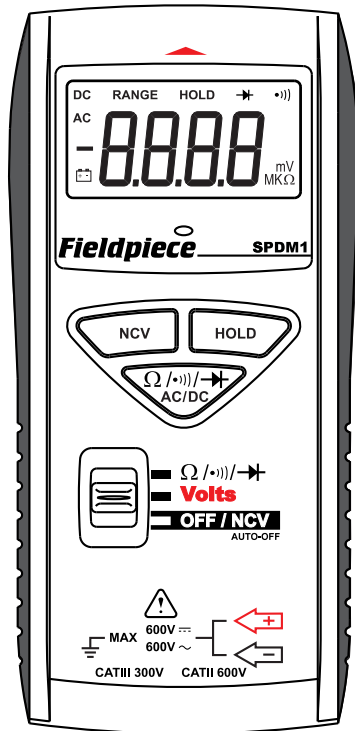


# AUTORANGING POCKET DIGITAL MULTIMETER: SPDM1



## OPERATOR'S MANUAL



### WARNINGS



DISCONNECT TEST LEADS FROM CIRCUIT  
before attempting to replace the battery.  
TEST NCV FUNCTION ON KNOWN LIVE  
WIRE before using.

### Symbols used:



Caution, refer to manual.



Ground



Double insulation



Alternating current



Direct current

### For your safety...

**General:** Inspect the test leads for damage to the insulation or exposed metal. Do not use if the meter or test leads look damaged, or if you suspect that the meter is not operating properly. 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. When disconnecting from a circuit, disconnect the "RED" lead first, then the common lead. Work with others. Turn off power to the circuit under test before cutting, unsoldering, or breaking the circuit. Keep your fingers behind the finger guards on the probes. Do not measure resistance when circuit is powered. Do not apply more than rated voltage between input and ground.

**All voltage tests:** All voltage ranges will withstand up to 600V. Do not apply more than 600VDC or 600VAC.

**AC tests:** Disconnect the meter from the circuit before turning any inductor off, including motors, transformers, and solenoids. High voltage transients can damage the meter beyond repair. Do not use during electrical storms.

### Maintenance

Clean the exterior with clean dry cloth. Do not use liquid.

**Battery replacement:** When the multimeter displays "⎓" the battery must be replaced. Disconnect leads from test points, turn meter off, and remove the battery cover. Replace the battery with 2 NEDA # 1166A 1.5V batteries.

### Limited warranty

This meter is warranted against defects in material or workmanship for one year from date of purchase. Fieldpiece will replace or repair the defective unit, at its option, subject to verification of the defect.

This warranty does not apply to defects resulting from abuse, neglect, accident, unauthorized repair, alteration, or unreasonable use of the instrument.

Any implied warranties arising from the sale of a Fieldpiece product, including but not limited to implied warranties of merchantability and fitness for a particular purpose, are limited to the above. Fieldpiece shall not be liable for loss of use of the instrument or other incidental or consequential damages, expenses, or economic loss, or for any claim of such damage, expenses, or economic loss.

Laws vary with jurisdiction. The above limitations or exclusions may not apply to you.

### Service

Return any defective SPDM1 Series meter to Fieldpiece for warranty service along with proof of purchase. Contact Fieldpiece for out of warranty repair charges.



Fieldpiece Instruments, Inc.  
California, U.S.A.  
[www.fieldpiece.com](http://www.fieldpiece.com)

### SPECIFICATIONS

**Display:** 3½ digit liquid crystal display (LCD) with a maximum reading of 1999.

**Polarity:** Automatic, (-) polarity indication.

**Overrange:** "OL" mark indication.

**Auto power off:** approx. 10 minutes.

**Operating environment:** 32°F to 104°F at <70%RH.

**Storage temperature:** -4°F to 140°F, 0 to 80% R.H. with battery removed.

**Temperature coefficient:** 0.1×(specified accuracy) per °F. (32°F to 64°F, 82°F to 104°F).

**Altitude:** 6561.7 feet (2000m)

**Power:** Two 1.5V button-type batteries (IEC # LR-44, EDA # 1166A).

**Battery life:** 70 hours continuous operation.

**Measurement rate:** 2 times per second, nominal.

**Safety:** UL61010B-1, UL61010B-2-031, EN61010-1, EN61010-2-031, CAT II 600V, CAT III 300V, Class 2, Pollution degree II, Indoor use, CE.

### Resistance (autoranging)

**Ranges:** 200Ω, 2kΩ, 20kΩ, 200kΩ, 2MΩ, 20MΩ

**Resolution:** 100mΩ

**Accuracy:**

±(2.0% rdg + 5 dgts) on 200Ω range

±(2.0% rdg + 4 dgts) on 2kΩ, 20kΩ, 200kΩ ranges

±(3.0% rdg + 4 dgts) on 2MΩ range

±(5.0% rdg + 5 dgts) on 20MΩ range

**Open circuit volts:** -0.45VDC typical, (-1.2VDC on 200Ω range)

**Overload protection:** 450VDC or AC rms

### Continuity

**Audible indication:** Less than 25Ω

**Response time:** 500ms

**Overload protection:** 450VDC or AC rms

### Diode test

**Audible indication:** Less than .25V

**Range:** 2V

**Resolution:** 10mV

**Accuracy:** ±(3.0% rdg + 3 dgts)

**Test current:** 1.2mA

**Overload protection:** 450VDC or AC rms

### DC volts (autoranging)

**Ranges:** 2V, 20V, 200V, 600V

**Resolution:** 1mV

**Accuracy:** ±(2.0% rdg + 2 dgt)

**Input impedance:** 10MΩ on 2V, 9.1MΩ all other

**Overload protection:** 600VDC or AC rms

### AC volts 50/60Hz (autoranging)

**Ranges:** 2V, 20V, 200V, 600V

**Resolution:** 1mV

**Accuracy:** ±(4.0% rdg + 5 dgts)

**Input impedance:** 10MΩ on 2V, 9.1MΩ all other

**Overload protection:** 600V DC or AC rms

## Auto off

Your meter will turn off automatically after 10 minutes without use. After auto power off, press HOLD button to restore power. The last reading shown before it turned off will be displayed.

## Data HOLD

Press HOLD button to keep the current range and reading displayed until HOLD is pressed again.

## Mode button

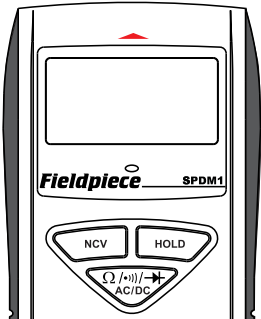
With the function set to VOLTS, press the mode button to switch between AC and DC.

With the function set to  $\Omega$  /  $\infty$  /  $\rightarrow$ , press the mode button to switch between resistance (ohms), continuity, and diode test.

## Non-contact voltage

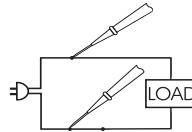
The NCV function detects live AC voltage above 24VAC; sensitive enough to detect thermostat power.

1. Store leads in back of meter and switch to OFF/NCV before using the NCV function.
2. Press and hold down the NCV button. The non-contact voltage sensor is located at the red arrow near the top of the meter. The closer the red arrow is to AC voltage, the louder the beep and the brighter the red LED.
3. Senses AC voltage between 24V and 600V.



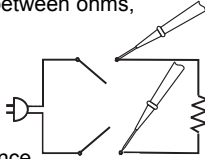
## Voltage AC/DC

1. With the function switch set to VOLTS, use mode button to select AC or DC voltage.
2. Touch the probes to test points as shown.
3. The meter will display the voltage with the best possible resolution. The SPDM1 is an autoranging meter so the decimal point will move to show best resolution. Make sure you notice whether the meter is displaying V (volts) or mV (millivolts).



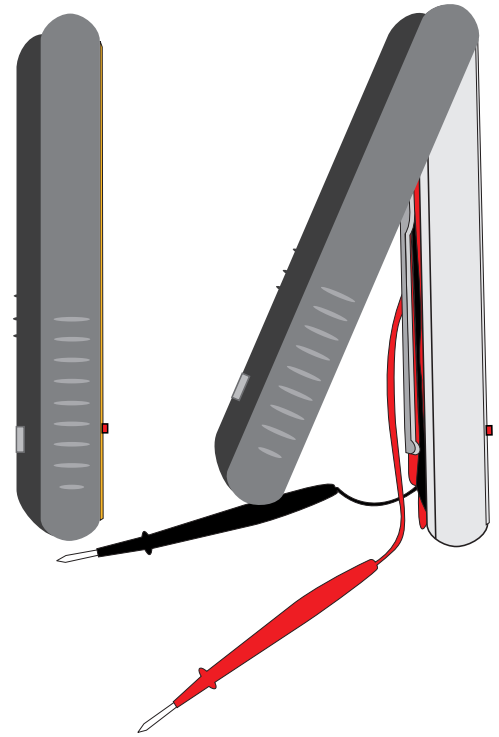
## Resistance and continuity

1. With the function switch set to  $\Omega$  /  $\infty$  /  $\rightarrow$ , use mode button to toggle between ohms, continuity, and diode.
2. Turn off power to circuit being tested.
3. Touch probes to test points as shown.
4. If mode is set to resistance ( $\Omega$ ), the meter will display resistance with the best possible resolution. Make sure you notice whether the meter is displaying  $\Omega$  (ohms), K $\Omega$  (kilohms), M $\Omega$  (megaohms).
5. If mode is set to continuity ( $\infty$ ), the beeper will sound continuously if the resistance is less than  $\sim 25\Omega$ .



## Diode test

1. With the function switch set to  $\Omega$  /  $\infty$  /  $\rightarrow$ , use mode button to select diode test.
2. Turn off power to circuit being tested.
3. Touch probes to the diode. A forward-voltage drop should be about 0.6V.
4. Reverse probes. If the diode is good, "OL" is displayed. If the diode is shorted, a value about 0.0V will be displayed. If the diode is open, "OL" is displayed in both directions.

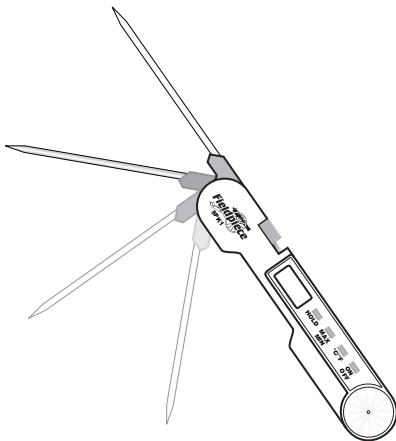


## Storing test leads

For convenient lead storage, open the back cover and wrap the leads around posts.

## More pocket-sized instruments from Fieldpiece

If you like the small size and convenience of your SPDM1 meter, check out some of the other pocket-sized instruments offered by Fieldpiece.



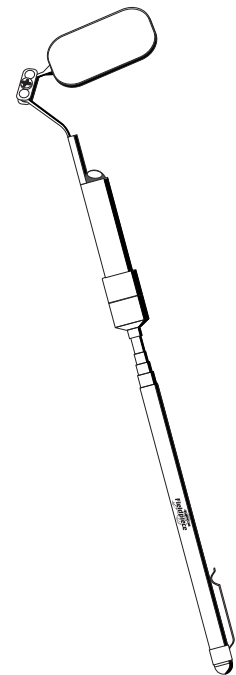
### SPK1 Pocketknife Style Thermometer

- Easily hangs from vent or thermostat.
- Pull out rod just like you would a pocketknife.
- Grooves hold rod at any angle.
- Easily hangs from flex duct.
- Rod folds away; no sleeve to lose.
- Range: -58°F to 392°F.



### SIR2 Infrared Thermometer with Laser Sight

- Conveniently fits in a shirt pocket.
- View angle 3:1.
- Laser guide.
- Faster than thermistor based thermometers.
- Use immediately after pulling from your pocket.
- Range: -27°F to 482°F.



### PLM2 LED Flashlight with Inspection Mirror

- Read part numbers in the dark.
- Bright white LED to light the darkest of spaces.
- Clips to your pocket like a pen.
- 2" x 1" mirror size.
- Mirror slides off when all you need is the light.
- Telescopes between 6½" and 30½"