

# Safety Made Simple®



### **Testers For Electrical Safety Compliance**

We've been providing customers exactly the features they need for over 60 years. We aim to simplify the Electrical Safety Industry for our customers and we apply this philosophy to everything we do.





All testers come with all 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
290 Series							
294		•		•			
295	•			•			
296	•	•		•			
297	•	•	•	•			
298	500VA			•			
260 Series							
264					40A		
266					60A		
4000 Series							
4320	•	•	•		30A		
4520	500VA	•	•		30A		
6000 Series							
6330	•	•	•		30A	•	•

#### **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**

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.



#### **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, no questions asked.



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50Hz 60Hz Frequency Selection	Ramp	Dwell	Low Current Sense	Safety Agency Listed	PLC Remote	USB	(000000) RS-232	
								290 Series
	•	•	•	•	•	OPT		294
•	•	•	•	•	•	OPT		295
•	•	•	•	•	•	OPT		296
•	•	•	•	•	•	OPT		297
•	•	•	•	•	•	OPT		298
								260 Series
•		•		•	•	OPT		264
•		•		•	•	OPT		266
								4000 Series
•	•	•	•	•	•		OPT	4320
•	•	•	•	•	•		OPT	4520
								6000 Series
•	•	•	•	•	•		•	6330



## **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 DUT's 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	500VA			•

#### **RELEVANT APPLICATIONS**

**APPLIANCE** 

**AC/DC POWERED PRODUCTS** 

**CABLES & COMPONENTS** 

LIGHTING & LED TESTING

**MODULAR HOMES** 

**MOTORS & PUMPS** 

#### **SUPPLIED ACCESSORIES**

Return Lead 6 ft. (1.8m) 102-069-904

High Voltage Lead 6 ft. (1.8m) 102-055-913

Input Power Cable USA 125-013-001

Interlock Connector 99-10040-01

All testers come with all 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



**PLC** Remote









## 260 SERIES

### **GROUND BOND TESTERS**







**5 PROGRAMMABLE MFMORIFS** 

**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 simple, easy-to-use Ground Bond testers that provide the output current that 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.



#### **RELEVANT APPLICATIONS**

#### **APPLIANCE**

**INDUSTRIAL EQUIPMENT** 

**MEDICAL** 

LABORATORY EQUIPMENT

**WATER PUMPS** 

#### **SERIES FEATURES**



Test Setup Memories



Frequency Selection

#### **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 all the accessories you need to run a test right out of the box.

#### **OPTIONS**

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









# **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 DUT's from the front panel or with a PLC remote. Choose from two models.

	AC Hipot	DC Hipot	Insulation Resistance	30A Ground Bond
4320	•	•	•	•
4520	500VA	•	•	•

#### **RELEVANT APPLICATIONS**

#### **SERIES FEATURES**

#### **APPLIANCE**

**INDUSTRIAL EQUIPMENT** 

INFORMATION TECHNOLOGY

**CONTRACT MANUFACTURING** 







Frequency Selection

#### **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







Sense









#### **OPTIONS**

a test right out of the box.

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

All testers come with all the accessories you need to run



# **6000 SERIES**



# 6-IN-1 ELECTRICAL SAFETY TESTERS



VERSATILE 6-IN-1 FUNCTIONALITY

20 PROGRAMMABLE MEMORIES WITH 10 TEST STEPS EACH

4 BUILT-IN
NRTL-COMPLIANT
MEASURING DEVICES

EASILY AUTOMATE FOR DATA COLLECTION

REMOTE SAFETY INTERLOCK

EASILY SAFEGUARD YOUR WORKSTATION WITH PPE ACCESSORIES

The 6330 is our most advanced multi-function electrical safety tester with 6-in-1 test capability. With minimal setup time, you can perform AC Hipot, DC Hipot, Ground Bond, Insulation Resistance, Functional Run, and Leakage Current tests on a variety of DUT's. With the 6330 you'll save time, increase throughput, and declutter your test bench over a single function tester. The 6330 is designed to make advanced testing applications simple with the most intuitive user interface on the market.



#### **RELEVANT APPLICATIONS**

**APPLIANCE** 

INFORMATION TECHNOLOGY

**MEDICAL** 

#### **SUPPLIED ACCESSORIES**

102-055-913	High Voltage Lead 6 ft. (1.8m)
102-013-001	Input Power Cable USA
99-10457-01	40 Amp High Current Return Lead 10 ft. (3m)
99-10009-01	30 Amp High Current Return Lead 6 ft. (1.8m)
99-10239-01	60 Amp High Current Lead 6 FT
99-10469-01	Black DUT Input Line Test Lead
99-10470-01	Black DUT Input Neutral Test Lead
99-10471-01	White DUT Output Line Test Lead
99-10472-01	White DUT Output Neutral Test Lead
99-10040-01	Interlock Connector
99-10467-01	Adapter Box Universal US 10 ft. (3m)
99-10106-01	Fuse

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

#### **SERIES FEATURES**



Test Setup Memories



Frequency Selection



Ramp



Dwell



Low Current Sense







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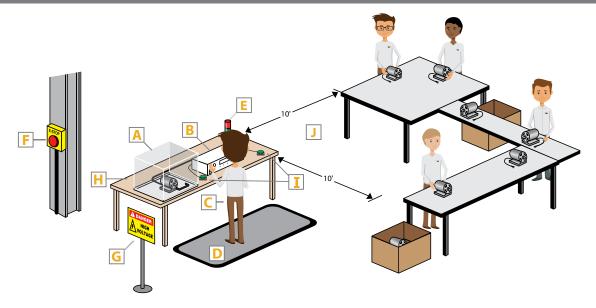
#### **OPTIONS**

Description 6330

**Rack Mount Hardware** 



### **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.



#### **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.



#### **Hipot Tester**

Tester used to test the DUT.



#### **Test Operator**



#### **Insulation Mat**

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



#### **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.



#### **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.



#### **Warning Sign**

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



#### Non-Conductive Work Bench

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



#### **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.



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

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

### **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 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.

#### **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):

 $20" \times 16" \times 10" (508 \times 407 \times 254 \text{ mm}) 3/4" \text{ Walls, } 3/4" \text{ Flame Retardant Foam,}$ 





### 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 FOOTSWITCH

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 REMOTESWITCHES

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 in running. The palm switches should be placed at least 21.6" (550mm) apart to prevent one-hand activation of both switches.

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Compatible Models: 290 Series

### **PPE ACCESSORIES**



#### **REMOTE TEST BOX**

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 (LED's) 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

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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 kOhm Resistor

P/N: 99-10293-01

Use the 120 kOhm 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



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### **ICONOLOGY**



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



Run

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



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



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



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



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



**Bond** 

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



Test Setup Memories

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



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



The Ground Continuity test is used to verify the presence Ground Continuity of the DUT's 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.



Resistance test is used to determine the total resistance of a DUT's insulation. Insulation Resistance

The Insulation



Ramp

Prevents false failures by slowly ramping up the output voltage over time - perfect for sensitive or highly capacitive DUT's.



**Low Current** Sense

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



Current

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



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.

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## **290 SERIES SPECIFICATIONS**

<b>INPUT</b> (294, 295, 296, 297, 298)				
Voltage	100-120 VAC / 2	100-120 VAC / 200-240 VAC $\pm$ 10% Auto Range		
Frequency	50/60 Hz ± 5%			
Fuse	3.15 A / 250 VAC Fast-Blow			
DIELECTRIC WITHSTAND TEST MODE				
0 1 10 11	200	ACO 50011/AC 0000 A		

Fuse	3.15 A / 250 VAC Fast-Blow			
DIELECTRIC WITHSTAND TEST MODE				
Output Rating	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		
Voltage Setting	298 297 296 295	0-5.00 kVAC Resolution: 0.01 kV Accuracy: ± (1.5% of setting + 5V)		
	297 296 294	0-6.00 kVDC Resolution: 0.01 kV Accuracy: ± (1.5% of setting + 5V)		
Output Frequency	294	DC only		
	295, 298	50/60 Hz Selectable		
	296, 297	DC and 50/60 Hz Selectable		
	Accuracy	± 0.1%		
AC Waveform	Sine Wave, Crest Factor = 1.3 - 1.5			
DC Output Ripple	294 296 297	<5% ( 6 kVDC / 5mA at Resistive Load)		
Dwell Timer	0, 0.2 - 60 sec, (0=continuous), 0.1 sec/step			
Ramp Timer	0.2 - 180 sec, 0.7	1 sec/step		
Leakage Failure Settings	298	AC Hi-Limit: 0.10 - 99.99 mA Lo-Limit: 0 - 99.99 mA		
	Resolution: Accuracy:	0.01 mA $\pm$ (2% of reading + 0.06 mA)		
	297 296	AC Hi-Limit: 0.10 - 12.00 mA Lo-Limit: 0 - 12.00 mA 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: Accuracy:	0.01 mA $\pm$ (2% of reading + 0.02 mA)		
Discharge Time	< 50 msec for no load, $<$ 100 msec for capacitive load			

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

	Delay.	0, 0.3 - 999.9 sec, (0=continuous)		
GENERAL SPECIFICATIONS				
Continuity Feature	Range: Resolution: Accuracy:	0.0 - 1.50 Ω 0.01 Ω $\pm$ (2% of setting + 0.02 Ω)		
Memories	5 (10 optional)			
Remote I/O	Input: Output:	Test, Reset, Interlock -Pass, Fail, Test-in-Process Hardware Interlock - a relay on the high voltage output opens when the Interlock signal is disabled.		
3mA AC/DC Current Limit (optional)	294 295 296 297	Range: 0.00 - 3.00 mA Resolution: 0.01 mA Accuracy: ± (2% of setting + 0.02mA)		
Meter Max (standard)	Displays the maximum voltage value recorded during a breakdown.			
lmax (optional)	Displays the maximum leakage current value read during a test. Option 3 (USB port) must be installed to receive this measurement.			
Security	Option to turn On or Off, when On you can switch between two security levels:  1. Run - Operator can only run a test. No ability to change memory locations or edit test parameters.  2. Mem - Operator can run a test and change memory locations. No ability to edit test parameters.			
Safety Mark	CE/cTUVus			
<b>Dimensions</b> (W×H×D)	294, 295 296, 297 298	8.5" x 3.5" x 11.9" (215 x 88.1 x 300 mm) 16.93" x 5.20" x 11.84" (430 x 132		
Wainbe	204 205	x 300 mm)		
Weight	294, 295 296, 297	12 lbs (5.46 Kg)		
	298	46 lbs (20.86 Kg)		

Specifications subject to change without notice.

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### **260 SERIES SPECIFICATIONS**

INPUT			
Voltage	264	100 - 120 VAC / 200 - 240 VAC ± 10% Auto Range	
	266	100 - 240 VAC ± 10% Full Range	
Frequency	50/60 Hz ± 5%		
Fuse	264	10A / 250 VAC Slow-Blow	
	266	12A / 250 VAC Slow-Blow	

GROUND BOND TEST MODE				
Output Rating	264	3.0 - 40.0 AAC		
	266	3.0 - 60.0 AAC		
	Resolu	tion: 0.1 A		
	Accura	Accuracy: $\pm$ (2% of setting + 0.1A)		
	264	Voltage 8 VAC (fixed)		
	266	Voltage 12 VAC (fixed)		
Output Frequency		Hz user selectable cy: $\pm$ 0.1%		
Resistance Limit Settings	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 $\Omega$ )			
Offset Limit Settings	0 - 100 mΩ Resolution: 1 mΩ Accuracy: $\pm$ (2% of setting + 2 mΩ)			
Dwell Timer	0, 0.5 -	240.0 sec, (0=continuous), 0.1 sec/step		
Ramp Timer	0.1 sec	fixed		
Measurement	264	0.0 - 40.0 AAC		
Current	266	0.0 - 60.0 AAC		
	Resolution: 0.1 A Accuracy: ± (3% of reading + 0.1 A)			
Ohmmeter	264	$0\text{-}600\text{m}\Omega$		
		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	$0\text{ - }600m\Omega$		
		Resolution: $1 \text{ m}\Omega$ Accuracy: $\pm (3\% \text{ of reading} + 3 \text{ m}\Omega) \text{ for } 3 - 5.9 \text{ A}$ $\pm (2\% \text{ of reading} + 2 \text{ m}\Omega) \text{ for } 6 - 60 \text{ A}$		

GENERAL SPECIFICATIONS				
Memories	5			
		T . D		
Remote I/O	Input:	Test, Reset, Interlock		
	Output:	Pass, Fail, Test-in-Process		
		Interlock - a relay on the high voltage output en the Interlock signal is disabled.		
Voltage Drop Display (optional)		e voltage drop across the circuit instead of the measurement.		
Voltage Limit Settings	264	0.00 - 6.00 VAC		
	266	0.00 - 9.00 VAC		
		Resolution: 0.01 V Accuracy: ± (2% of setting + 0.02 V)		
Offset Limit Settings	264	0.00 - 4.00 VAC		
	266	0.00 - 6.00 VAC		
	Resolution: 0.01 V Accuracy: ± (2% of setting + 0.02 V)			
Security	Option to turn On or Off, when On you can switch between two security levels:			
	1. Run - Operator can only run a test. No ability to change memory locations or edit test parameters.			
	Mem - Operator can run a test and change memory locations. No ability to edit test parameters.			
Safety Mark	CE/cTUVu	S		
<b>Dimensions</b> (W x H x D)	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		
Weight	264	9.25 lbs. (4.3 Kg)		
	266	20.25 lbs. (9 Kg)		

Specifications subject to change without notice.

### **4000 SERIES SPECIFICATIONS**

INPUT		
Voltage	4320	115/230 VAC $\pm$ 15%, user selection
	4520	115/230V Auto Range, ± 15% variation
Frequency	50/60 Hz ± 5%	
Fuse	4320	6.3 A 250 V slow blow
	4520	15 A slow blow 250 VAC

	4320	13 / 310W BIOW 250 V/IC	
DIELECTRIC WITH	ISTAND TEST	MODE	
Output Rating	4320	5 kV @ 20 mAAC 6 kV @ 5 mADC	
	4520	5 kV @ 100 mAAC 6 kV @ 10 mADC	
Voltage Setting/ Display	Range: Resolution: Accuracy:	0 - 5.00 kVAC 0 - 6.00 kVDC 0.01 kV ± (2% of setting + 5 V) ± (2% of reading + 10 V)	
Current Display	4320	Range: 0 - 20.00 mAAC, 0 - 5.00 mADC Resolution: 0.01 mA Accuracy: ± (2% of reading + 0.02 mA)	
	4520	Range: 0 - 99.99 mAAC, 0 - 10.00 mADC Resolution: 0.01 mA Accuracy: ± (2% of reading + 0.06 mA)	
HI-Limit LO-Limit	4320 AC	Range: 0 - 20.00 mA Resolution: 0.01 mA Accuracy: ± (2% of setting + 0.02 mA)	
	4320 DC	Range: 0 - 5.00 mA Resolution: 0.01 mA Accuracy: ± (2% of setting + 0.02 mA)	
	4520 AC	Range: 0 - 99.99 mAAC Resolution: 0.01 mA Accuracy: ± (2% of reading + 0.06 mA)	
	4520 DC	Range: 0 - 10.00 mADC Resolution: 0.01 mA Accuracy: ± (2% of reading + 0.06 mA)	
Failure Detector	Audible and Visual		
DC Output Ripple	4320	< 5% Ripple RMS at 6 kVDC @ 5 mA, resistive load	
	4520	≤ 5% Ripple RMS at 6 KVDC @ 10 mA, resistive load	
Discharge Time	≤ 200 ms		
Max. Capacitive Load in DC Mode	1.00 uF < 1 kV 0.08 uF < 4 kV 0.75 uF < 2 kV 0.04 uF < 5 kV 0.50 uF < 3 kV 0.01 uF < 6 kV		
AC Wave Form	Sine Wave distort	tion <2%, Crest Factor = 1.3 - 1.5	
AC Output Frequency	Range:	50/60 Hz, user selection	
<b>Output Regulation</b>	± (1% of setting +	- 5 V) from no load to full load	
<b>Dwell Timer</b>	Range: Resolution: Accuracy:	0, 0.2 - 999.9 sec, (0 = continuous) 0.1 sec increments ± (0.1% + 0.05 sec)	
Ramp Timer	Range: Resolution: Accuracy:	0.1 - 999.9 sec 0.1 sec increments ± (0.1% + 0.05 sec)	

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

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

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

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Specifications subject to change without notice.

**Dwell Timer** 

Ramp Timer

### **6000 SERIES SPECIFICATIONS**

INPUT							
Voltage	115 / 230 V selectable, $\pm$ 10 % variation						
Frequency	50/60 Hz ± 5%						
Fuse	6.3 A slow blow 250 VAC						
DIELECTRIC WITHSTAND TEST MODE							
Output Rating	3.5 kV @ 30 mAAC						
	4.0 kV @ 5 mADC						
Voltage Setting	Range: 0 - 3.50 kVAC						

Output Rating	3.5 kV @ 30 mA	:V @ 30 mAAC							
	4.0 kV @ 5 mADC								
Voltage Setting	Range: Resolution: Accuracy:	0 - 3.50 kVAC 0 - 4.00 kVDC 0.01 kV ± (2% of setting + 5 V)							
Current Display	Range: Resolution: Accuracy:	0 - 30.00 mAAC 0 - 5.00 mADC 0.01 mA ± (2% of reading + 0.02 mA)							
HI-Limit LO-Limit	AC	Range: 0 - 30.00 mA Accuracy: ± (2% of setting + 0.02 mA)							
	DC	Range: 0-5.00 mA Accuracy: $\pm$ (2% of setting + 0.02 mA)							
Failure Detector	Audible and Visual								
DC Output Ripple	5% Ripple RMS at 4 kVDC @ 5 mA, resistive load								
Discharge Time	≤ 200ms								
Max. Capacitive	1.00 uF	< 1 kV	0.50 uF	< 3 kV					
Load in DC Mode	0.75 uF	< 2 kV	0.08 uF	< 4 kV					
AC Waveform	Sine Wave, Crest Factor = 1.3 - 1.5								
AC Output Frequency	Range:	50/60 Hz, user s	selection						
Output Regulation	$\pm$ (1% of setting + 5 V) from no load to full load								

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

Range:

Range:

0, 0.2 - 999.9 sec, (0 = continuous)

0.1 - 999.9 sec

GROUND BOND TEST MODE							
Output Voltage	Range:	6 VAC fixed					
Output Frequency	Range:	50/60 Hz, user selectable					
Output Current	Range:	3.0 - 30.0 AAC					
<b>Current Display</b>	Range:	0.0 - 30.0 A					
HI-Limit LO-Limit	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					
	Accuracy:	$\pm$ (2% of setting + 2 m $\Omega$ )					
Dwell Timer	Range:	0, 0.5 - 999.9 sec, (0 = continuous)					
Milliohm Offset Range: Accurac		$0 - 100 \text{ m}\Omega$ ± (2% of setting + 2 mΩ)					

Voltage: Current:	0 - 277 VAC Single Phase Unbalanced 30 AAC max continuous				
Range:	0 - 277.0 VAC Full Scale				
Short circuit current 50 A < 3 s Inrush current 180 A Response time 10 µs					
Range:	0.2 - 999.9 seconds				
Range:	0, 0.1 - 999.9 seconds (0 = continuous)				
Range:	0 - 999.9 seconds				
Range:	0 - 277.0 VAC				
Range:	0 - 30.0 AAC				
Range:	0 - 8400 W				
Range:	0 - 1.000				
Range:	0 - 10.00 mA (0 = off)				
Leakage current measuring resistor MD=2K $\Omega$ ± 1%					
	Current: Range: Short circuit Inrush curre Response ti Range:				

LEAKAGE CURRENT TEST MODE									
DUT Power	Voltage: Current:	0 - 277 VAC Single Phase Unbalanced 0 - 30 A maximum 30 AAC max continuous							
Voltage Display	Range:	0 - 277.0 VAC Full Scale							
Short Circuit Protection	Inrush current	Short circuit current 50 A < 3s Inrush current 180 A Response time 10 µs							
Leakage Current (RMS Only)	Range:	0 μΑ - 6000 μΑ							
	Accuracy:	DC, 15 to 100 kHz $\pm$ (2% of reading + 3 $\mu$ A) $>$ 100 k to 1 MHz $\pm$ 5% of reading							
Measuring Device	A B C F X	UL544 Non Patient IEC60990 Fig4-U2 UL2601-1, UL60601-1 Frequency Check, External MD (1k $\Omega$ ) External MD (1k $\Omega$ )							
Line Condition	Neutral, Reverse	e, Ground							
Probe	G-L								
HI-Limit/LO-Limit	Range:	0 - 6000 μΑ							
<b>Delay Timer</b>	Range:	0, 1.0 - 999.9 sec, (0 = continuous)							

GENERAL SPECIFICATIONS								
Memories	20 memories	20 memories with 10 steps per memory						
Remote I/O	Input: Output:							
Interface	RS-232 interf	RS-232 interface						
Security	Key lock and access	Key lock and memory lock capability to avoid unauthorized access						
Terminations	6' (1.80 m) high voltage and (2) return leads w/ clips							
Calibration	Software & adjustments made through front panel							
Mechanical	Bench or rack mount with tilt up front feet							
Environmental	Operating Temperature: 32° - 104° F (0° - 40° C) Relative Humidity: 20 - 80%							
<b>Dimension</b> (W x H x D)	16.9" x 5.2" x	16.9" x 5.2" x 19.6" (430 x 133 x 500 mm)						
Weight	48.5 lbs. (22 l	48.5 lbs. (22 kg)						

### **SAFETY STANDARD REFERENCE CHART**

Standard / Harmonized	Testing	Dielectric Withstand		Ground Bond/Continuity			Earth Leakage		Insulation Resistance			Suggested Model #		
Standard	Type	Test Voltage	Max I.	Test Time	Test Current	V Limit	Max. R	Test Time	Test Voltage	Max I.		V Limit	Min R	Slaughter Tester
IEC/UL 60601-1	Performance	500 – 4000 VAC or 707 – 5656 VDC		60 s	10-25 A	≤6V	≤ 0.1 Ω	5 s	110% x rated V	5-10 mA		N/A		6330
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/	Ά	N/A			4320, 4520
H.U.D. Specification	Performance	900-1079 VAC or 1273-1526 VDC	No Breakdown	60 s	Continuity					N/A N/A			294, 295, 296, 297	
#24 CFR 3280.810	Production	1080-1250 VAC or 1527-1768 VDC	No Breakdown	1 s		N/	'A	N/A		294, 295, 296, 297				
R.V.I.A. (NEC)	Performance	900 VAC or 1280 VDC	No Breakdown	60 s	s Continuity					N/A		N/A		294, 295, 296, 297
Tuviii (NEC)	Production	1080 VAC or 1530 VDC	No Breakdown	1 s	Continuity				N/A			N/A		294, 295, 296, 297
IEC 60335-1 Household Electrical	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		6330 + 298*
Appliances	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	Performance	500 V – 2400 VAC x rated V + 2400 VAC			0.25 – 5.0 uA	N/A		6330 + 298*						
Appliances	Production	400 – 2500 VAC	5-30 mA	1 s	40 A $\leq 12 \text{ V}$ $0.1 - 0.2$ No time specified		N/A		N/A		4520			
IEC 60598-1	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 ΜΩ	6330 + 298*
Luminaires	Production			Not S	pecified - F	Responsil	bility of Ma	anufacturer					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	Contir	nuity	≤ 0.1 Ω	Continuity	N/A		N/A		295	
IEC/UL 61010-1 & CSA 22.2 No. 61010-	Performance	940 11040 VAC or 1200			25 or 30 A	≤ 10 V or ≤ 12 V	$\leq 0.1 \Omega$ or $<4 V$ $0.133 \Omega$	60 or 120 s	< 300 V	0.5 mA		N/A		6330 + 298*
1 Laboratory Control Test & Measurement Equipment	Production	840 - 11940 VAC or 1200 - 7500 VDC	No Breakdown	5 s max ramp up 2 s dwell	Continuity			N/A		N/A		294, 295, 296, 297		
EN 60204-1	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
Electrical Equipment of Machines	Production		Not Specified - Responsibility of Manufacturer									294, 295, 296, 297		
UL 45A Portable	Performance	1000 VAC + 2 x rated V or DC equivalent	V No Breakdown			Co	ntinuity		< 300 V	0.5 – 3.5 mA	60 s	500 V	≥ 50 KΩ	6330
Electrical Appliances	Production	1000 - 3000 VAC	. TO DIEGRUOWII	1 s		Co	ntinuity		N/A		N/A			294, 295
EN 60950-1 EN 50116 Information	Performance	1000 – 3000 VAC	No President	120 s	30 A	≤ 12 V	≤ 0.1 Ω	60 s	< 300 V	0.25 – 3.5 mA	60 s	500 V	≥ 2 MΩ	6330
Technology Equipment	Production	or 1414 – 4242 VDC	No Breakdown	1 - 4 s	25 A	≤ 12 V	≤ 0.1 Ω	1-4 s	N/	Ά		N/A		4320
UL 60950-1 CSA 22.2 No. 60950-	Performance	1000 2000 \/		60 s	≤ 40 A	≤ 12 V	≤ 0.1 Ω	60 s	< 300 V	0.25 – 3.5 mA	60 s	500 V	≥ 2 MΩ	6330
1 Information Technology Equipment	Production	1000 – 3000 VAC or 1414 – 4242 VDC No Bre		1 – 6 s	6 s Continuity			N/A N/A			294, 295, 296			

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