.
4. Touch probes to the diode. A forward-voltage drop is about 0.6V (typical for a silicon diode).
5. Reverse probes. If the diode is good, "OL" is displayed. If the diode is shorted, ".000" or another number is displayed.
6. If the diode is open, "OL" is displayed, in both directions.
7. If the junction is measured in a circuit and a low reading is obtained with both lead connections, the junction may be shunted by a resistance of less than 1k $\Omega$ . In this case the diode must be disconnected from the circuit for accurate testing.

## MAINTENANCE

### WARNING

Remove test leads before changing batteries or fuse or performing any servicing.

### Battery Replacement

Power is supplied by four 1.5V (AAA size) batteries. The "E3" appears on the LCD display when replacement is needed. To replace the batteries, remove the screw from the back of the meter and lift off the battery cover case. Remove the batteries from battery contacts.

### Cleaning

Periodically wipe the case with a damp cloth and detergent, do not use abrasives or solvents.