

# Safety Made Simple<sup>®</sup>



## Testers For Electrical Safety Compliance








Hipot • Insulation Resistance • Ground Bond • Leakage Current • Multi-Function Electrical Safety

We've been providing customers with the features they have needed for over 60 years. We aim to simplify the Electrical Safety Industry for our customers and by applying this philosophy to everything we do.



All testers come with the accessories you need to run a test right out of the box.

## PRODUCT SELECTION GUIDE

	 AC Hipot	 DC Hipot	 Insulation Resistance	 Ground Continuity Check	 Ground Bond	 Leakage Current	 Functional Run
<b>290 Series</b>							
294		•		•			
295	•			•			
296	•	•		•			
297	•	•	•	•			
298	<b>500VA</b>			•			
<b>260 Series</b>							
264					<b>40A</b>		
266					<b>60A</b>		
<b>4000 Series</b>							
4320	•	•	•		<b>30A</b>		
4520	<b>500VA</b>	•	•		<b>30A</b>		

## PROVEN RELIABILITY

Every SCI tester is backed by a standard 1-year warranty. Extend your warranty for up to 3 years when you return your tester for annual calibration and inspection. We also offer a 2-year protection plan which you can purchase upfront without a calibration requirement.

## ONGOING SUPPORT

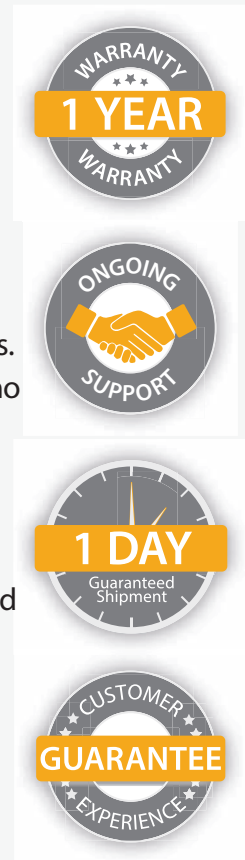
With over 60 years of industry experience we are the pros you can trust for safety compliance and NRTL standards. We'll work closely with you to help you achieve your goals. We've built a worldwide network of knowledgeable customer support, so you're covered no matter where you are.

## 1-DAY SHIPMENT

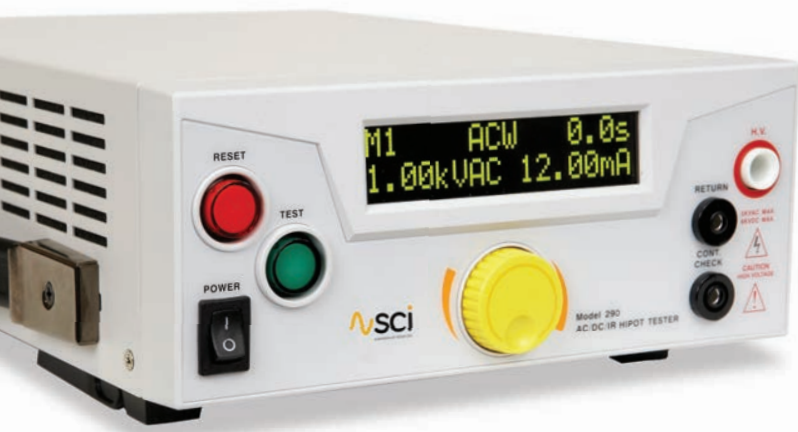
We understand that you need to receive your tester in a timely fashion in order to prevent downtime on the production line. We ship every order within 1 business day using standard ground shipping. \*On all standard products. If your product ships late, we pay the freight

## CUSTOMER EXPERIENCE GUARANTEE

We are so confident our testers will meet your needs that we provide a 100% customer experience guarantee. If, for any reason, you are dissatisfied with your SCI tester, return it for a full refund or exchange within 45 days of the original purchase date.



50Hz   60Hz Frequency Selection	Ramp	Dwell	Low Current Sense	Safety Agency Listed	PLC Remote	USB	RS-232	
								<b>290 Series</b>
	•	•	•	•	•	OPT		294
•	•	•	•	•	•	OPT		295
•	•	•	•	•	•	OPT		296
•	•	•	•	•	•	OPT		297
•	•	•	•	•	•	OPT		298
								<b>260 Series</b>
•		•		•	•	OPT		264
•		•		•	•	OPT		266
								<b>4000 Series</b>
•	•	•	•	•	•		OPT	4320
•	•	•	•	•	•		OPT	4520



# 290 SERIES HIPOT TESTERS



5 PROGRAMMABLE  
MEMORIES WITH 10  
OPTIONAL

EASILY AUTOMATE FOR  
DATA COLLECTION

ADVANCED SECURITY  
SETTING





TAMPER-PROOF FRONT  
PANEL CONTROLS

REDUNDANT HARDWARE  
SAFETY INTERLOCK

PORTABLE, RUGGED DESIGN

EASILY SAFEGUARD YOUR  
WORKSTATION WITH PPE  
ACCESSORIES

The **290 Series** is our most popular line of Hipot testers. These testers are designed to simplify every aspect of safety testing for operators of all comfort levels. Our **290 Series** includes the most intuitive user interface in the industry and won't take up too much space on the production line. With multiple memories and an optional USB interface, you can quickly perform tests on a variety of DUTs from the front panel or with a PC. Choose from 5 different models to satisfy your testing requirements.

	 AC Hipot	 DC Hipot	 Insulation Resistance	 Ground Continuity Check
294		•		•
295	•			•
296	•	•		•
297	•	•	•	•
298	<b>500VA</b>			•

## RELEVANT APPLICATIONS

APPLIANCE

AC/DC POWERED PRODUCTS

CABLES & COMPONENTS

LIGHTING & LED TESTING

MODULAR HOMES

MOTORS & PUMPS

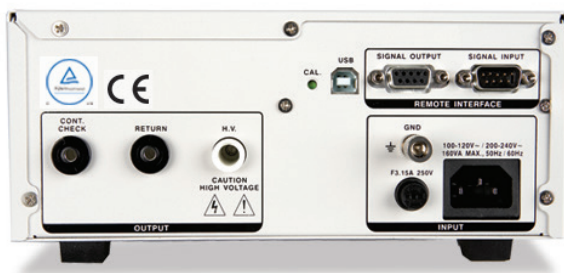
## SUPPLIED ACCESSORIES

- 102-069-904 Return Lead 6 ft. (1.8m)
- 102-055-913 High Voltage Lead 6 ft. (1.8m)
- 125-013-001 Input Power Cable USA
- 99-10040-01 Interlock Connector

All testers come with the accessories you need to run a test right out of the box.

## OPTIONS

Description	294	295	296	297	298
Rear Outputs	•	•	•	•	•
USB Port	•	•	•	•	•
10 Memory	•	•	•	•	•
3mA Current Limit	•	•	•	•	
Pulse Mode		•			
Push to Test Mode		•			



## SERIES FEATURES



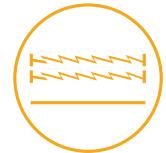
Test Setup Memories



Frequency Selection



Ramp



Dwell



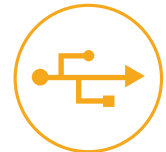
Low Current Sense



Safety Agency Listed



PLC Remote



USB (optional)



On the Go Portability



Intuitive User Interface



# 260 SERIES

## GROUND BOND TESTERS



5 PROGRAMMABLE MEMORIES

EASILY AUTOMATE FOR DATA COLLECTION

ADVANCED SECURITY SETTINGS

MILLIOHM OFFSET FUNCTION FOR ACCURATE GROUND BOND TESTING

REDUNDANT HARDWARE SAFETY INTERLOCK

PORTABLE, RUGGED DESIGN

EASILY SAFEGUARD YOUR WORKSTATION WITH PPE ACCESSORIES

Our **260 Series** makes Ground Bond testing simple. Choose between two easy-to-use Ground Bond testers that provide the output current to satisfy NRTL specifications. With an intuitive interface that allows you to set-up a test in seconds and practical security settings, our **260 Series** can easily be deployed in both laboratory and production line environments.

	40A Ground Bond	60A Ground Bond
264	•	
266		•

## RELEVANT APPLICATIONS

- APPLIANCE
- INDUSTRIAL EQUIPMENT
- MEDICAL
- LABORATORY EQUIPMENT
- WATER PUMPS

## 264 SUPPLIED ACCESSORIES

- 99-10725-01 40 Amp High Current Lead 6 ft. (1.8m)
- 99-10724-01 40 Amp High Current Return Lead 6 ft. (1.8m)
- 125-013-001 Input Power Cable USA
- 99-10783-01 Fuse 10 Amp (264 Model)

## 266 SUPPLIED ACCESSORIES

- 99-10239-01 60 Amp High Current Lead 6 ft. (1.8m)
- 99-10238-01 60 Amp High Current Return Lead 6 ft. (1.8m)
- 99-10164-01 Input Power Cable USA
- 99-10791-01 Fuse 12 Amp (266 Model)

All testers come with the accessories you need to run a test right out of the box.

## OPTIONS

Description	264	266
Rear Outputs	•	•
USB Port	•	•
Display Voltage Drop	•	•



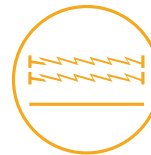
## SERIES FEATURES



Test Setup Memories



Frequency Selection



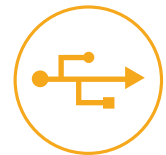
Dwell



Safety Agency Listed



PLC Remote



USB (optional)



On the Go Portability



Intuitive User Interface

# 4000 SERIES

## 4-IN-1 ELECTRICAL SAFETY TESTERS



VERSATILE 4-IN-1  
FUNCTIONALITY

SIMPLE MENU NAVIGATION

MEETS 200 mA SHORT  
CIRCUIT REQUIREMENTS\*  
\*4520 ONLY





6 PROGRAMMABLE  
MEMORIES WITH 6 TEST  
STEPS EACH

EASILY AUTOMATE FOR  
DATA COLLECTION

REMOTE SAFETY  
INTERLOCK

EASILY SAFEGUARD YOUR  
WORKSTATION WITH PPE  
ACCESSORIES

The **4000 Series** provides advanced 4-in-1 test capability in a convenient one-box solution. Our most popular multi-function tester, the **4000 Series**, performs AC Hipot, DC Hipot, Insulation Resistance and Ground Bond tests while taking up minimal production line space. The **4000 Series** includes the simplest menu navigation in the industry, reducing set-up time and increasing production line throughput for any application. With multiple memories and an optional RS-232 interface, you can quickly perform tests on a variety of DUTs from the front panel or with a PLC remote. Choose from two models.

	 AC Hipot	 DC Hipot	 Insulation Resistance	 Ground Bond
4320	•	•	•	•
4520	<b>500VA</b>	•	•	•



## RELEVANT APPLICATIONS

APPLIANCE

INDUSTRIAL EQUIPMENT

INFORMATION TECHNOLOGY

CONTRACT MANUFACTURING

## SUPPLIED ACCESSORIES

- 102-050-913 High Voltage Retractable Probe 6 ft. (1.8m)
- 102-055-913 High Voltage Lead 6 ft. (1.8m)
- 125-013-001 Input Power Cable USA
- 99-10164-01 Input Power Cable USA
- 99-10239-01 60 Amp High Current Lead 6 ft. (1.8m)
- 99-10238-01 60 Amp High Current Return Lead 6 ft. (1.8m)
- 99-10040-01 Interlock Connector
- 99-10106-01 Fuse 4320
- 99-10656-01 Fuse 4520

All testers come with the accessories you need to run a test right out of the box.

## OPTIONS

Description	4320	4520
Rear Outputs	•	•
RS-232 Interface	•	•

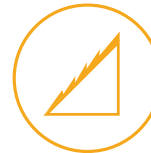
## SERIES FEATURES



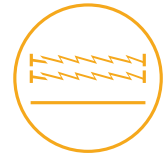
Test Setup Memories



Frequency Selection



Ramp



Dwell



Low Current Sense



Safety Agency Listed



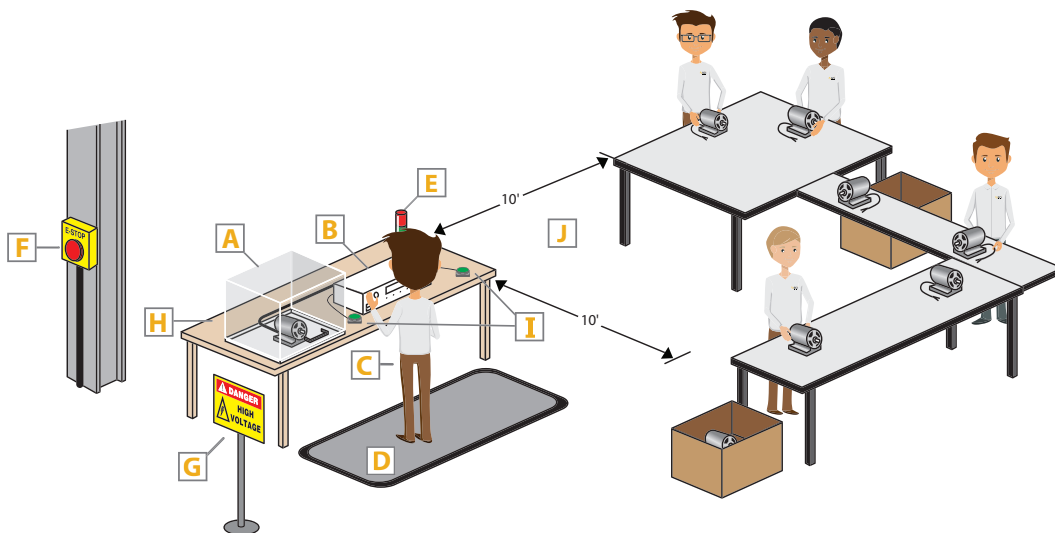
PLC Remote



RS-232 (optional)



# SAFE WORKSTATION



One of the best ways to prevent injury is to ensure that your test station is set up safely and securely. Test stations can be setup with or without direct protection depending on your requirements. Direct protection means that the operator cannot physically come into contact with an energized DUT while a test is running. This safe workstation diagram uses a Hipot tester as an example to illustrate how our protective equipment can be used to keep operators safe.

**A**

## DUT Safety Enclosure

This is wired to the Hipot tester's Remote Safety Interlock. This protects you from touching the DUT while a test is in progress. If the enclosure door is opened, the tester's high voltage is immediately disabled.

**E**

## Signal Tower Light

Gives an indication as to the status of the testing area. A green light indicates the Hipot tester is not outputting high voltage and the test area is safe. A red light indicates that the Hipot tester is active and to stay clear of the test area.

**H**

## Non-Conductive Work Bench

Only use a work bench made of non-conductive material such as plastic or wood. This ensures no stray leakage current could flow through you during a test.

**B**

## Hipot Tester

Tester used to test the DUT.

**F**

## Emergency Stop Button

Located on the perimeter of the test area. In the event of an emergency, someone outside the test area can hit the E-Stop button to immediately cut off power to the entire test station.

**I**

## Dual Palm Remote Switches

Two hand operation switches force the operator to place a hand on each switch and hold them throughout the test. The palm switches should be placed at least 21.6" (550mm) apart to prevent the operator from one hand activation of both switches.

**C**

## Test Operator

**G**

## Warning Sign

Mark the testing area with a clearly posted sign that reads: DANGER - HIGH VOLTAGE TEST AREA. AUTHORIZED PERSONNEL ONLY.

**J**

## NEC (National Electric Code) & NFPA (National Fire Protection Agency)

Stipulate that any unqualified workers shall not come within 10' of an EXPOSED energized circuit.

**D**

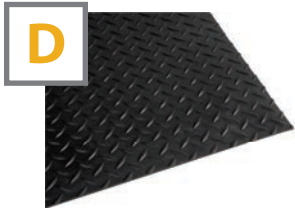
## Insulation Mat

This isolates you from ground which provides an additional means of protection when operating high voltage equipment.

# PPE ACCESSORIES

## IMPROVE WORKSTATION SAFETY WITH PPE

Our Personal Protective Equipment improves workstation safety, warns unqualified operators of a dangerous testing area, and safeguards operators from electric shock. OSHA 1910 Subpart S requires, by law, that employers provide their employees with working conditions free of known hazards. We'll help you provide your employees with all necessary PPE.



### INSULATION MAT

99-10691-01

This 20 kV electrical insulation mat is an ideal means for adding a level of operator safety. This mat is formulated to provide electrical insulation for the operator. Insulated matting prevents the operator from being grounded thereby preventing electrical shock.



### HIGH VOLTAGE WARNING SIGN

99-10690-01

This "DANGER: HIGH VOLTAGE TEST AREA" sign is ideal for warning unauthorized operators to stay away from the test area. This sign should be clearly visible and mounted outside of the electrical testing area.



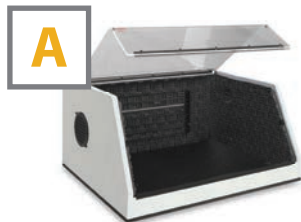
### SIGNAL TOWER LIGHT

99-10706-01

Gives an indication to the status of the testing area. A green light indicates the Hipot tester is not outputting high voltage and the test area is safe. A red light indicates that the Hipot tester is active and to stay clear of the test area.

#### Compatible Models:

290 Series, 260 Series, 4000 Series, 6000 Series



### DUT ENCLOSURE

Our DUT Enclosures are designed to protect the operator from electric shock during testing. Interface an enclosure with our Remote Safety Interlock feature to automatically disable the instrument's output when the enclosure door is opened.

#### WOOD FRAME WITH FOAM INTERIOR 99-10599-01

#### Outside dimensions (W x D x H):

24" x 19" x 11.5" (610 x 483 x 293 mm)

#### Inside dimensions (W x D x H):

20" x 16" x 10" (508 x 407 x 254 mm) 3/4" Walls, 3/4" Flame Retardant Foam



### EMERGENCY STOP SWITCH

99-10714-01

The E-Stop trigger will immediately stop the flow of electric current to your SCI tester when pressed, preventing operator injury or damage to a device under test.

**Compatible Models:** 264 and All Hipots



### REMOTE TRIGGER FOOT SWITCH

99-104-33-01

Allows for remote operation of electrical safety tests while a safe distance is maintained between the operator and test instrument.

**Compatible Models:** All testers



### DUAL PALM REMOTE SWITCHES

DPR-01

Using two-hand operation switches ensures operator safety because it forces you to place a hand on each switch and hold throughout the test. This prevents you from accidentally touching a DUT while the test is running. The palm switches should be placed at least 21.6" (550mm) apart to prevent one-hand activation of both switches.

**Compatible Models:** 290 Series

# PPE ACCESSORIES



## REMOTE TEST BOX (RTB)

The RTB is a Remote Test and Reset Control Box. It comes in two different configurations: RTB-01 and RTB-02. Both models utilize the connection of Remote Input/Output on the back of all compatible SCI testers and can be used to initiate and reset a test. The RTB-02 has an additional feature (LEDs) which allow the operator to monitor the PASS, FAIL and PROCESSING signals.

**RTB-01 Compatible Models:** 290 Series, 260 Series, 4000 Series, 6000 Series, 2200 Series

**RTB-02 Compatible Models:** 290 Series, 260 Series, 4000 Series, 6000 Series



## HIGH VOLTAGE RETRACTABLE PROBE 6FT (1.8M)

102-050-913

The simple-to-use high voltage retractable probe gives operators the ability to press to activate the retractable probe tip.

**Compatible Models:** All Hipot testers

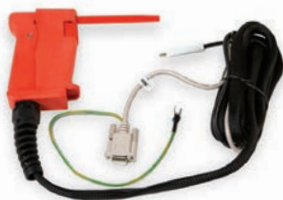


## RETURN RETRACTABLE PROBE 6FT (1.8M)

102-064-902

Our return retractable probe allows for safe contact to ground points of a DUT. The trigger style is ergonomically comfortable for daily use.

**Compatible Models:** 290 Series



## DUAL ACTION TRIGGER TEST PROBE 10 FT. (3m)

99-10473-01

This high voltage test gun has a dual action test trigger that controls the retractable probe tip and activates the high voltage output of the tester. The unique ergonomic shape makes this probe easy and comfortable to use.

**Compatible Models:** 4000 Series



## 40 AMP HIGH CURRENT PROBE W/ LUG 10 FT. (3m)

99-10661-01

This fixed tip probe allows for easy contact with the grounding points of the DUT. The probe has two separate test buttons making it comfortable to use in various positions. The test switch can be used to activate high current after making good contact with the test point.

**Compatible Models:** 264, 4000 Series, 6000 Series

# ACCESSORIES

## TESTER VERIFICATION

Nationally Recognized Testing Laboratories (NRTLs) require minimums for in-service checks of electrical safety testers. In-service checks are designed to verify the measurement accuracy of the test equipment. These verification checks must accurately detect a pass and failure condition to ensure electrical safety testers are functioning properly. NRTLs require verification testing to be performed daily.



## TEST VERIFICATION BOX

Our test verification box solutions are a go / no-go daily test verification designed to ensure that the failure detectors of an SCI electrical safety tester are functioning properly. These boxes were designed to verify AC and DC Hipot test functionality (the TVB-2 also has Ground Bond test functionality), making it the ideal solution for manufacturers who are required to conduct daily verifications on their test equipment.

**TVB-1 Compatible Models:** All Hipot Testers

**TVB-2 Compatible Models:** All Testers

### PASS/FAIL VERIFICATION



## 120 kΩ Resistor

P/N: 99-10293-01

Use the 120 kΩ resistor for Hipot failure verification. It can also be used to establish a Hipot trip current/failure point.

### FAIL VERIFICATION

## ADAPTER BOX

An adapter box allows for safe and easy testing of line cord-terminated products. Simply connect the adapter box to the tester and then plug the DUT into the adapter box. Adapter boxes are available for most test instruments in multiple country configurations.

Adapter Box	Description	Used With
99-10001-01	Universal Receptacle Box High Voltage	290 Series
99-10005-01	Universal Receptacle Box High Current	264, 4000 Series
99-10467-01	Universal Receptacle Box HC/HV/LLT	6000 Series

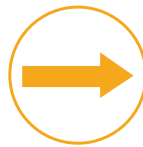


# ICONOGRAPHY



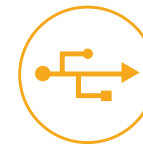
AC Hipot

The AC Hipot test is used to stress the insulation of a DUT with AC high voltage.



Functional Run

The Functional Run test ensures your DUT is operating properly before shipment.



USB

Connect your tester to a PC for automated applications with optional USB control.



DC Hipot

The DC Hipot test is used to stress the insulation of a DUT with DC high voltage.



500 VA

Output up to 100 mA of current during an AC Hipot test.



RS-232

Connect your tester to a PC for automated applications with optional RS-232 control.



Ground Bond

The Ground Bond test is used to verify the integrity of a DUTs earth ground conductor.



Test Setup Memories

Quickly setup, edit and recall test settings for different types of DUTs with multiple user-defined memory locations.



PLC Remote

Maximize operator safety by connecting an enclosure, warning lights, or safety probes to your tester.



Ground Continuity Check

The Ground Continuity test is used to verify the presence of the DUTs earth ground conductor.



Frequency Selection

Get your products ready for the global market by testing at 50 or 60 Hz.



On the Go Portability

Denotes a tester designed for optimal portability. Perfect for use in the field.



Insulation Resistance

The Insulation Resistance test is used to determine the total resistance of a DUTs insulation.



Ramp

Prevents false failures by slowly ramping up the output voltage over time – perfect for sensitive or highly capacitive DUTs.



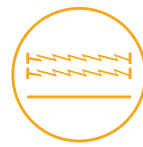
Low Current Sense

Prevents false Hipot passes with confidence by ensuring your test leads are connected correctly.



Leakage Current

The Leakage Current test is used to determine the amount of current that flows through the insulation of a DUT during operation.



Dwell

Eliminates the need to make adjustments during testing by consistently applying the correct voltage for the correct amount of time.



Safety Agency Listed

This tester is NRTL listed and was subjected to the same rigorous tests it must perform.

# 290 SERIES SPECIFICATIONS

INPUT (294, 295, 296, 297, 298)	
<b>Voltage</b>	100-120 VAC / 200-240 VAC $\pm$ 10% Auto Range
<b>Frequency</b>	50/60 Hz $\pm$ 5%
<b>Fuse</b>	3.15 A / 250 VAC Fast-Blow

DIELECTRIC WITHSTAND TEST MODE		
<b>Output Rating</b>	298	AC 0-5.00 kVAC, 99.99 mA
	297	AC 0-5.00 kVAC, 12.00 mA DC 0-6.00 kVDC, 5.00 mA
	296	AC 0-5.00 kVAC, 12.00 mA DC 0-6.00 kVDC, 5.00 mA
	295	AC 0-5.00 kVAC, 12.00 mA
	294	DC 0-6.00 kVDC, 5.00 mA
<b>Voltage Setting</b>	298	0-5.00 kVAC
	297	Resolution: 0.01 kV
	296	Accuracy: $\pm$ (1.5% of setting + 5V)
	295	
	297	0-6.00 kVDC
	296	Resolution: 0.01 kV
	294	Accuracy: $\pm$ (1.5% of setting + 5V)
<b>Output Frequency</b>	294	DC only
	295, 298	50/60 Hz Selectable
	296, 297	DC and 50/60 Hz Selectable
	Accuracy	$\pm$ 0.1%
<b>AC Waveform</b>	Sine Wave, Crest Factor = 1.3 - 1.5	
<b>DC Output Ripple</b>	294	<5% ( 6 kVDC / 5mA at Resistive Load)
	296	
	297	
<b>Dwell Timer</b>	0, 0.2 - 60 sec, (0=continuous), 0.1 sec/step	
<b>Ramp Timer</b>	0.2 - 180 sec, 0.1 sec/step	
<b>Leakage Failure Settings</b>	298	AC Hi-Limit: 0.10 - 99.99 mA Lo-Limit: 0 - 99.99 mA
	Resolution:	0.01 mA
	Accuracy:	$\pm$ (2% of reading + 0.06 mA)
	297	AC Hi-Limit: 0.10 - 12.00 mA Lo-Limit: 0 - 12.00 mA
	296	DC Hi-Limit: 0.02 - 5.00 mA Lo-Limit: 0 - 5.00 mA
295	AC Hi-Limit: 0.10 - 12.00 mA Lo-Limit: 0 - 12.00 mA	
	294	DC Hi-Limit: 0.02 - 5.0 mA Lo-Limit: 0 - 5.00 mA
Resolution:	0.01 mA	
Accuracy:	$\pm$ (2% of reading + 0.02 mA)	
<b>Discharge Time</b>	< 50 msec for no load, < 100 msec for capacitive load	

INSULATION RESISTANCE TEST MODE (297 only)		
<b>Output Voltage</b>	Range:	0.1-1.00 kVDC
	Resolution:	0.01 kV
	Accuracy:	$\pm$ (1.5% of setting + 3 V)
<b>Resistance Display</b>	Range:	1 - 1000 M $\Omega$
	Resolution:	1 M $\Omega$
	Accuracy:	100-499 V $\pm$ (7% of setting + 2 M $\Omega$ ) 500-1000 V $\pm$ (3% of setting + 2 M $\Omega$ )
<b>Hi-Limit</b>	Range:	0.1 - 1000 M $\Omega$ (0=off)
	Resolution:	1 M $\Omega$
<b>Lo-Limit</b>	Range:	1 - 1000 M $\Omega$
	Resolution:	1 M $\Omega$
<b>Timer</b>	Ramp:	0.1 or 2.0 sec
	Delay:	0, 0.5 - 999.9 sec, (0=continuous)

GENERAL SPECIFICATIONS		
<b>Continuity Feature</b>	Range:	0.0 - 1.50 $\Omega$
	Resolution:	0.01 $\Omega$
	Accuracy:	$\pm$ (2% of setting + 0.02 $\Omega$ )
<b>Memories</b>	5 (10 optional)	
<b>Remote I/O</b>	Input:	Test, Reset, Interlock
	Output:	Pass, Fail, Test-in-Process <b><u>Hardware Interlock - a relay on the high voltage output opens when the Interlock signal is disabled.</u></b>
<b>3mA AC/DC Current Limit (optional)</b>	294	Range: 0.00 - 3.00 mA
	295	Resolution: 0.01 mA
	296	Accuracy: $\pm$ (2% of setting + 0.02mA)
	297	
<b>Meter Max (standard)</b>	Displays the maximum voltage value recorded during a breakdown.	
<b>Imax (optional)</b>	Displays the maximum leakage current value read during a test. Option 3 (USB port) must be installed to receive this measurement.	
<b>Security</b>	Option to turn On or Off, when On you can switch between two security levels:	
	<ol style="list-style-type: none"> <li>1. Run - Operator can only run a test. No ability to change memory locations or edit test parameters.</li> <li>2. Mem - Operator can run a test and change memory locations. No ability to edit test parameters.</li> </ol>	
<b>Safety Mark</b>	CE/cTUVus	
<b>Dimensions (W x H x D)</b>	294, 295	8.5" x 3.5" x 11.9" (215 x 88.1 x 300 mm)
	296, 297	
	298	16.93" x 5.20" x 11.84" (430 x 132 x 300 mm)
<b>Weight</b>	294, 295	12 lbs (5.46 Kg)
	296, 297	
	298	46 lbs (20.86 Kg)

Specifications subject to change without notice.

# 260 SERIES SPECIFICATIONS

INPUT		
<b>Voltage</b>	264	100 - 120 VAC / 200 - 240 VAC $\pm$ 10% Auto Range
	266	100 - 240 VAC $\pm$ 10% Full Range
<b>Frequency</b>	50/60 Hz $\pm$ 5%	
<b>Fuse</b>	264	10A / 250 VAC Slow-Blow
	266	12A / 250 VAC Slow-Blow

GROUND BOND TEST MODE		
<b>Output Rating</b>	264	3.0 - 40.0 AAC
	266	3.0 - 60.0 AAC
	Resolution: 0.1 A	
	Accuracy: $\pm$ (2% of setting + 0.1A)	
	264	Voltage 8 VAC (fixed)
	266	Voltage 12 VAC (fixed)
<b>Output Frequency</b>	50/60 Hz user selectable Accuracy: $\pm$ 0.1%	
<b>Resistance Limit Settings</b>	264	0 - 150 m $\Omega$ for 30.1 - 40.0 A 0 - 200 m $\Omega$ for 10.1 - 30.0 A 0 - 600 m $\Omega$ for 3.0 - 10.0 A
	266	0 - 150 m $\Omega$ for 30.1 - 60.0 A 0 - 200 m $\Omega$ for 15.1 - 30.0 A 0 - 600 m $\Omega$ for 3.0 - 15.0 A
	Resolution: 1 m $\Omega$ Accuracy: $\pm$ (2% of setting + 2 m $\Omega$ )	
	<b>Offset Limit Settings</b> 0 - 100 m $\Omega$ Resolution: 1 m $\Omega$ Accuracy: $\pm$ (2% of setting + 2 m $\Omega$ )	
<b>Dwell Timer</b>	0, 0.5 - 240.0 sec, (0=continuous), 0.1 sec/step	
<b>Ramp Timer</b>	0.1 sec fixed	
<b>Measurement Current</b>	264	0.0 - 40.0 AAC
	266	0.0 - 60.0 AAC
	Resolution: 0.1 A Accuracy: $\pm$ (3% of reading + 0.1 A)	
<b>Ohmmeter</b>	264	0 - 600 m $\Omega$  Resolution: 1 m $\Omega$ Accuracy: $\pm$ (3% of reading + 3 m $\Omega$ ) for 3 - 5.9 A, $\pm$ (2% of reading + 2 counts) for 6 - 40A
	266	0 - 600 m $\Omega$  Resolution: 1 m $\Omega$ Accuracy: $\pm$ (3% of reading + 3 m $\Omega$ ) for 3 - 5.9 A $\pm$ (2% of reading + 2 m $\Omega$ ) for 6 - 60 A

GENERAL SPECIFICATIONS		
<b>Memories</b>	5	
<b>Remote I/O</b>	Input:	Test, Reset, Interlock
	Output:	Pass, Fail, Test-in-Process
<u>Hardware Interlock - a relay on the high voltage output opens when the Interlock signal is disabled.</u>		
<b>Voltage Drop Display (optional)</b>	Display the voltage drop across the circuit instead of the resistance measurement.	
<b>Voltage Limit Settings</b>	264	0.00 - 6.00 VAC
	266	0.00 - 9.00 VAC
	Resolution: 0.01 V Accuracy: $\pm$ (2% of setting + 0.02 V)	
<b>Offset Limit Settings</b>	264	0.00 - 4.00 VAC
	266	0.00 - 6.00 VAC
	Resolution: 0.01 V Accuracy: $\pm$ (2% of setting + 0.02 V)	
<b>Security</b>	Option to turn On or Off, when On you can switch between two security levels:	
	<ol style="list-style-type: none"> <li>1. Run - Operator can only run a test. No ability to change memory locations or edit test parameters.</li> <li>2. Mem - Operator can run a test and change memory locations. No ability to edit test parameters.</li> </ol>	
<b>Safety Mark</b>	CE/cTUVus	
<b>Dimensions (W x H x D)</b>	264	8.5" x 3.5" x 11.81" (215 x 88 x 300 mm)
	266	16.93" x 5.20" x 11.81" (430 x 132 x 300 mm)
<b>Weight</b>	264	9.25 lbs. (4.3 Kg)
	266	20.25 lbs. (9 Kg)

Specifications subject to change without notice.



# 4000 SERIES SPECIFICATIONS

INPUT		
<b>Voltage</b>	4320	115/230 VAC $\pm$ 15%, user selection
	4520	115/230V Auto Range, $\pm$ 15% variation
<b>Frequency</b>	50/60 Hz $\pm$ 5%	
<b>Fuse</b>	4320	6.3 A 250 V slow blow
	4520	15 A slow blow 250 VAC
DIELECTRIC WITHSTAND TEST MODE		
<b>Output Rating</b>	4320	5 kV @ 20 mAAC 6 kV @ 5 mADC
	4520	5 kV @ 100 mAAC 6 kV @ 10 mADC
<b>Voltage Setting/ Display</b>	Range: Resolution: Accuracy:	0 - 5.00 kVAC 0 - 6.00 kVDC 0.01 kV $\pm$ (2% of setting + 5 V) $\pm$ (2% of reading + 10 V)
<b>Current Display</b>	4320	Range: 0 - 20.00 mAAC, 0 - 5.00 mADC Resolution: 0.01 mA Accuracy: $\pm$ (2% of reading + 0.02 mA)
	4520	Range: 0 - 99.99 mAAC, 0 - 10.00 mADC Resolution: 0.01 mA Accuracy: $\pm$ (2% of reading + 0.06 mA)
<b>HI-Limit LO-Limit</b>	4320 AC	Range: 0 - 20.00 mA Resolution: 0.01 mA Accuracy: $\pm$ (2% of setting + 0.02 mA)
	4320 DC	Range: 0 - 5.00 mA Resolution: 0.01 mA Accuracy: $\pm$ (2% of setting + 0.02 mA)
	4520 AC	Range: 0 - 99.99 mAAC Resolution: 0.01 mA Accuracy: $\pm$ (2% of reading + 0.06 mA)
	4520 DC	Range: 0 - 10.00 mADC Resolution: 0.01 mA Accuracy: $\pm$ (2% of reading + 0.06 mA)
<b>Failure Detector</b>	Audible and Visual	
<b>DC Output Ripple</b>	4320	< 5% Ripple RMS at 6 kVDC @ 5 mA, resistive load
	4520	$\leq$ 5% Ripple RMS at 6 kVDC @ 10 mA, resistive load
<b>Discharge Time</b>	$\leq$ 200 ms	
<b>Max. Capacitive Load in DC Mode</b>	1.00 $\mu$ F < 1 kV	0.08 $\mu$ F < 4 kV
	0.75 $\mu$ F < 2 kV	0.04 $\mu$ F < 5 kV
	0.50 $\mu$ F < 3 kV	0.01 $\mu$ F < 6 kV
<b>AC Wave Form</b>	Sine Wave distortion <2%, Crest Factor = 1.3 - 1.5	
<b>AC Output Frequency</b>	Range:	50/60 Hz, user selection
<b>Output Regulation</b>	$\pm$ (1% of setting + 5 V) from no load to full load	
<b>Dwell Timer</b>	Range:	0, 0.2 - 999.9 sec, (0 = continuous)
	Resolution:	0.1 sec increments
	Accuracy:	$\pm$ (0.1% + 0.05 sec)
<b>Ramp Timer</b>	Range:	0.1 - 999.9 sec
	Resolution:	0.1 sec increments
	Accuracy:	$\pm$ (0.1% + 0.05 sec)

INSULATION RESISTANCE TEST MODE					
<b>Output Voltage</b>	Range:	100 - 1000 VDC			
	Resolution:	1 V			
	Accuracy:	$\pm$ (2% of reading + 5 V)			
<b>Voltage Display</b>	Range:	0 - 1000 V			
	Resolution:	1 V			
	Accuracy:	$\pm$ (2% of reading + 2 V)			
<b>Resistance Display</b>	Range:	1 - 1000 M $\Omega$ (4 digit, auto ranging)			
	Resolution:		500 VDC	1000 VDC	
			M $\Omega$	M $\Omega$	M $\Omega$
			0.01	1.00 - 40.00	1.00 - 80.00
		0.1	35.0 - 999.9	75.0 - 999.9	
<b>Hi-Limit</b>	Range:	0, 1 - 1000 M $\Omega$ (0 = off)			
<b>LO-Limit</b>	Range:	1 - 1000 M $\Omega$			
<b>Delay Timer</b>	Range:	0, 0.5 - 999.9 sec, (0 = continuous)			
	Resolution:	0.1 sec			
	Accuracy:	$\pm$ (0.1% of 0.05 sec)			

GROUND BOND TEST MODE		
<b>Output Voltage</b>	Range:	6 VAC fixed
<b>Output Frequency</b>	Range:	50/60 Hz, user selectable
<b>Output Current</b>	Range:	3.0 - 30.0 AAC
	Resolution:	0.1 A
	Accuracy:	$\pm$ (2% of setting + 0.02 A)
<b>Current Display</b>	Range:	0 - 30.0 A
	Resolution:	0.1 A
	Accuracy:	$\pm$ (3% of reading + 0.01 A)
<b>HI-Limit LO-Limit</b>	Range:	0 - 510 m $\Omega$ for 3.0 - 10.0 A
		0 - 200 m $\Omega$ for 10.1 - 25.0 A
		0 - 150 m $\Omega$ for 25.1 - 30.0 A
	Resolution:	1 m $\Omega$
Accuracy:	$\pm$ (2% of setting + 2 m $\Omega$ )	
<b>Dwell Timer</b>	Range:	0, 0.5 - 999.9 sec, (0 = continuous)
	Resolution:	0.1 sec
	Accuracy:	$\pm$ (0.1% + 0.05 sec)
<b>Milliohm Offset</b>	Max. Offset Capability:	0 - 100 m $\Omega$
	Resolution:	1 m $\Omega$
	Accuracy:	$\pm$ (2% of setting + 2 m $\Omega$ )

GENERAL SPECIFICATIONS		
<b>Memories</b>	Allows storage of up to 6 different test programs and 6 steps per memory and a single step mode	
<b>Remote I/O</b>	Input:	Test, Reset, Interlock & recall memory 1-6
	Output:	Pass, Fail, Test-In-Process
<b>Interface</b>	Optional RS-232	
<b>Security</b>	Lockout capability to avoid unauthorized access to test set-up programs	
<b>Calibration</b>	Software & adjustments made through front panel	
<b>Mechanical</b>	Bench or rack mount with tilt up front feet (4520 Only)	
<b>Dimensions</b> (W x H x D)	4320	11" x 3.5" x 17" (280 x 89 x 430 mm)
	4520	16.9" x 5.2" x 15.7" (430 x 133 x 400 mm)
<b>Weight</b>	4320	33 lbs. (15 kg)
	4520	54 lbs. (24.5 kg)

Specifications subject to change without notice.

# SAFETY STANDARD REFERENCE CHART

Standard / Harmonized Standard	Testing Type	Dielectric Withstand			Ground Bond/Continuity				Earth Leakage		Insulation Resistance			Suggested Model #
		Test Voltage	Max I.	Test Time	Test Current	V Limit	Max. R	Test Time	Test Voltage	Max I.	Test Time	V Limit	Min R	
IEC/UL 60601-1 3rd Edition Medical Electrical Equipment	Production	1000 – 3000 VAC	No Breakdown	1 or 60 s	10-25 A	≤ 6 V	≤ 0.1 Ω	5 s	N/A		N/A			4320, 4520
H.U.D. Specification #24 CFR 3280.810	Performance	900-1079 VAC or 1273-1526 VDC	No Breakdown	60 s	Continuity				N/A		N/A			294, 295, 296, 297
	Production	1080-1250 VAC or 1527-1768 VDC	No Breakdown	1 s	Continuity				N/A		N/A			294, 295, 296, 297
R.V.I.A. (NEC)	Performance	900 VAC or 1280 VDC	No Breakdown	60 s	Continuity				N/A		N/A			294, 295, 296, 297
	Production	1080 VAC or 1530 VDC	No Breakdown	1 s	Continuity				N/A		N/A			294, 295, 296, 297
IEC 60335-1 Household Electrical Appliances	Performance	500 – 2400 VAC x rated V + 2400 VAC	No Breakdown	60 s	≥ 10 A	≤ 12 V	0.1 – 0.2 Ω	≤ 120 s	1.06 x rated V	0.25 – 5.0 uA	N/A			298*
	Production	400 – 2500 VAC	5-30 mA	1 s	≥ 10 A	≤ 12 V	0.1 – 0.2 Ω	No time specified	N/A		N/A			4520
UL 60335-1 Household Electrical Appliances	Performance	500 V – 2400 VAC x rated V + 2400 VAC	No Breakdown	60 s	40 A	≤ 6.5 V	≤ 0.5 Ω	120 s	1.06 x rated V	0.25 – 5.0 uA	N/A			298*
	Production	400 – 2500 VAC	5-30 mA	1 s	40 A	≤ 12 V	0.1 – 0.2 Ω	No time specified	N/A		N/A			4520
IEC 60598-1 Luminaires	Performance	500 – 4 x rated V + 2000 VAC	No Breakdown	60 s	≥ 10 A	≤ 12 V	≤ 0.5 Ω	60 s	Rated V	0.5 – 10 mA	60 s	500 VDC	1-4 MΩ	298*
	Production	Not Specified - Responsibility of Manufacturer												294, 295, 296, 297
UL 1598 Luminaires	Performance	1000 VAC - 1000 VAC x 2 x rated V	No Breakdown	60 s	30 A	≤ 4 V	≤ 0.1 Ω	120 s	N/A		No time specified	500 VDC	≥ 2 MΩ	4520
	Production	1200 VAC		1 s	Continuity			≤ 0.1 Ω	Continuity	N/A		N/A		
IEC/UL 61010-1 & CSA 22.2 No. 61010- 1 Laboratory Control Test & Measurement Equipment	Performance	840 - 11940 VAC or 1200 - 7500 VDC	No Breakdown	5 - 60 s	25 or 30 A	≤ 10 V or ≤ 12 V	≤ 0.1 Ω or <4 V 0.133 Ω	60 or 120 s	< 300 V	0.5 mA	N/A			298*
	Production			5 s max ramp up 2 s dwell	Continuity				N/A		N/A			294, 295, 296, 297
EN 60204-1 Electrical Equipment of Machines	Performance	2 x rated V or 1000 VAC	No Breakdown	1 s	0.2 - 10 A	≤ 24 V	Refer to Section 18.2.2	No time specified	N/A		No time specified	500 V	≥ 1 MΩ	4320
	Production	Not Specified - Responsibility of Manufacturer												294, 295, 296, 297
UL 45A Portable Electrical Appliances	Production	1000 - 3000 VAC	No Breakdown	1 s	Continuity				N/A		N/A			294, 295
EN 60950-1 EN 50116 Information Technology Equipment	Production	1000 – 3000 VAC or 1414 – 4242 VDC	No Breakdown	1 - 4 s	25 A	≤ 12 V	≤ 0.1 Ω	1-4 s	N/A		N/A			4320
UL 60950-1 CSA 22.2 No. 60950- 1 Information Technology Equipment	Production	1000 – 3000 VAC or 1414 – 4242 VDC	No Breakdown	1 – 6 s	Continuity				N/A		N/A			294, 295, 296

\*This standard requires the use of a 500VA Hipot Tester

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