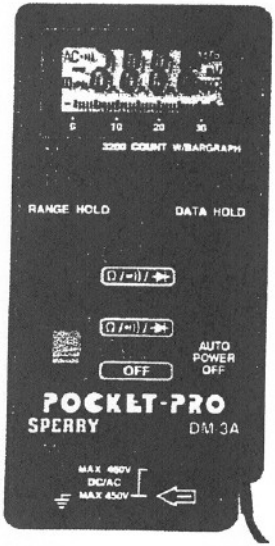
5/96

FORM #263

OPERATING INSTRUCTIONS
MODEL DM-3A
POCKET-PRO®
DIGITAL MULTIMETER



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

ONE YEAR LIMITED WARRANTY

A.W. Sperry Instruments, Inc., warrants that this A.W. Sperry instrument has been carefully tested, inspected, and warranted for one (1) year from the date of purchase by the original end user, provided the instrument has not been misused, damaged due to negligence, neglect or unauthorized repair, abused or used contrary to the operating instructions. Instruments and proof of purchase in the form of a legible copy or original of the sales receipt clearly identifying the distributor, model number and date of purchase must be returned to A.W. Sperry Instruments, Inc., Attention: Customer Service Center, 245D Joshua's Path, Hauppauge, New York 11788, postage prepaid for examination and verification of manufacturing defect under warranty. A.W. Sperry Instruments, Inc., shall be the sole judge of such defect. The liability of A.W. Sperry Instruments, Inc., shall be limited to the repair or replacement at its sole option of any defective product.

1) INTRODUCTION

The DM-3A is an innovative concept in digital multimeter design. It is a miniature ultra-slim DMM which combines the measurement capabilities of a 17 range, 5 function digital instrument with the handiness and simplicity of a pocket calculator. The DM-3A features the latest developments in high-technology construction and design. All the features of larger sized DMM's are to be found in the DM 3A. Autoranging, overload protection on all ranges, auto power off, auto polarity, audible/visual continuity indication, sturdy ABS plastic case and much more. The DM-3A is extremely easy to use. Two thumb operated switches

control all functions. The test leads are built into the instrument and cannot be removed. They are always there when you need them. A handy "booklet style" carrying case which hold the instrument, test leads and operating instructions is included, and allows the DM-3A to be carried easily in your shirt pocket.

2) FEATURES

UL LISTED...to both US and Canadian standards
17 RANGES, 5 FUNCTIONS
LIMITED ONE YEAR WARRANTY.
AUTO RANGING /MANUAL RANGING
SIMPLE OPERATION
AUTO POWER OFF
CONTINUITY BUZZER
RANGE HOLD BUTTON
BUILT IN TEST LEADS

3) SPECIFICATIONS

Display:	3½ digit liquid crystal display (LCD), maximum reading 3200 with automatic sign and function annunciators.
Range Selection:	Autoranging/Manual ranging.
Polarity:	Automatic (-) negative polarity indication.
Overrange:	"OL" is displayed.
Low Battery Indication:	The "B" is displayed when the battery voltage drops below the operating level.
Measurement Rate:	2 times per second, nominal.
Auto Power Off:	Meter turns off after approximately 10 minutes.

Operating Environment:	O° to 40°C (32° to 104°F) Max RH 80% to 31°C, decreasing linearly to 50% RH at 40°C.
Storage Temperature:	-20°C to 60°C (-4° to 140°F) at < 80% relative humidity.
Power:	Two 1.5V button-type batteries (IEC # LR-44, NEDA #1166A). Sperry Part # B-6
Power Consumption:	5mW typical.
Dimensions:	4⅜"H x 2¼"W x ⅜"D (111.5mm H x 56mm W x 10.5mm D)
Weight:	Approx. 3.0 oz (86g) including batteries and case.

Instrument complies with insulation category (over voltage category II). Pollution degree 2 in accordance with IEC-1010-1 Indoor use. If the equipment is used in a manner not specified, the protection provided by the equipment may be impaired.

4) PACKAGING

The DM-3A comes complete with two B-6 batteries, C-77 carrying case and form #263 operating instructions.

DOUBLE INSULATION

⚠ **WARNING:** TO AVOID ELECTRIC SHOCK DISCONNECT MEASURING TERMINALS BEFORE REMOVING BACK COVER.

AVIS: POUR EVITER LE CHOC ELECTRIQUE DEBRANCHER LES BORNES DE MEAURE AVANT D'ENLEVER LE CAPOTAGE ARRIERE.

⚠ WHEN SERVICING, USE ONLY SPECIFIED "REPLACEMENT PARTS" OR EQUIVALENT.

Function	Range	Resolution	Accuracy	Input Impedance	Maximum Input
DCV	320mV	100µV	± 2.0% rdg + 2 dgts	> 1000MΩ	450VDC or 450VAC rms
	3.2V	1mV	± 1.0% rdg + 2 dgts	11MΩ	
	32V	10mV	± 2.0% rdg + 2dgts	10MΩ	
	320V	100mV			
	450V	1V			
ACV (50/60Hz)	3.2V	1mV	± 4.0% rdg + 5 dgts	11MΩ	
	32V	10mV			
	320V	10mV			
	450V	1V			
	Range	**Resolution**	**Accuracy**	**Test Current**	**Input Protection**
OHM	320Ω	100mΩ	± 2.0% rdg + 4dgts	<0.7mA	450VDC or 450VAC rms
	3.2kΩ	1Ω	± 2.0% rdg + 2 dgts	<0.13mA	
	32kΩ	10Ω		<13µA	
	320kΩ	100Ω		<1.3µA	
	3.2MΩ	1kΩ	± 6.0% rdg + 2 dgts	<0.13µA	
	30MΩ	10kΩ	± 10% rdg + 5 dgts		
Diode Test	3.2V	1mV	± 10% rdg + 2 dgts	0.6mA (Vf = 0.6V)	450 V DC or AC rms
Continuity Check	**Range**	**Resolution**	**Audible Indication**	**Test Current**	**Input Protection**
	320Ω	100mΩ	< approx. 20Ω	<0.7mA	450 V DC or AC rms

5) SAFETY PRECAUTIONS

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

1. Read these operating instructions thoroughly and completely before operating your Pocket Pro. Pay particular attention to WARNINGS which will inform you of potentially dangerous procedures. The instructions in these warnings must be followed.
2. Always inspect your meter, test leads and accessories for any sign of damage or abnormality before every use. If any abnormal conditions exists (e.g. broken test leads, cracked cases, display not reading, etc.), do not attempt to take any measurements. Refer to Return for Repair section.
3. Never ground yourself when taking electrical measurements. Do not touch exposed metal pipes, outlets, fixtures, etc. which might be at ground potential. Keep your body isolated from ground by using dry clothing, rubber shoes, rubber mats, or any approved insulating material.
4. To avoid electric shock use CAUTION when working with voltages above 40V dc or 20Vac. Such voltages pose a shock hazard.
5. Never exceed the maximum allowable input value of any function when taking measurement. Refer to the chart above for maximum inputs
6. Never touch exposed wiring, connections or any live circuit when attempting to take measurements.
7. Do not attempt to operate this instrument in an explosive atmosphere (i.e in the presence of flammable gases or fumes, vapor or dust).

8. When testing for the presence of voltage make sure the voltage function is operating properly by reading a known voltage in that function before assuming that a zero reading indicates a no-voltage condition.

Always Think Safety, Act Safely

6) 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. To clean, wipe with a clean dry cloth.

Autoranging
The meter defaults to autorange when you turn it on. In autorange, the meter selects the range automatically.

Manually Selecting a Range
The meter also has a manual range mode. In manual range, you select and lock the meter in a range. To manually select a range: Press [RANGE HOLD] button to hold the selected range. Subsequently pressing the [RANGE HOLD] button will select each range in sequence from the lowest to the highest range. Hold the button for 2 seconds to return to the Autorange Mode.

Data Hold Feature
Press [DATA HOLD] button to toggle in and out of the Data Hold mode. In the data hold mode, the annunciator is displayed and the last reading is held on the display. Press [DATA HOLD] button again to release the hold and current readings are once again displayed.

Measuring Voltage
1. Set the Function Switch to "VOLT" position.

2. Select the Mode Switch to desired AC voltage range or DC voltage range.

WARNING

To avoid possible electric shock and/or instrument damage, do not attempt to take any voltage measurements if the voltage is above 450V dc/ac is the maximum voltage that this meter is designed to measure. the black (-) test lead potential should not exceed 450 V dc/ac measured to earth ground.

3. Apply the test lead probe tips to the two points where a voltage reading is to be taken. The meter will automatically select the proper range and display the reading.
4. When measurements are completed, disconnect the test leads from the circuit under test.

Measuring Resistance

1. Set the Function Switch to " Ω /•))/⊣◂ " position.
2. Press the mode button to "Ω" position.
3. Completely de-energize the circuit or device to be measured. Connect the test lead probe tips to the device.
4. The meter will automatically select the proper range and display the reading.

Note: "OL" indicates an overrange condition. This will occur with the test leads open.

Measuring Continuity

1. Set the Function Switch to " Ω /•))/⊣◂ " position.
2. Press the mode button to "•)) " position.

3. Connect the test leads to the two points at which continuity is to be tested. The buzzer will sound if the resistance is approximately <20Ω.

WARNING

All resistance and continuity measurements should be taken on de-energized circuits only to insure safe and accurate measurements. To avoid possible electrical shock, instrument damage and/or equipment damage, do not connect the test leads to circuits having a potential difference greater than 450Vdc/ac. Do not connect the test leads to potentials exceeding 450V to earth ground.

Testing Diodes

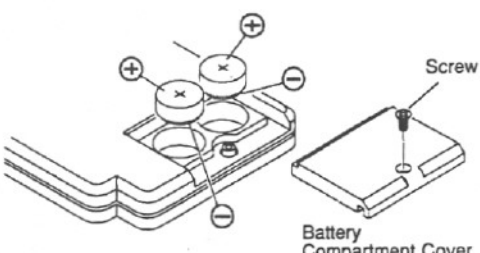
1. Set function switch to " Ω /•))/→+ " Position.
2. Turn off power to the circuit under test. External voltage across the components causes invalid readings.
3. To toggle between the ohms/continuity/diode modes, press mode switch.
4. Touch probes to the diode. A forward-voltage drop is about 0.6V (typical for a silicon diode).
5. Reverse probes. If the diode is good, "OL" is displayed. If the diode is shorted, a value near 0mV will be displayed.
6. If the diode is open, "OL" is displayed in both directions.

7) BATTERY REPLACEMENT

Power is supplied by two button-type batteries (NEDA 1166A, IEC LR-44). "B" appears on the LCD display when replacement is needed.

> **WARNING**
>
> Before attempting to replace the battery, first disconnect the Test Leads from any energized circuit.

1. Disconnect the test leads from any energized circuit.
2. Set the Function Switch to OFF.
3. Remove battery cover screw.
4. Slide off battery cover and change batteries.
5. Replace battery cover and screw.



Battery Replacement