

# PRS-801B and PRS-812B

## Wide Range Resistance System and Meter



# PRS-801B Resistance System

DIGITAL SURFACE RESISTANCE METER UP TO 200 TERAOHMS



## Product Overview

The PRS-801B Resistance System provides the resolution and accuracy to efficiently measure resistance point-to-point (Rtt) and resistance-to-ground (Rtg) of floors, work surfaces, carts, garments, packaging, planar material in accordance with all of the ESD Association documents for resistance measurements, such as ESD TR53, ANSI/ESD S4.1, ANSI/ESD S7.1, ANSI/ESD STM97.1, ANSI/STM S11.11, ANSI/STM S11.12 and ANSI/STM S11.13.

The PRS-801B digital resistance meter has an outstanding performance combination of measurement speed, wide range and accuracy. Its constant test voltage system is extremely stable and consistent with lab level, bench top instruments.

The PRS-801B's wide range offers the maximum flexibility in measurement applications. The PRS-801B is the only battery operated meter with a range of  $0.01\ \Omega$  to  $2.00 \times 10^{14}\ \Omega$ . In fact, the PRS-801B serves as 3 instruments in 1:

The PRS-801B is one of the fastest measurement instruments in today's precision measurement market. Laboratory tests confirm the PRS-801B can measure from 0 to  $1.0 \times 10^{12}$  ohms in 2.5 seconds. Thus, its specified electrification period (EP) is 15 seconds in accordance with ANSI/ESD STM 11.11 Surface Resistance of Planar Materials. Furthermore, its EP is automatically adjusted to insure a stable measurement is displayed.

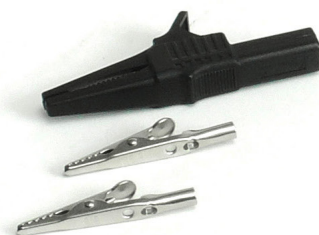
- Accurate Wide Range Resistance Measurements:  $0.01\ \Omega$  to  $2.00 \times 10^{14}\ \Omega$
- Accuracy of  $\pm 2\%$  from  $1.00\ \Omega$  to  $9.99 \times 10^{10}\ \Omega$
- Variable Voltage 0.1 mv to 9.99 V for low resistance measurements
- Constant Test voltages 10V and 100V meeting ANSI/ESD S20.20
- Auto Resistance Range Control
- Auto Test Voltage Control
- Uses a Rechargeable Li-ion Battery Pack
- Takes Approximately 8,000 Measurements on a Single Charge (480 hours typical)
- 999 Data Set Memory
- Download to Excel® in Batches or Individual Measurements with Prostat Connect 2.0
- Uses Micro USB Cable for Charging and Downloading Data
- Charges in 2 Hours
- 2-year Limited Warranty on Main Instrument
- Compatible with Connect 2.0





# PRS-812B Resistance Meter

PORTABLE, PRECISION RESISTANCE MEASUREMENT FROM 0.10 TO 1.00 X 10<sup>12</sup> OHMS



## Product Overview

The PRS-812B Resistance Meter delivers the full-featured functionality and advanced measurement capabilities that ESD Auditors need. It puts a lot of testing power in your hands to quickly and efficiently measure resistance point-to-point (Rtt) and resistance-to-ground (Rtg) of floors, worksurfaces, carts, garments, packaging, planar material in accordance with all of the ESD Association documents for resistance measurements, such as ESD TR53, ANSI/ESD S4.1, ANSI/ESD S7.1 and ANSI/ESD STM97.1.

The PRS-812B uses 3 modes of measurements: Automatic, Manual and Auto-Manual. When measuring in Automatic mode, the resistance range and test voltage is automatically selected for you. Auto mode gives you peace of mind and saves you time.

The PRS-812B's wide range meter offers fast, accurate resistance testing using the included high quality 10 foot test leads. The low resistance range is designed to measure from 0.10 to 1.0x10<sup>4</sup>Ω.

The PRS-812B also meets ANSI/ESD S20.20 and TR53 procedure requirements from 1.00x10<sup>3</sup> to 1.00x10<sup>11</sup> Ω. Measurement guidelines require accurate measurements one decade above the resistance requirements of a facility's ESD program.

Uses constant voltage under load for 10 volts and 100 volts with an accuracy of ± .05%, meeting the requirements of ANSI/ESD S20.20 resistance testing for product qualification and compliance verification. The low resistance range uses variable voltage from 0.1 mv to 9.99 V.

The PRS-812B uses a 3 cell Li-ion battery pack that will last typically 480 hours, taking more than 8,000 measurements before you will need to charge it. Charging is accomplished without removing the battery pack, using the included USB cable and wall charger. The Micro USB cable allows you to charge the PRS-812B via the USB port of your computer. Also included is a wall charger with interchangeable AC blades for global use that includes North America, Europe, United Kingdom, Australia, and China.

- Wide Range Resistance: 0.10 Ω to 1.00x10<sup>12</sup> Ω
- Accuracy of ±2% from 1.00 Ω to 9.99x10<sup>10</sup>Ω
- Constant Test voltages 10V and 100V for specification measurements to meet international and domestic ESD measurement standards
- Auto Resistance Range Control
- Auto Test Voltage Control
- Uses a Rechargeable Li-ion Battery Pack
- Takes Approximately 8,000 Measurements on a Single Charge (480 hours typical)
- 120 Data Set Internal Memory
- Uses Standard USB Cable for Charging
- Charges in 2 Hours
- 2-year Limited Warranty on Main Instrument



# A Portable Wide Range Resistance Meter with High Accuracy and Fast Electrification Period

The PRS-801B Resistance System Set is a wide range meter capable of measuring resistance from 0.01 ohm to 2.00E+14 ohms (200 Teraohm). The PRS-801B uses a constant test voltage system that is extremely stable and consistent with lab level, bench top instruments. The PRS-812B's accurate wide range of 0.10 ohms to 1.00E+12 ohms, offers exceptional flexibility in measurement applications. The PRS-812B has Automatic, Manual and Auto-Manual operational modes, plus exponential display or standard numeric display in  $\Omega$ , K $\Omega$ , M $\Omega$ , G $\Omega$  and T $\Omega$ . Both the PRS-801B and PRS-812B use a Li-ion battery pack, rechargeable via USB. Battery life exceed 480 hours when measuring in Auto-Manual mode and allows you to typically make approximately 8,000 measurements. Both models include an internal memory capable of storing up to 120 and 999 data sets.

## Product Highlights

- Accurate Wide Range Resistance Measurements
- Variable Voltage 0.1 mv to 9.99 V for low resistance measurements
- Constant Test voltages 10V and 100V
- Auto Resistance Range Control
- Auto Test Voltage Control
- Connect to Virtually any 2-wire Fixture or electrode configuration
- Uses rechargeable Li-ion batteries
- Provides up to 5 days of continuous use
- Internal memory up to 120 and 999 data sets
- Download to Excel® with Connect 2.0 (PRS-801B only)

## What's included

- High Quality Test Leads
- Test Lead Shunt
- Premium Shielded Test Lead (PRS-801B only)
- High Resistance Test Lead (PRS-801B only)
- USB 2.0 A to Micro-B Cable
- AC/DC Power Supply with Multi-Blade Input
- Audit Test Bed
- NIST Traceable Calibration Certificate with Data



## Resistance Measurement Specifications

Measuring Range	Resolution	Accuracy <sup>1</sup>	
		800LB and 800LR Leads	800PSL and 800TVL Leads
0.01 $\Omega$ to 1.00 $\Omega$	0.01E-0 to 1.00E0	$\pm 5\%^2$	$\pm 5\%^2$
1.01 $\Omega$ to 9.99 x 10 <sup>10</sup>	1.01E0 to 9.99E10	$\pm 2\%$	$\pm 2\%$
1.00 x 10 <sup>11</sup> to 9.99 x 10 <sup>11</sup>	1.00E11 to 9.99E11	$\pm 5\%$	$\pm 5\%$
1.00 x 10 <sup>12</sup> to 2.0 x 10 <sup>14</sup>	1.00E12 to 2.00E14	N/A	$\pm 20\%$

<sup>1</sup> At 23°C (73.5°F) and 30% RH  
<sup>2</sup> Corrected for test lead resistance

## General Specifications

Characteristics	PSR-801B Resistance System	PRS-812B Resistance Meter
Measuring Range	0.01 $\Omega$ to 2.00 x 10 <sup>14</sup> $\Omega$	0.10 $\Omega$ to 1.00 x 10 <sup>12</sup> $\Omega$
Measurement Modes	Auto, Manual, Auto-Manual, Continuous	Auto, Manual, Auto-Manual
Display	6.9 cm x 4.8 cm (2.7" x 1.9") 6 digit - 7 segment color HTN display	
Battery Power	Re-chargeable Li-Ion battery (included). Battery swappable through easily accessible battery door at the rear of the instrument	
Rechargeable Battery	Rechargeable via USB 2.0 through PC port or Wall Charger (included)	
Battery Status Indicator	Battery has a status indicator on instrument screen	
Battery Charging Time	2 hours	
Battery Life	480 hours typical 50 hours (of continuous use) Approximately 8,000 measurements	
Memory Capacity	999 data sets	120 data sets
	Data sets include resistance, test voltage, electrification period and timestamp	Data sets include resistance
Data Download	Compatible with Connect 2.0 <sup>1</sup>	---
Download Method	USB 2.0 A to Micro-B	
Operating Temperature	10°C to 30°C (50°F to 80°F)	
Operating Relative Humidity	0% – 85%, non-condensing	
Operating Altitude	2000 m	
Storage Temperature	-30°C to +60°C (-22 °F to +140 °F)	
Dimensions (WxHxD)	117 mm x 188.5 mm x 48 mm 4.59 in x 7.42 in x 1.90 in	
Weight	510 g (1.12 lb)	500 g (1.10 lb)
Case Material	Polycarbonate with Rubber Side Grips	
Color	Black	Grey
Warranty	2 Year Limited Warranty <sup>2</sup>	

<sup>1</sup> Compatible with Microsoft® Windows® Operating Systems  
<sup>2</sup> Warranty on the battery pack limited to a defective battery pack and excludes normal end of life of the battery. The warranty does not cover defects that are caused by normal wear and tear, inadequate maintenance, insufficient ventilation, transportation, storage or faulty repair, misuse, neglect, accident or abuse, modification to the battery pack.





## Test Voltage Accuracy

Test Voltage	Units	Resistance Range	Accuracy <sup>1</sup>
.0001 – 9.99	V	1E-2Ω to <1E4Ω	± .5%
10	V	1E4Ω to <1E6Ω	± .5%
100	V	1E6Ω to ∞	± .5%

<sup>1</sup> At 23°C (73.5°F) and 30% RH

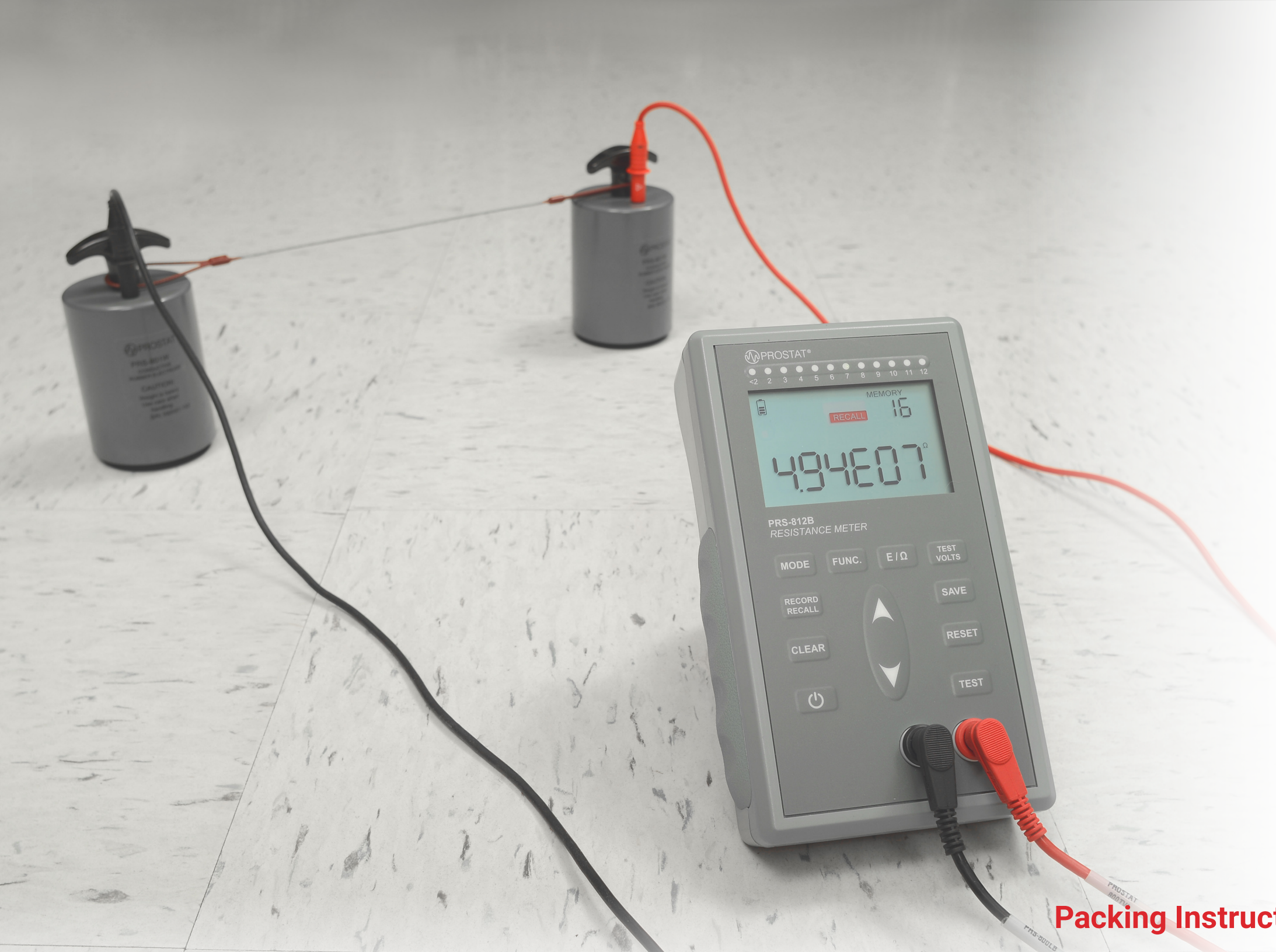
## Led Indicators

Resistance Measurement (Ω)		Illuminated Decade LED
Min	Max	
0	9.99E1	<2
1.00E2	9.99E2	2
1.00E3	9.99E3	3
1.00E4	9.99E4	4
1.00E5	9.99E5	5
1.00E6	9.99E6	6
1.00E7	9.99E7	7
1.00E8	9.99E8	8
1.00E9	9.99E9	9
1.00E10	9.99E10	10
1.00E11	9.99E11	11
1.00E12	9.99E12	12
1.00E13	9.99E13	13
1.00E14	9.99E14	14
>9.99E14		>14

## Measurements Modes

Mode	Resistance Range	Test Voltage	
Automatic	Automatic	Automatic	@<10V: 0.01 to <1.00E+04 Ω
			@ 10V: 1.00E+04 to <1.00E+06 Ω
			@100V: 1.00E+06 to 2.00E+14 Ω
Manual	Manual	Manual or Automatic	@<10V: 0.01 to <1.00E+03 Ω
			@ 10V: 1.00E+03 to <1.00E+11 Ω
			@100V: 1.00E+06 to 2.00E+14 Ω
Auto-Manual	Manual Start Automatic Run	Automatic	@<10V: 0.01 to <1.00E+04 Ω
			@ 10V: 1.00E+04 to <1.00E+06 Ω
			@100V: 1.00E+06 to 2.00E+14Ω
Continuous	Automatic	Automatic	@<10V: 0.01 to <1.00E+04 Ω
			@ 10V: 1.00E+04 to <1.00E+06 Ω
			@100V: 1.00E+06 to 2.00E+14 Ω





## 801B-012 LI-Ion Battery Pack

General Specifications	
Battery Type	3-cell, Rechargeable
Technology	Lithium-Ion Technology
Nominal Capacity	2400mAh
Output Voltage	3.7V
Performance Amp-Hour	2.4Ah
Performance Watt-Hour	8.88Wh
Transport Safety Certified	UN38.3
IATA UN Number	UN3480
IATA Class (Sub Hazard)	9
Operating Temperature	Discharging: -20°C to 60°C (-4°F to 140°F) Charging: 0°C to 45°C (32°F to 113 °F)
Storage Temperature	-5°C to 35°C (-23°F to 95°F)
Storage Humidity	≤75% Rh
Battery Pack Dimensions (WxHxD)	53mm x 48.5mm x 15mm 2.0" x 1.9" x 0.6"
Weight	65g (2.2 oz)

## Electrification Period

Resistance Range	Measurement Period	Minimum Electrification Period
1.00E-2 Ω to <1.00E6 Ω	2 seconds	3 seconds
1.00E6 Ω to <1.00E12 Ω	2 seconds	8 seconds
1.00E12 Ω to <1.00E13 Ω	Variable	15 seconds
1.00E13 Ω to <1.00E14 Ω	Variable	20 seconds
1.00E14 Ω	Variable	20 seconds

## Packing Instructions (P.I.)<sup>1</sup>

When battery is packaged separately (e.g. a replacement battery pack):	IATA P.I. 965 Section IB applies
When battery is packaged with the resistance meter, not contained in it:	IATA P.I. 966 Section II applies
When battery is contained within the resistance meter, then packaged:	IATA P.I. 967 Section II applies

<sup>1</sup> Per IATA 2021 regulations. Regulations subject to change without notice. The 801B-012 battery packs have been tested and were found to comply with the criteria of “UN Model Regulations, Manual of Test and Criteria, ST/SG/AC.10/11/Rev.7 Part III, subsection 38.3”, also known as “UN38.3”. As a result they can be shipped unrestricted internationally by any means. Ensure that any shipment packaging that contains these batteries is properly marked on the outside of the package for containing Li-ion batteries, using the label as described in the ‘Additional Requirements Section’ of Packing Instructions 965...970. Minimum size of the label is 120 x 110 mm (4.75 x 4.33 inches).





# Resistance Meters

## For Compliance Verification PER TR53

ESDA TR53	REQUIRED $\Omega$	REQUIRED V	PRS-801B	PRS-812B	METER A	METER B	METER C
Wrist Strap Jacks	<2	<10V	✓	✓	---	---	---
Soldering Tools	<10	<10V	✓	✓	---	---	---
Clean room Stainless Steel Items	<1.0 to $\geq E13$	<10V, @10V & @100V	✓	✓	---	---	---
Automated Handlers	0.1 to $\geq E11$	<10V, @10V, @100V $\pm 5\%$	✓	✓	---	---	---
Electrode Verification	<500 ea.	<10V	✓	✓	---	---	---
Troubleshooting	<1 to $\geq E12$	<10V, @10V & @100V $\pm 10\%$	✓	✓	---	---	---
Packaging	$\geq E13$	100V $\pm 10\%$	✓	✓	✓	---	---
Garments	5E4 to $\geq 1E9$	@10V	✓	✓	✓	---	---
Work Surfaces	$\geq E10$	@100V $\pm 10\%$	✓	✓	✓	✓	---
Flooring	E3 to $\geq E10$	@100V $\pm 10\%$	✓	✓	✓	✓	---
Seating	E3 to $\geq E11$	100V $\pm 10\%$	✓	✓	✓	✓	---
Mobile Equipment	$\geq E10$	@100V $\pm 10\%$	✓	✓	✓	✓	---
Shelving	$\geq E10$	@100V $\pm 10\%$	✓	✓	✓	✓	---

Note: Ron Gibson Analysis







# Resistance Meters

## For Product Qualification

ESDA TEST METHOD	REQUIRED $\Omega$	REQUIRED V	PRS-801B	PRS-812B	METER A	METER B	METER C
STM11.13: Two-Point Resistance	E3 to $\geq$ E13	<10V, @10V, @100V $\pm$ 5%	✓	✓	---	---	---
STM2.1: Garments	E3 to $\geq$ E12	<100V $\pm$ 5%	✓	✓	---	---	---
STM12.1: Seating	E3 to $\geq$ E11	100V $\pm$ 5%	✓	✓	---	---	---
STM7.1: Flooring	E3 to $\geq$ E10	100V $\pm$ 5%	✓	✓	---	---	---
STM11.11: Surface Resistance	E3 to $\geq$ E13	<10V, @10V, @100V $\pm$ 5%	✓	✓	---	---	---
S13.1: Soldering Irons	<2 & <10	<10V	✓	✓	---	---	---
Wrist strap jack	<2	<10V	✓	✓	---	---	---
Auxiliary Ground	<25	<10V	✓	✓	---	---	---
Electrode verification	<500	<10V	✓	✓	---	---	---
Clean room stainless steel	<1.0	<10V	✓	✓	---	---	---
SP10.1: Handling Equipment	0.1 to $\geq$ E11	<10V, @10V, @100V $\pm$ 5%	✓	✓	---	---	---
Packaging Field Shielding	<E3	<10V	✓	✓	---	---	---
SP9.2: Footwear/Grounders	5E4 to $\geq$ E10	7 to 30V	✓	✓	✓	---	---
STM11.12: Volume Resistance	$\geq$ E12	<10V, @10V, @100V $\pm$ 5%	✓	✓	✓	---	---
S4.1: Work Surfaces	E5 to $\geq$ E11	100V $\pm$ 10%	✓	✓	✓	✓	---
STM9.1: Footwear	E3 to $\geq$ E10	<10V, @10V, @100V $\pm$ 5%	✓	✓	✓	✓	---
S1.1: Wrist Straps	<E5 to $\geq$ E8	7 to 30V	✓	✓	✓	---	✓

Note: Ron Gibson Analysis







# Ordering Information

Part No.	Description
PRS-801B	Resistance System Set
PRS-801RM	Surface Resistance System Kit <sup>1</sup>
PRS-812B	Resistance Meter Set
PRS-812RM	Surface Resistance Meter Kit <sup>1</sup>

<sup>1</sup> Includes 2 each PRS-801W 5lb Conductive Rubber Electrodes and a PMK-151C Carrying Case.

# Optional Accessories

Part No.	Description
PRS-801W	5lb Conductive Rubber Electrode
PRS-801-VW	Premium 5lb Conductive Rubber Electrodes
PRF-912B	Miniature Concentric Ring
PRF-922B	Miniature 2-Point Probe
PRF-911	Concentric Ring
PRS-800CS	Cable Spacers
PFA-860	Footplate
PFA-861H	Hand-Held Electrode
PCF-825B	Glove CAFÉ Fixture
Q007B	Grounding Cube
PMK-151C	Hard Carrying Case





# FOR MORE INFORMATION

**Call toll-free in the US:**  
**1-855-STATIC1 (782-8421)**

**International Sales:**

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**Fax:** +1-630-238-9717

**Email:** [sales@prostatcorp.com](mailto:sales@prostatcorp.com)

**Web:** [www.prostatcorp.com/contact](http://www.prostatcorp.com/contact)

## PROSTAT CORPORATION

399 Wall Street, Suite G  
Glendale Heights, IL 60139, USA  
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