

# Electrical Safety Compliance Simplified.®



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 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	AMPS Ground Bond	50Hz 60Hz Frequency Selection	Ramp
440 Series							
446	•	•	•		40A	•	•
448	500VA	•	•		40A	•	•
290 Series							
294		•		•			•
295	•			•		•	•
296	•	•		•		•	•
297	•	•	•	•		•	•
298	500VA			•		•	•
260 Series							
264					40A	•	
266					60A	•	

#### **CUSTOMER HAPPINESS PROMISE**

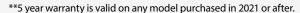
We aim to provide an amazing experience and quality testers that last a long time. If you're not satisfied with your tester, return it within 45 days for a full refund. Calibrate annually with us, or one of our authorized partners, and we'll extend your warranty an additional year for the service life of your tester, and at least five years after discontinuation. If it breaks during that time, we promise to fix it for free (unless abuse or excessive damage is present). When your tester reaches the end of its service life, we'll responsibly recycle it and give you a discount on a replacement.



\*Annual calibration and inspection must be made in each successive year starting one year after the original purchase date in order to remain eligible for extended warranty coverage beyond the standard warranty period (five years).

#### **5 YEAR WARRANTY**

Your new tester is warranted to be free from defects in workmanship and material for a period of (5) years from date of shipment.





#### **ONGOING SUPPORT**

We work to provide the best service and support in the industry. With decades of industry experience we are the pros you can trust to help you be compliant to NRTL standards. We'll work closely with you to help you achieve your goals. We've built a worldwide network of knowledgable partners, so you're covered no matter where you are.



3

Dwell	Low Current Sense	Safety Agency Listed	PLC Remote	USB	
					440 Series
•	•	•	•	ОРТ	446
•	•	•	•	ОРТ	448
					290 Series
•	•	•	•	ОРТ	294
•	•	•	•	ОРТ	295
•	•	•	•	ОРТ	296
•	•	•	•	ОРТ	297
•	•	•	•	ОРТ	298
					260 Series
•		•	•	ОРТ	264
•		•	•	ОРТ	266

# **440 SERIES**









**VERSATILE 4-IN-1 FUNCTIONALITY** 

INTUITIVE USER INTERFACE

**40A GROUND BOND** CAPABII ITY

20 PROGRAMMABLE **MEMORIES** 

**EASILY AUTOMATE FOR DATA COLLECTION** 

REMOTE SAFETY INTERLOCK

**EASILY SAFEGUARD YOUR WORKSTATION WITH PPE ACCESSORIES** 

The 440 Series provides advanced 4-in-1 test capability in a convenient one-box solution. This new series performs AC Hipot (448 - 500 VA), DC Hipot, Insulation Resistance and 40A AC Ground Bond tests while taking up minimal production line space. The 440 Series is simple and easy-to-use; reducing setup time and increasing production line throughput for your application. With multiple memories and an optional USB port for remote BUS communication so you can quickly perform tests on a variety of DUTs from the front panel or with a PC.

	AC Hipot	DC Hipot	Insulation Resistance	40A Ground Bond
446	•	•	•	•
448	500VA	•	•	•

#### **RELEVANT APPLICATIONS**

**APPLIANCE** INDUSTRIAL EQUIPMENT INFORMATION TECHNOLOGY **CONTRACT MANUFACTURING** LABORATORY EQUIPMENT

#### WHAT'S IN THE BOX

33189	Power Cord (10A) 6ft - *446 Model	
38071	Power Cord (15A) 6ft - *448 Model	
99-10783-01	Fuse 10A Slow Blow 20mm - *446 Model	
99-10168-01	Fuse 15A Fast Blow 30mm - *448 Model	
38075	Interlock Connector Male	
40428	Ground Bond Test Lead	
40429	Ground Bond Return Lead	
04040A-08	High Voltage Test Lead 6ft	
99-10797-01	USB A-B 1.8M Cable	

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

#### **OPTIONS**

Description	446	448
Rear Outputs	•	•
USB Port	•	•



SCI 448 Model

#### **SERIES FEATURES**



Test Setup Memories



Frequency Selection



Ramp



Dwell















# **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	500VA			•

#### **RELEVANT APPLICATIONS**

**APPLIANCE** 

AC/DC POWERED PRODUCTS

**CABLES & COMPONENTS** 

**LIGHTING & LED TESTING** 

**MODULAR HOMES** 

**MOTORS & PUMPS** 

#### WHAT'S IN THE BOX

02100A-13 Return Lead 6 ft. (1.8m)

04040A-08 High Voltage Lead 6 ft. (1.8m)

33189 Input Power Cable USA

38075 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



w Current S. Sense



USB (optional)



**PLC Remote** 





# 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	Ground Bond
264	•	
266		•

#### **RELEVANT APPLICATIONS**

**APPLIANCE** 

INDUSTRIAL EQUIPMENT

**MEDICAL** 

LABORATORY EQUIPMENT

**WATER PUMPS** 

#### **SERIES FEATURES**



Test Setup Memories



Frequency Selection

#### **264 WHAT'S IN THE BOX**

40431	40 Amp High Current Return Lead 6ft. (1.8m)
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40432 40 Amp High Current Lead 6ft. (1.8m)

33189 Input Power Cable USA

99-10783-01 Fuse 10 Amp (264 Model)

38075 Interlock Connector





#### **266 WHAT'S IN THE BOX**

40406	60 Amp High Current Lead 6 ft. (1.8m)
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40405 60 Amp High Current Return Lead 6 ft. (1.8m)

38071 Input Power Cable USA

40430 Fuse 12 Amp (266 Model)

38075 Interlock Connector









# 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	•	•





# **440 SERIES SPECIFICATIONS**

INPUT (446 and	448)		
Voltage	100 - 120Vac	/ 200 - 240Vac±10% Auto Range	
Frequency	50/60Hz ± 5%	6	
Fuse	446	10A / 250Vac Slow-Blow	
	448	15A / 250Vac Fast-Blow	
DIELECTRIC W	ITHSTAND	TEST MODE	
Output Rating	446	5 KV @ 20 mA AC	
		6 KV @ 5 mA DC	
	448	5 KV @ 99.99 mA AC 6 KV @ 10 mA DC	
Voltage Setting/Display	Range	0 – 5.00 KV AC 0 – 6.00 KV DC	
	Resolution	0.01	
	Accuracy	$\pm$ (2% of setting + 5V)	
Current Display	446	Range: 0 - 20.00 mA AC, 0 - 5.00 mA DC Resolution: 0.01 mA Accuracy: ± (2% of reading + 0.02 mA)	
	448	Range: 0 - 99.99 mA AC, 0 - 10.00 mA DC Resolution: 0.01 mA Accuracy: ± (2% of reading + 0.06 mA)	
Hi-Limit Lo-Limit	446 AC	Range: Lo-Limit 0 - 20.00 mA, Hi-Limit 0.10 – 20.00 mA Resolution: 0.01 mA Accuracy: ± (2% of setting + 2 counts)	
	446 DC	Range: Lo-Limit 0 - 5.00 mA, Hi-Limit 0.02 – 5.00 mA Resolution: 0.01 mA Accuracy: ± (2% of setting + 2 counts)	
	448 AC	Range: Lo-limit 0 - 99.99 mA, Hi-Limit 0.10 – 99.99 mA Resolution: 0.01 mA Accuracy: ± (2% of reading + 6 counts)	
	448 DC	Range: Lo-Limit 0 - 10.00 mA, Hi-Limit 0.02 – 10.00mA Resolution: 0.01 mA Accuracy: ± (2% of reading + 6 counts)	
Failure Detector	Audible and	Visual	
DC Output Ripple	446	<5 % ( 6KV / 5mA at Resistive Load )	
	448	<5 % ( 6KV / 10mA at Resistive Load )	
Discharge Time	446 448	< 50 ms for no load, < 200 ms for capacitor load < 50 ms for no load, < 100 ms for capacitor load	
	110	< 30 ms for no load, < 100 ms for capacitor load	
Max. Capacitive Load in DC Mode	1μF < 1KV 0.75μF < 2KV 0.5μF < 3KV	0.08μF < 4KV 0.04μF < 5KV 0.015uF < 6KV	
AC Wave Form	Sine Wave, Crest Factor = 1.3 - 1.5 and output voltage > 300V		
AC Output Frequency	50Hz/60Hz ± 0.1%, User Selection		

DIELECTRIC WITHSTAND TEST MODE (Cont.)							
Output Regulation	$\pm$ (1% of output + 5V), From no load to full load						
Dwell Timer	Range: Resolution: Accuracy:	0, 0.2 - 60.0 (0=continuous) 0.1 ± (0.1% of setting + 0.05 sec)					
Ramp Timer	Range: Resolution: Accuracy:	0.2-180.0 0.1 ± (0.1% of setting + 0.05 sec)					

INSULATION RESIST	INSULATION RESISTANCE TEST MODE								
Output Voltage, VDC	Range: Resolution: Accuracy:	100 - 1000 1 ± (2% of setting + 5V)							
Hi-Limit resistance, MΩ	Range: Resolution: Accuracy:	0, 1 - 1000 (0 = OFF) 1 100-499V ± (7% of setting + 2 counts)							
Lo-Limit resistance, $M\Omega$	Range: Resolution: Accuracy:	1 - 1000 1 500-1000V ± (3% of setting + 2 counts)							
Ramp Time , second	Range: Resolution: Accuracy:	0.1 or 2.0 0.1 ± (0.1% of setting + 0.05 sec)							
Delay Time, second	Range: Resolution: Accuracy:	0, 0.5 - 999.9 (0=continuous) 0.1 ± (0.1% of setting + 0.05 sec)							

Specifications subject to change without notice.



11

# **440 SERIES SPECIFICATIONS**

GROUND BOND						
Output AC Current, A	Range: Resolution: Accuracy:	1.0 – 40.0 0.1 ± (2 % of setting + 2 counts)				
Output AC Voltage, V	8V(Fixed)					
Output Frequency, Hz	50Hz/60Hz ± 0.1	%, User Selectable				
Maximum Loading	1.0-10.0A/0-600 30.1-40.0A/0-15	OmΩ,10.1–30.0A/0–200mΩ, 50mΩ				
Offset, $m\Omega$	Range: Resolution: Accuracy:	0-100 1 ± (2 % of setting + 2 counts)				
HI and LO-Limit Resistance, mΩ	Range: Resolution: Accuracy:	0 – 150 (30.1-40.0A) 1 ± (2 % of setting + 2 counts)				
	Range: Resolution: Accuracy:	0 – 200 (10.1-30.0A) 1 ± (2 % of setting + 2 counts)				
	Range: Resolution: Accuracy:	0 – 600 (1.0-10.0A) 1 ± (2 % of setting + 2 counts)				
Fix Ramp Timer, second	Range: Resolution: Accuracy	0.4 0.1 ± 0.05 sec				
	25	-250mOhm à 0.1sec ramp up 1-300mOhm à 0.2sec ramp up 1-450mOhm à 0.3sec ramp up >450mOhm = 0.4sec				
Dwell Timer, second	Range: Resolution: Accuracy	0, 0.1 - 240.0 (0 = continuous) 0.1 ± 0.05 sec				

GENERAL SPECIF	ICATIONS							
Memories	Allows storage of up to 20 different test programs and a single step mode							
Remote I/O	Input: Output:	Test, Reset, Interlock & Recall Memory 1 – 6 Pass, Fail, Test-in-Process						
Interface	USB (Optional)							
Security	Lockout capability to avoid unauthorized access to test set-up programs							
Calibration	Software and ad	justments made through the front						
Dimension	446	280mm(W) ×89mm(H) × 400 mm(D)						
	448	430mm(W) ×132mm(H) × 400 mm(D)						
Weight	446	18lbs (8kg)						
	448	53lbs (24kg)						

Specifications subject to change without notice.

# **290 SERIES SPECIFICATIONS**

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

Fuse	3.15 A / 250 VAC Fast-Blow						
DIELECTRIC WITHST	AND TEST M	ODE					
Output Rating	298	AC 0-5.00 kVAC, 99.99 mA					
Output Rating	297	AC 0-5.00 kVAC, 59.99 mA 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, 0.1 s	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 MΩ (0=off) 1 MΩ						
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, 0.5 - 999.9 sec, (0=continuous)						
GENERAL SPECIFICA	ATIONS						
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 chan 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 x H x 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					
Weight	294, 295 296, 297	x 300 mm) 12 lbs (5.46 Kg)					
	298	46 lbs (20.86 Kg)					

 $Specifications \ subject \ to \ change \ without \ notice.$ 



13

# 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 TES	T MO	DE					
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: ± 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		m $\Omega$ tion: 1 m $\Omega$ cy: $\pm$ (2% of setting + 2 m $\Omega$ )					
Dwell Timer	0, 0.5 -	240.0 sec, (0=continuous), 0.1 sec/step					
Ramp Timer	0.1 sec	fixed					
Measurement Current	264	0.0 - 40.0 AAC					
current	266	0.0 - 60.0 AAC					
		tion: 0.1 A cy: ± (3% of reading + 0.1 A)					
Ohmmeter	264	$0$ - $600  m\Omega$					
		Resolution: $1 \text{ m}\Omega$ Accuracy: $\pm$ (3% of reading + 3 m $\Omega$ ) for 3 - 5.9 A, $\pm$ (2% of reading + 2 counts) for 6 - 40A					
	266	$0$ - $600~\text{m}\Omega$					
		Resolution: $1 \text{ m}\Omega$ Accuracy: $\pm$ (3% of reading + $3 \text{ m}\Omega$ ) for $3$ - $5.9 \text{ A}$ $\pm$ (2% of reading + $2 \text{ m}\Omega$ ) for $6$ - $60 \text{ A}$					

GENERAL SPECIFIC	ATIONS						
Memories	5						
Remote I/O	Input:	Test, Reset, Interlock					
	Output:	Pass, Fail, Test-in-Process					
		Hardware Interlock - a relay on the high voltage output opens when 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 Accuracy:	n: 0.01 V ± (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.						
		Operator can run a test and change locations. No ability to edit test ers.					
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.

### **ICONOGRAPHY**



The AC Hipot test is used to stress the insulation of a DUT with AC 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 USB control.



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



Test Setup Memories

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



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



**Bond** 

The Ground Bond test is used to verify the integrity of a 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.



Check

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



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.



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



Dwell

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



Safety Agency

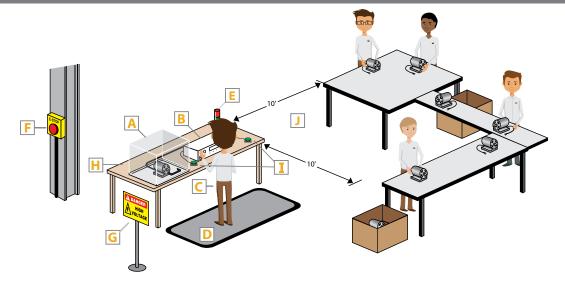
This tester is NRTL listed and was subjected to the same rigorous tests it must perform.

### **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.	Test Time	V Limit	Min R	SCITester
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		Co	ntinuity	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	
N.V.I.A. (INEC)	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	$\geq 10 \text{ A} \qquad \leq 12 \text{ V} \qquad 0.1 - 0.2 \qquad \leq 120 \text{ s}$				0.25 – 5.0 uA		N/A		298*
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*
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	298*
Luminaires	Production	Not Specified - Responsibility of Manufacturer										294, 295, 296, 297		
UL 1598 Luminaires	Production	1200 VAC	No Breakdown	1 s	Conti	nuity	≤ 0.1 Ω	Continuity	N/A		N/A			295
IEC/UL 61010-1 & CSA 22.2 No. 61010-	Performance			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*
1 Laboratory Control Test & Measurement Equipment	Production	840 - 11940 VAC or 1200 - 7500 VDC	No Breakdown	Breakdown 5 s max ramp up 2 s dwell			Continuity			N/A N/A			294, 295, 296, 297	
	Production										294, 295, 296, 297			
UL 45A Portable Electrical Appliances	Production	1000 - 3000 VAC	No Breakdown	1 s	Continuity N/A N/A							294, 295		
UL 60950-1 CSA 22.2 No. 60950-1 & IEC 62368-1 Audi/Video, Information & Communication Technology Equipment	Production	1000 – 3000 VAC or 1414 – 4242 VDC	No Breakdown	1 – 6 s	Continuity			N/	A N/A			294, 295, 296		

<sup>\*</sup> This standard requires the use of a 500VA Hipot Tester

### **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.



#### **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 24V**

Gives an indication as to the status of the testing 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 rrequires, 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.



#### **CLASS 3 INSULATION MAT**

40396

This class 3 electrical insulation mat is an ideal means for adding a level of operator safety. The mat isolates the operator from ground while testing, which greatly mitigates the shock hazard.

Thickness: 3/8" (9.53 mm) **Dimensions:** 

3' x 3' (91.44 x 91.44 cm)





#### **HIGH VOLTAGE WARNING SIGN**

39538

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 24V**

40417

Our Signal tower light gives operators a visual indication of 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, and 440 Series



#### **DUT ENCLOSURE** 39067

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.

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

1/4" Plexiglass cover





#### **EMERGENCY STOP SWITCH**

**ESTOP** 

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: 290 Series, 260 Series, and 440 Series



#### **REMOTE TRIGGER FOOT SWITCH**

35822

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 in 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 and 440 Series

17

### **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:** 260 Series, 290 Series, 440 Series, 1300 Series, 2205, 2503, 2510, 2550, 4320, 4520, 6330 **RTB-02 Compatible Models:** 290 Series, 260 Series, 440 Series, 2525, 4320, 4520, 6330



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

38081

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

Compatible Models: All Hipots



### RETURN RETRACTABLE PROBE 6FT (1.8M)

38082

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, 2500 Series, 1300 Series



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

38814

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:** 1340, 2500 Series, 290 Series, 4320, 4520



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

38539

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: 4000 Series, 6000 Series 264, 2630

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

**PASS/FAIL VERIFICATION** 



#### 120 kΩ Resistor

P/N: 35445

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

Compatible Models: All Testers

**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.

Part Number	Name	Compatible With
36544	Universal US - 10FT	290 Series, 2500 Series, 1340
36541	Universal US - HV, HC - 10FT	4000 Series, 2630, 264
40400	Universal US - HV, HC 40Amp - 10FT	440 Series



19



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



