



Ground Zero Electrostatics PRS-801 Resistance System Set

PRS-801 Resistance System Set

Unique wide range ohmmeter with data logging, calculating and computer



Item Number
PRS-801

The PRS-801 is a unique, wide range ohmmeter with data logging, calculating and computer communication capabilities. Fully portable and battery operated, the PRS-801 measures resistance from 0.1 to 2.0×10^{14} ohms with measurement accuracy of $\pm 5\%$. It can be operated in Automatic, Automatic-Manual and Manual modes.

To enhance accuracy in the 0.1 to 10 ohm ranges, the PRS-801 incorporates an automatic self calibration feature. Low range self calibration is performed using a defined resistance reference supplied with the system.

This sophisticated instrument digitally displays measurements in ohms, kilohms, megohms, gigohms and terohms, and in exponential format, e.g., $1.5E+8$. It simultaneously displays data with a fully synchronous analog scale using $\times 1$, $\times 10$ and $\times 100$ multipliers, and a bank of color programmable LED's ($< 10^3$ to $> 10^{14}$ Ohm). Multiple test voltages are available in $< 10V$, $10V$ and $100V$ ranges, which may be selected automatically by the instrument to comply with industry measurement practices or manually by the operator.

The PRS-801 records and stores up to 80 measurements, and calculates Minimum, Maximum and Average of all stored data. Data may be downloaded to standard computer systems via the instrument's RS-232 Output Port, serial cable and supplied software for ESD Program documentation in Windows® Excel® spread sheets.

Fully automatic, the PRS-801 controls test voltage, resistance ranging and electrification period to make the most accurate and repeatable measurements available to ESD Auditors and laboratory technicians.

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Specifications

Range:

Resistance from < 0.1 ($1.0E-1$) Ohms to 200 Tera ohms ($2.0E+14$ ohms).
Maximum Resistivity with S11.11 concentric ring $2.0E+15$ ohms/square

Test Voltages:

Automatic mode Default: < 0.01 to 10 volts Variable $1.0E-1$ to $1.0E+4$ Ohms

Constant Voltage 10 volts $\pm < 0.2$ volts $1.0E+4$ to $1.0E+6$ Ohms

At 10 & 100 Volts 100 volts $\pm < 2.0$ volts $1.0E+6$ to $2.0E+14$ Ohms

Manual Mode: < 0.01 to 10 volts Variable $1.0E-1$ to $1.0E+5$ Ohms

10 volts $\pm < 0.2$ volts $1.0E+3$ to $1.0E+9$ Ohms

100 volts $\pm < 2.0$ volts $2.0E+5$ to $2.0E+14$ Ohms

Accuracy:

Overall: $\pm < 5\%$ at ambient conditions (at 23oF and 30% Rh).

Specific Range Tolerances:

$1.0E-1$ to $1.0E+1$ ohms: $\pm 5\%$ Corrected for Test Lead Resistance

$1.0E+1$ to $1.0E+12$ ohms: $\pm 2.0\%$ with 10-foot Test Leads

$1.0E+12$ to $2.0E+14$ ohms: $\pm 40\%$ or ± 0.25 Decade with Grounded, Shielded Leads

Display:

Multi-function 2-5/8" x 1-5/8" Liquid Crystal Display with 0.5" digit height.

Displays 3-1/2 digits in Ohms, or $1.0EXX$ in exponential format. Ohms Display

indicators: W, KW, MW, GW and TW. Includes 19-segment analog scale (1-10

with 0.5 indication) with $\times 1$, $\times 10$, & $\times 100$ multipliers. Number of Data Points in Memory (0 – 80). Automatic Electrification Time (seconds), or Time required to

Contents

- ☼ PRS-801 Wide Range Resistance Meter
With 2 each 9 Volt batteries
- ☼ PRS-801SSL Shielded Test Lead
- ☼ PRS-801TVL High Resistance Voltage Test Lead
- ☼ PRS-800L 10 foot Silicone Test Lead (2)
- ☼ PRS-801CIC Computer Input Cable
- ☼ PRS-801CC Calibration Shunt
- ☼ PRS-800INS Insulated Plate
- ☼ PRS-800MTL Metal Plate
- ☼ PRS-801BC Bulldog Clip
- ☼ PSI-870MAC Metal Clip (2)
- ☼ PRS-801CSW Computer Software Disk
- ☼ Operator's Manual

Options:

- ☼ PMK-151 Carrying Case with Handle
- ☼ PRS-801-W 5 lbs Conductive Rubber Electrodes
- ☼ PRF-911 Concentric Ring Set

Packaging

Weight: 4 lbs (1.8 kg)

Length: 15.5 Inches (39 cm)

Width: 11.5 Inches (29 cm)

Height: 4 Inches (10 cm)

Continued on Next Page



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Ground Zero Electrostatics PRS-801 Resistance System Set

SPECIFICATIONS

Manually obtain steady state measurement. Displays data HOLD, BATTERY status, MIN, MAX, AVG, REC and Test Voltage (<10, 10, or 100 V)

LED Indicators:

14 Color Programmable LED's from $<10^3$ to $>10^{14}$ ohms. Colors (RED, GREEN, YELLOW, or Blank/OFF) may be operator programmed in SETUP mode.

Timer:

Times measurements In Seconds up to 99 seconds (Displayed on LCD)

Memory:

Register stores up to 80 data points (MEM # Displayed after RESET)

RS-232 Output:

Digital format: Exponential Power followed by Integer.

Response & Electrification:

Response from >0.1 to $<1.0E06$ Ohms: <2.0 seconds

Average Measurement Period from 0.1 ohms to $1.0E12$ Ohms 2.5 Seconds. Calculated Electrification Period per ESD S11.11, 7.5 seconds 0.1 ohms to $10E+12$ Ohms. Programmed Electrification $1.0E+12$ to $>2.0E14$ Ohms: 15.0+ seconds

Power:

Two 9-VDC alkaline batteries. Nominal battery life 25 hours.

Dimensions:

4.0" wide x 6.0" long x 2.0" deep.

Weight:

22 ounces, with batteries

Open Circuit Current (I):

< 4 ma @ 100 Volts

Resistance Range Select:

2 Triangular button Arrows: UP - and DOWN $\bar{\cdot}$. Select Resistance Range in single decades in Manual and Automatic/Manual modes.

Test Volts:

Manual Selection of <10, 10 or 100 volts in Manual Mode

Record/Recall:

Turns Memory Register ON if OFF. Provides access to all data in Memory Register. Calculates and Displays Minimum, Maximum and Average of data stored in Memory Register.

Send:

Transmits data in Memory Register to RS-232 Output Port

Clear:

Erases data in Memory Register; if in HOLD mode, discards most recent Held Value

ON/OFF:

Power-up, perform functional & Battery tests. Power down if ON.

Batt. Test:

Displays GOOD on LCD if acceptable voltage or Lo if unacceptable

Reset:

Enters (saves) data into Memory Register, Clears HOLD and Display.

Test:

Begins measurement sequence.

Battery Buss Cut OFF:

ON/OFF Switch isolates batteries from instrument circuits for storage & transport

Automatic Function and Unparalleled Accuracy:

The displayed measurement is the average of eight consecutive measurements, all within $\pm 5\%$ of each other. The measurement is "saved" in the Memory Register by pressing RESET.

Data Log, Calculation & Computer Communication:

In RECORD mode, the PRS-801 stores up to 80 measurements, and on demand will calculate and display the Minimum, Maximum and Average measurements stored in the register. Using its RS-232 output and cable accessory, the PRS-801 will communicate with computer serial ports. The instrument is supplied with the new PROSTAT® Audit Program on a 3-1/2 inch disc, which contains spread sheet templates for recording ESD Audit Program Data in Excel® software. The PRS-801 computer output and Program disk are compatible with the Semtronics SCCN® ground monitoring system.



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