SAFETY SEAL

Precision Withstand Voltage Testing
Safety Without Compromise

Hipot Tester 7640 / 7641

ACW 5000V | DCW 6000V | IR 100GΩ

DC 6KV
DC Hipot

AC 5KV
AC Hipot

IR 100GΩ
IR

16CH
Multi-channel

7640 | 1 Channel

7641 | 8 Channel

Safety is the ultimate goal of every product.
With our Hipot Tester, you can ensure reliability and eliminate leakage risks.

AC Hipot

Since most products in actual applications operate on AC power, the AC withstand voltage test is more widely accepted by safety certification agencies.
During AC testing, both polarities of the product can be verified simultaneously.
When AC voltage is applied, a reactive current is generated in the insulation layer — this reactive current is typically much larger than the actual leakage current, making it less accurate for true leakage measurement.
Because AC withstand testing does not fully charge stray capacitance or produce transient surge currents, there is no need to set a voltage ramp-up time or perform post-test discharge operations.

Advantages of AC Hipot Voltage Testing：

- No voltage ramp-up required
- No discharge operation after testing
- More readily accepted by safety certification bodies than DC testing

DC Hipot

In DC Hipot voltage testing, the applied voltage maintains a fixed polarity instead of alternating cyclically as in AC testing. Due to the capacitive characteristics of insulation, the initial charging current decreases over time, allowing for more accurate measurement of true leakage current.
However, the DC test voltage must be increased gradually from zero to prevent large charging currents from causing false trips or instrument shutdown. After testing, discharge must be performed to remove stored energy.

Advantages of DC Hipot Voltage Testing：

- Enables precise measurement of actual leakage current

IR

Insulation resistance is a key electrical parameter for evaluating the quality of insulating materials.
This test is typically expressed as a resistance value, and insulation resistance is usually required to be above the mega ohm (MΩ) range.

Insulation Requirement	Insulation Resistance Value
Basic+Supplementary	2MΩ or greater
Double+Reinforced	4MΩ or greater

In most safety standards, insulation resistance testing is classified as a Type Test, performed by applying approximately 500V DC for one minute, followed by resistance measurement.

Hipot Tester

7640/7641

ACW 5kV/DCW 6kV
IR 100GΩ

MICROTEST
www.microtest.com.tw

• 7641 | 8 Channel

• 7640 | 1 Channel

7640/7641 Hipot Tester is a 3-in-1 safety tester integrating AC Withstand Voltage, DC Withstand Voltage, and Insulation Resistance (IR) measurement functions. It provides AC hipot output up to 5kV with leakage current up to 30mA, and DC hipot output up to 6kV with leakage current up to 10mA. The insulation resistance test supports output voltage up to 6kV, with a measurement range from 200kΩ~100GΩ. For production line applications, the system supports multi-channel configurations: the 7641 offers up to 8 test channels per unit and can be expanded via 7508A / 7516A scanning boxes to a maximum of 72 channels. In addition, the instrument supports PC connectivity software and USB storage for test data.

Application

Components | Capacitors, Inductors, Filters, Transformers, Motors

Harnesses | NEV High-Voltage Harnesses, High-Voltage Connectors

PCB | Automotive Power Boards, Battery Flexible PCBs

• 7641+Expansion Box 7508A/ 7516A

Features

- AC Withstand Voltage up to 5000V
- DC Withstand Voltage up to 6000V
- Insulation Resistance up to 100GΩ
- Supports up to 72-Channel Test (7508A / 7516A)
- Programmable Ramp / Dwell / Fall Time (0.1s~99.9s)
- Arc Detection Function
- True RMS measurement circuit
- Safety Interlock Protection
- PC Connectivity and Remote Control Support

• 7640

• 7641

CE

Standard Interfaces

RS-232 | USB Host | Remote | USB Device | EXT. I/O

Specification

Model	7640	7641
Channel	1	8
AC Hipot		
Output Voltage	10V~5000V	
Voltage Resolution	1V	
Voltage Accuracy	±(2% of setting +5V) no load	
Output Frequency	50/60Hz	
Rated Current (Max.)	30mA	30mA
Leakage Current	0~31mA	
Lower Leakage Current Resolution	0.001mA	
Lower Leakage Current Accuracy	±(1% of reading +5uA)	
Measuring Time	0.1~999s, 0 (Continuous)	
Measuring Time Resolution	0.1s	
Ramp, Dwell, Fall Time	0.1~99.9 sec	
Arcing Detection	Level 0 for Off / Adjustable levels 1~9 (Level 1 is the most sensitive)	
DC Hipot		
Output Voltage	10V~6000V	
Voltage Resolution	1V	
Voltage Accuracy	±(2% of setting +5V)	
Rated Current (Max.)	10mA	
Leakage Current	0~11mA	
Lower Leakage Current Resolution	0.001mA	
Lower Leakage Current Accuracy	±(1% of reading +5uA)	
Measuring Time	0.1~999s, 0 (Continuous)	
Measuring Time Resolution	0.1s	
Ramp, Dwell, Fall Time	0.1~99.9 sec	
Arcing Detection	Level 0 for Off / Adjustable levels 1~9 (Level 1 is the most sensitive)	
Insulation Resistance		
Output Voltage	10V~6000V	
Voltage Resolution	1V	
Voltage Accuracy	±(2% of setting+5V)	
Rated Current (Max.)	1mA	
IR Upper Threshold	200k~100GΩ (Current measurement range 5nA ≦ i ≦ 1mA)	
IR Resolution	0.001MΩ	
IR Accuracy	50V { 200k~500MΩ, ±(5% of reading+30kΩ)/ 500M~1GΩ, ±(10% of reading+20MΩ)/ 1G~10GΩ, ±(25% of reading+100MΩ)}	
	100V { 200k~200MΩ, ±(2% of reading+30kΩ)/ 200M~1GΩ, ±(5% of reading+20MΩ)/ 1G~20GΩ, ±(25% of reading+100MΩ)}	
	500V { 500k~500MΩ, ±(2% of reading+30kΩ)/ 500M~10GΩ, ±(5% of reading+20MΩ)/ 10G~50GΩ, ±(20% of reading+100MΩ)}	
	≥ 1000V { 1M~1GΩ, ±(2% of reading+30kΩ)/ 1G~10GΩ, ±(5% of reading+20MΩ)/ 10G~100GΩ, ±(20% of reading+100MΩ)}	
Measuring Time	0.1~999s, 0 (Continuous)	
Measuring Time Resolution	0.1s	
Ramp, Dwell, Fall Time	0.1~99.9 sec	

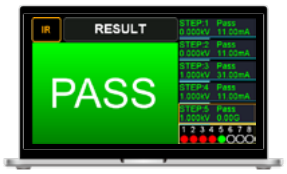
General

Remote Control	Test, Abort
Remote Output Signal	Pass, Fail, HV output, Testing
Safety Switch	When testing, you need to short-circuit the INTER LOCK on the rear of the instrument to output the test voltage
Built-in Storage	7640 (64 sets), 7641 (32 sets)
USB Host Storage	Storage setting files and update firmware; the number of saved data sets depends on the USB capacity
List Mode	Each group contains up to 8 (7640)/ 16 (7641) steps
Interface	RS-232, Remote, USB Host, USB Device, EXT.I/O
Power Supply	Voltage：100Vac~240Vac/ Frequency：50/60Hz ±5%
Power Consumption	350VA
Display	480*272, 4.3" TFT LCD
Environment	Temperature：5℃~40℃, Humidity：20~80%RH
Dimension (W*H*D)	340×88×369.6mm (7640)/ 340×88×429.6mm (7641)
Weight	12Kg (7640)/ 14Kg (7641)

Functions

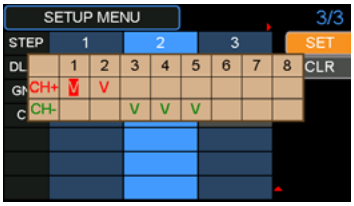
Up to 72 Test Channels Supported (Model 7641 with Optional Multi-Channel Scanner Expansion)

The 7641 Hipot Tester supports up to 8 test channels in a standalone unit and can be expanded with 7508A / 7516A multi-channel scanning boxes, enabling up to 72 test channels. It supports PC connectivity for remote programming and test data logging, and can be integrated with barcode scanners for barcode reading, ensuring full production traceability and manufacturing record management.



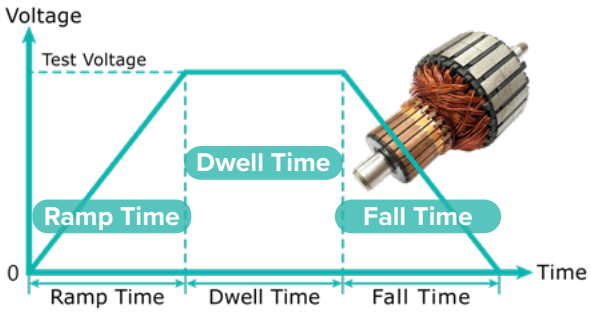
8 Channel Model 7508A

16 Channel Model 7516A



Programmable Ramp / Dwell / Fall Time Settings

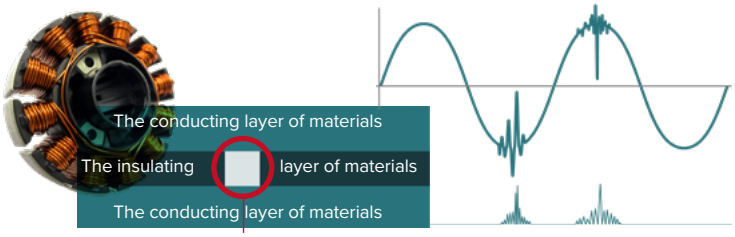
MICROTEST 7640/7641 Hipot Tester provides programmable Ramp, Dwell, and Fall times to prevent damage from instantaneous voltage surges while ensuring a complete assessment of insulation reliability.



Arc Discharge

Arcs typically occur where high voltage passes through weak insulation. During dielectric withstand testing, electrical or insulation issues can lead to transient voltage or current peaks. For instance, in the case of motors, if insulation between laminations has defects like pinholes, it can result in arcing, potentially causing insulation breakdown due to heat generation.

Insulation materials inside or on the surface of motor stators/ rotors may experience electrical discharge due to high voltage, deteriorating the motor's insulation performance. When defects are present in the insulation materials, these momentary discharges can lead to carbonization and the formation of conductive paths, posing safety concerns for the motor.



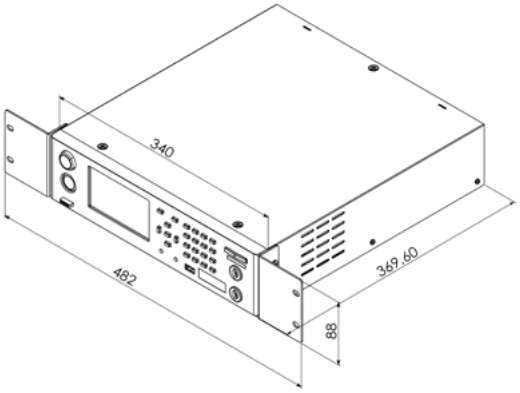
MICROTEST 7640/7641 hipot tester provides an arc detection function with adjustable sensitivity levels.

Test Mode	AC Hipot	DC Hipot	IR
Arc Detection	The detection levels can be set to OFF or 1–9 (1 being the most sensitive)		

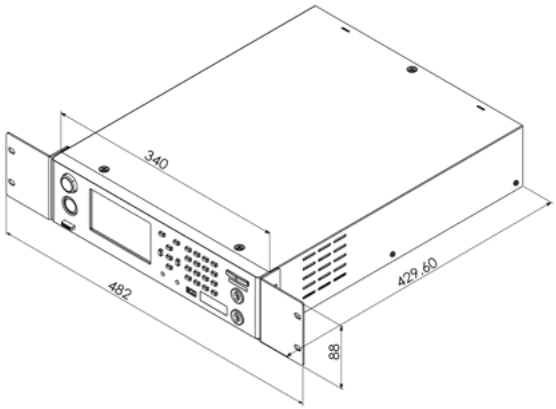
Automatic Chassis Dimension

• Dimension (mm)

• 7640

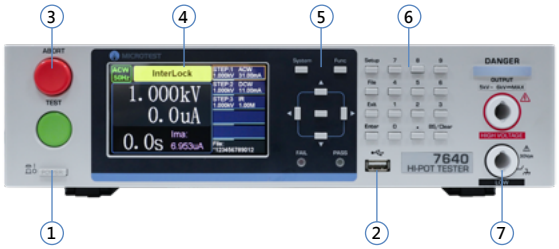


• 7641

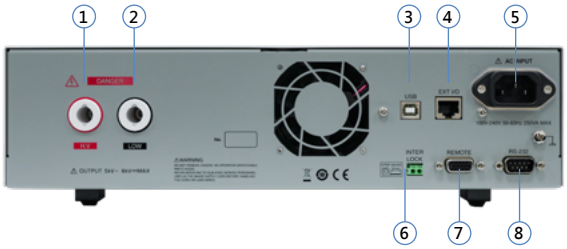


Appearance

• 7640

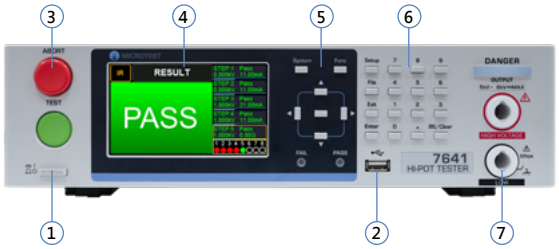


1. Power switch
2. USB
3. Test/Stop
4. LCD Screen
5. Direction/ Function
6. Numeric Key
7. High and low voltage output port



1. High voltage output port
2. low voltage output port
3. USB
4. EXT. I/O
5. AC power socket
6. Inter Lock
7. Remote controller port
8. RS-232

• 7641



1. Power switch
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1. High voltage output port
2. USB
3. EXT. I/O
4. AC power socket
5. Inter Lock
6. Remote controller port
7. RS-232

Ordering Information

Hipot Tester Series	Standard	Optional
• 7640 (1 Channel) • 7641 (8 Channel)	• TL-HP0008 Banana Plug+Alligator Clips-HV Test Cable-Black (120cm) • TL-HP0009 Banana Plug+Alligator Clips-HV Test Cable-Red (120cm) • Power Cord	• F7620(M) Transformer HV Scan Box (Manual) • F7620(P) Transformer HV Scan Box (Pneumatic) • F760001 D-Sub foot switch (15 PIN) • TL-000003 RS-232 Cable (180cm) • 7508A Expansion Box- 8 Channel-Alligator Clips • 7516A Expansion Box- 16 Channel-Alligator Clips • PC Link Software

Fixture & Accessories

7508A
Expansion Box(Alligator Clips)

7516A
Expansion Box(Alligator Clips)

7508(B)
Expansion Box(Banana Connector)

Applicable Models	7641	7641	7631
Channel	8 Channel	16 Channel	8 Channel
Accessory Description	Expandable to multiple test groups, with a maximum stacking capacity of 4 units. Suitable for automated production lines.	Expandable to multiple test groups, with a maximum stacking capacity of 4 units. Suitable for automated production lines.	Expandable to multiple test groups, with a maximum stacking capacity of 4 units. Suitable for automated production lines.

7516(B)
Expansion Box(Banana Connector)

7508(C)
Expansion Box(Alligator Clips)

7516(C)
Expansion Box(Alligator Clips)

Applicable Models	7631	7631	7631
Channel	16 Channel	8 Channel	16 Channel
Accessory Description	Expandable to multiple test groups, with a maximum stacking capacity of 4 units. Suitable for automated production lines.	Expandable to multiple test groups, with a maximum stacking capacity of 4 units. Suitable for automated production lines.	Expandable to multiple test groups, with a maximum stacking capacity of 4 units. Suitable for automated production lines.

F7620(P)
Transformer HV Scan Box(Pneumatic)

Applicable Models	7631/ 7641
Channel	20 Channel
Accessory Description	Customizable based on transformer pinout

F7620(M)
Transformer HV Scan Box(Manual)

Applicable Models	7631/ 7641
Channel	20 Channel
Accessory Description	Customizable based on transformer pinout

TL-HP0008

Banana Plug+Alligator Clips-HV Test Cable-Black

TL-HP0009

Banana Plug+Alligator Clips-HV Test Cable-Red

Applicable Models	7640/ 7641	7640/ 7641
Accessory Description	HV 40kV | 120cm	HV 40kV | 120cm

TL-000002

Banana Plug-HV Test Cable-Red

TL-HP0005

Alligator Clips-HV Test Cable-Red

TL-HP0007

Probe-HV Test Cable

Applicable Models	7630/ 7631	7630/ 7631	7630/ 7631
Accessory Description	HV 20kV | 60cm	HV 20kV | 115cm	115cm

F760001

D-Sub Foot Switch

TL-HP0004

Alligator Clips-HV Test Cable-Red

TL-000003

RS-232 Cable

Applicable Models	7630/ 7631/ 7640/ 7641	7630/ 7631	7630/ 7631/ 7640/ 7641
Accessory Description	15 PIN	HV 20kV | 56cm	180cm