

◆ PRECISION INSTRUMENTS FOR TEST AND MEASUREMENT ◆

1865-52

Component Test Fixture

User and Service Manual

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1865-52 im/March 2010



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WARRANTY

We warrant that this product is free from defects in material and workmanship and, when properly used, will perform in accordance with applicable IET specifications. If within one year after original shipment, it is found not to meet this standard, it will be repaired or, at the option of IET, replaced at no charge when returned to IET. Changes in this product not approved by IET or application of voltages or currents greater than those allowed by the specifications shall void this warranty. IET shall not be liable for any indirect, special, or consequential damages, even if notice has been given to the possibility of such damages.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.



WARNING



OBSERVE ALL SAFETY RULES
WHEN WORKING WITH HIGH VOLTAGES OR LINE VOLTAGES.

**Dangerous voltages may be present inside this instrument. Do not open the case
Refer servicing to qualified personnel**

HIGH VOLTAGES MAY BE PRESENT AT THE TERMINALS OF THIS INSTRUMENT

WHENEVER HAZARDOUS VOLTAGES (> 45 V) ARE USED, TAKE ALL MEASURES TO
AVOID ACCIDENTAL CONTACT WITH ANY LIVE COMPONENTS.

USE MAXIMUM INSULATION AND MINIMIZE THE USE OF BARE
CONDUCTORS WHEN USING THIS INSTRUMENT.

Use extreme caution when working with bare conductors or bus bars.

WHEN WORKING WITH HIGH VOLTAGES, POST WARNING SIGNS AND
KEEP UNREQUIRED PERSONNEL SAFELY AWAY.



CAUTION



DO NOT APPLY ANY VOLTAGES OR CURRENTS TO THE TERMINALS OF THIS
INSTRUMENT IN EXCESS OF THE MAXIMUM LIMITS INDICATED ON
THE FRONT PANEL OR THE OPERATING GUIDE LABEL.

Contents

Warranty	
Specifications	
Introduction - Section 1	
1.1 Product Overview	1
1.2 Functional Description.....	2
1.3 Accessories Included.....	4
Operation - Section 2	
2.1 Installation.....	5
2.2 Connection to 1865 Megohmmeter/IR Tester	5
2.3 Component Module Installation	6
2.4 Resistor/Short Plug Installation	7
2.5 Fixture Zeroing	7
2.5.1 Zeroing Procedure.....	7
2.6 Measurement Procedure.....	8
Service & Maintenance - Section 3	
3.1 General	9
3.2 Instrument Return	9

Specifications

Measurement Range:	1 x 10 ³ to > 1 x 10 ¹⁴ ohms	
Test Voltage:	1000 volts maximum	
Test Current:	10 mA maximum	
Leakage Current:	≤ 0.5 pA with maximum voltage applied for greater than 1 minute	
Components Accommodated:	Axial lead module:	Body size ≤ 1 inch Lead size ≤ 1.4 mm dia
	SMD module:	Width: 0.5 to 10 mm Height: 0.5 to 10 mm (dia: 0.5 to 3.0 mm) Length: 0.1 to 8 mm
	Alligator clips:	≤ 5 mm diameter
Other Features:	Start Button	Safety Interlock Switch
	Pass/Fail Indicators	Test Active Indicator
Terminals:	Sheathed Banana Jacks (4) rear panel: high, low, ground and guard	
Mechanical:	Bench mount	
	Dimensions:	(w x h x d): 8 x 5.5 x 9in (203 x 140 x 230mm)
	Weight:	5 lbs (2.3 kg) net, 9 lbs (4 kg) shipping
Environmental:	Operating:	0 to +50 degrees C
	Storage:	-40 to +70 degrees C
Accessories Supplied:	Axial Lead Plug-in Module SMD Plug-in Module Flat Cable Plug-in Module 100 kΩ Double Banana Plug Resistor (800166) 1 MΩ Double Banana Plug Resistor (800167) Double Banana Plug (solder terminals: component mounting) Double Banana Plug Shorting Bar Miniature Banana Plug Cable (4) Alligator Clip (1 red, 2 black) Alligator Clip, Miniature (4) Cables for Connection to 1865 Carrying Case for Accessories Instruction Manual	
Ordering Information:	<u>Description</u>	<u>Catalog No.</u>
	Component Test fixture 1865-52	

1.1 Product Overview

The 1865 Component Test Fixture is an accessory for IET Labs's Model 1865 Megohmmeter/IR Tester. The fixture simplifies the connection and measurement of leaded and chip components while maximizing operator ease of use and safety. The fixture is supplied with plug-in modules for leaded and surface mount components, plus banana-plug cables and alligator clips for connecting a wide variety of other component styles. The unit is designed with a shielded case to reduce potential measurement errors due to electrical noise and a hinged cover, with a safety interlock switch, is included for operator safety. A start button, test active, pass, and fail indicators are conveniently located on the fixture for operator convenience and ease of use.

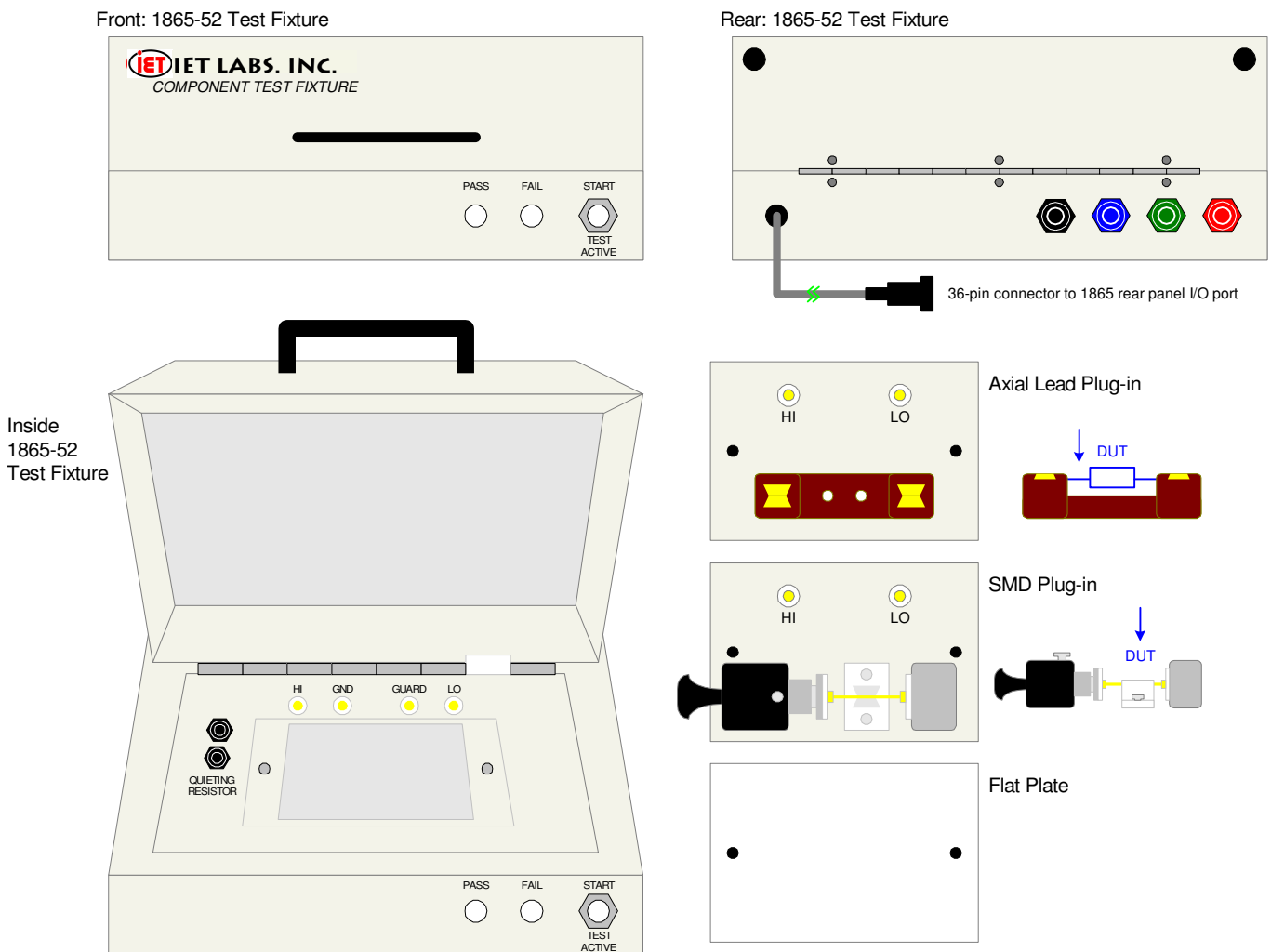


Figure 1-1: Component Test Fixture

1.2 Functional Description

Figure 1-2 and Table 1-1 detail the front panel and internal controls and indicators of the 1865-52 Component Test Fixture.

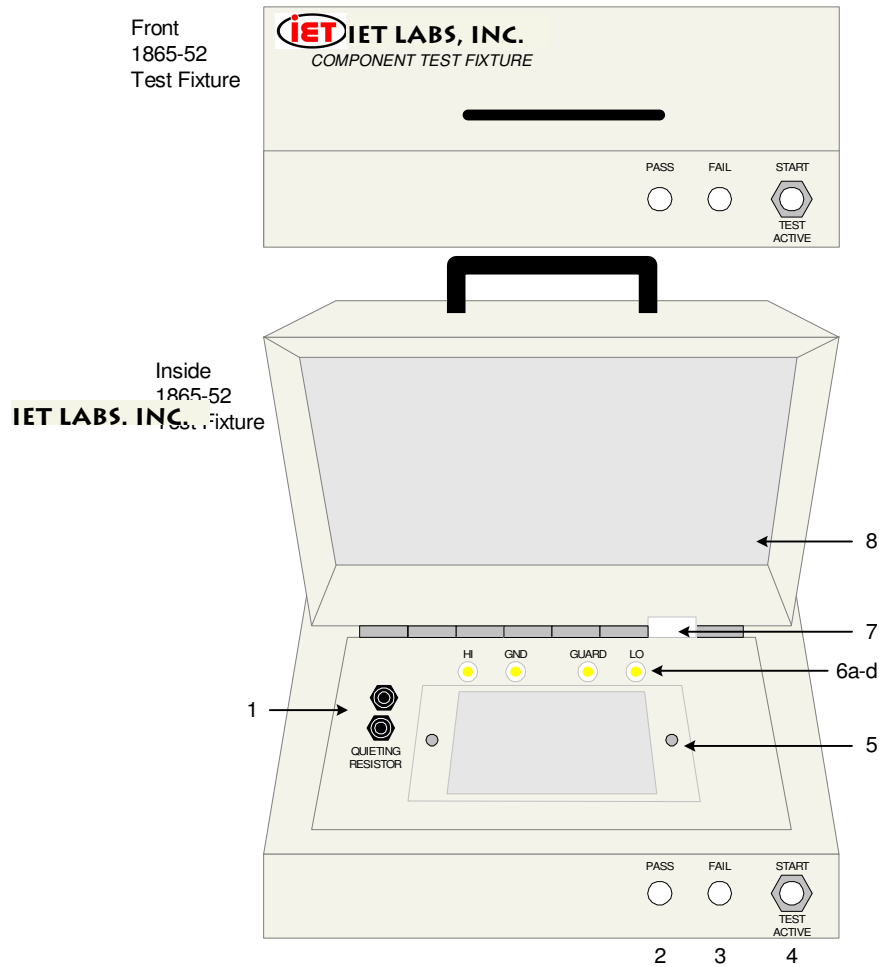


Figure 1-2: Front Panel Functions

Table 1-1: 1865-52 Front Panel & Internal Functions

Ref # Fig 1-2	Name	Type	Function
1	Quieting Resistor	Black Banana (2)	Apply AC Power: 1=ON, 0=OFF
2	PASS	Green LED	When lit, DUT judged as PASS
3	FAIL	Red LED	When lit, DUT judged as FAIL.
4	START TEST ACTIVE	Push Button Red LED	Press [START] to apply output voltage to test fixture When lit, Output Voltage is active at test fixture leads
5	Test Fixture Plate	Metal Plate	To connect Axial Lead or SMD devices
6a	LO	White Banana small	Low voltage connection
6b	GUARD	White Banana small	Guard connection
6c	GND	White Banana small	Ground connection
6d	HI	White Banana small	High voltage connection (1000 V max)
7	Interlock Lever	Safety Switch	Cover Open: Output OFF; Cover Closed: Output ON
8	Cover	Hinged	Protection from high voltage output

Figure 1-3 and Table 1-2 detail the connectors on the rear panel of the 1865-52 Component Test Fixture.

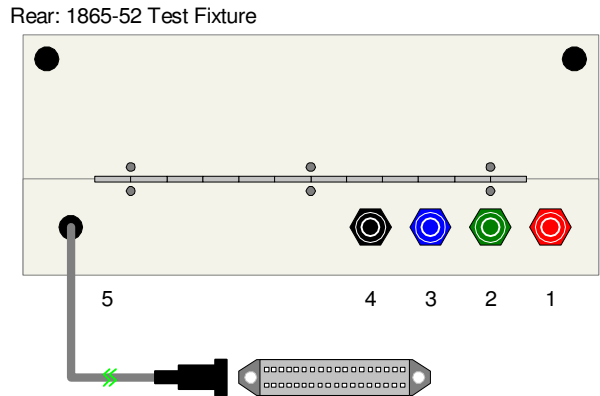


Figure 1-3: Rear Panel Functions

Table 1-2: 1865-52 Rear Panel Connectors

Ref # Fig 1-3	Name	Type	Function
1	High	Red Banana Jack	High voltage connection for 1865-51 red lead “+”
2	Ground	Green Banana Jack	Ground (chassis) connection using black banana cable
3	Guard	Blue Banana Jack	Guard connection for 1865-51 blue/black lead “G”
4	Low	Black Banana Jack	Low voltage connection for 1865-51 black lead “-”
5	I/O connector	36-pin AMP 552301-1, Cover: 552073-1	To connect 1865-52 to I/O Port on rear panel of 1865 Megohmmeter

1.3 Accessories Included

Table 1-3 lists the accessories that come standard with the 1865-52 Component Test Fixture. Figure 1-4 illustrates several of these accessories.

Table 1-3: 1865-52 Accessories

Item	Quantity
Axial Lead Plug-in Module	1
SMD Plug-in Module	1
Flat Plate Plug-in Module	1
100 kΩ Double Banana Plug Resistor	1
1 MΩ Double Banana Plug Resistor	1
Double Banana Plug (solder terminals for component mounting)	1
Double Banana Plug Shorting Bar	1
Miniature Banana Plug Cable	4
Alligator Clip (1 red, 2 black)	3
Alligator Clip, miniature	4
3-Wire Lead Set (connection to 1865)	1
Double Ended Banana Cable (GND connection to 1865)	1
Instruction Manual	1
Carrying Case for Accessories	1

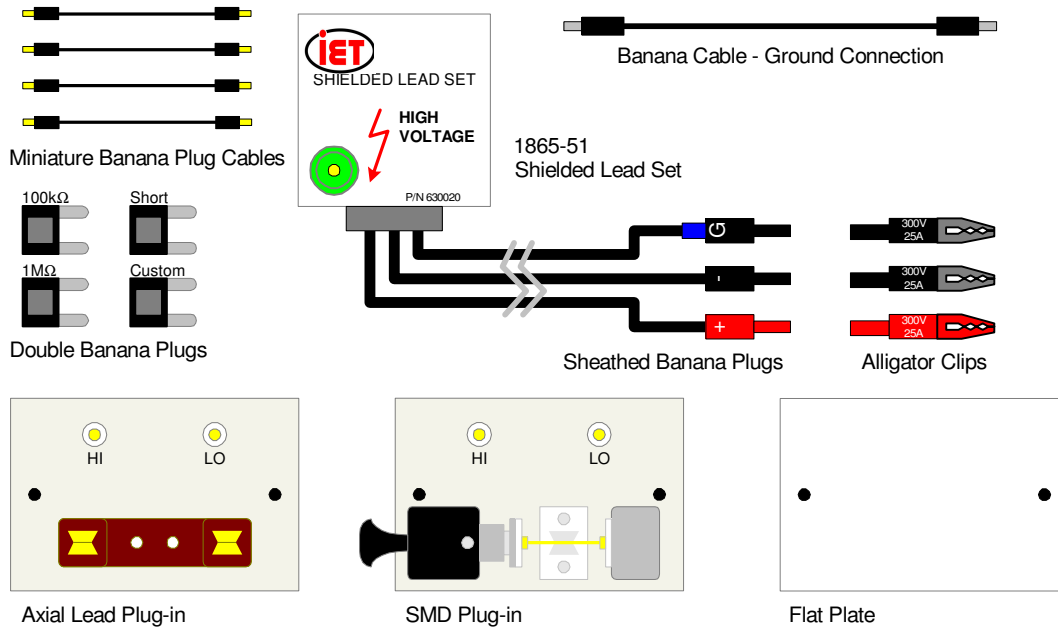


Figure 1-4: 1865-52 Fixture Accessories

2.1 Installation

The 1865 Component Test Fixture contains four feet on the underneath of the unit and is intended for bench top operation. It should be operated within an ambient temperature range of 0 to 50 degrees C.

2.2 Connection to 1865 Megohmmeter/IR Tester

Connection to the 1865 Megohmmeter/IR Tester must be made using the 3-wire shielded lead set provided, which connects the high, low and guard. The cables on the lead set, coded red, black and blue should be plugged into the corresponding colored connectors on the rear of the fixture. The other end of the lead set plugged into the input panel on the front of the 1865.

A double ended banana cable supplied with the test fixture is used to make the ground (or chassis) connection. One end plugs into the green connector on the rear of the fixture and the other end into the green connector of the lead set at the front panel of the 1865.

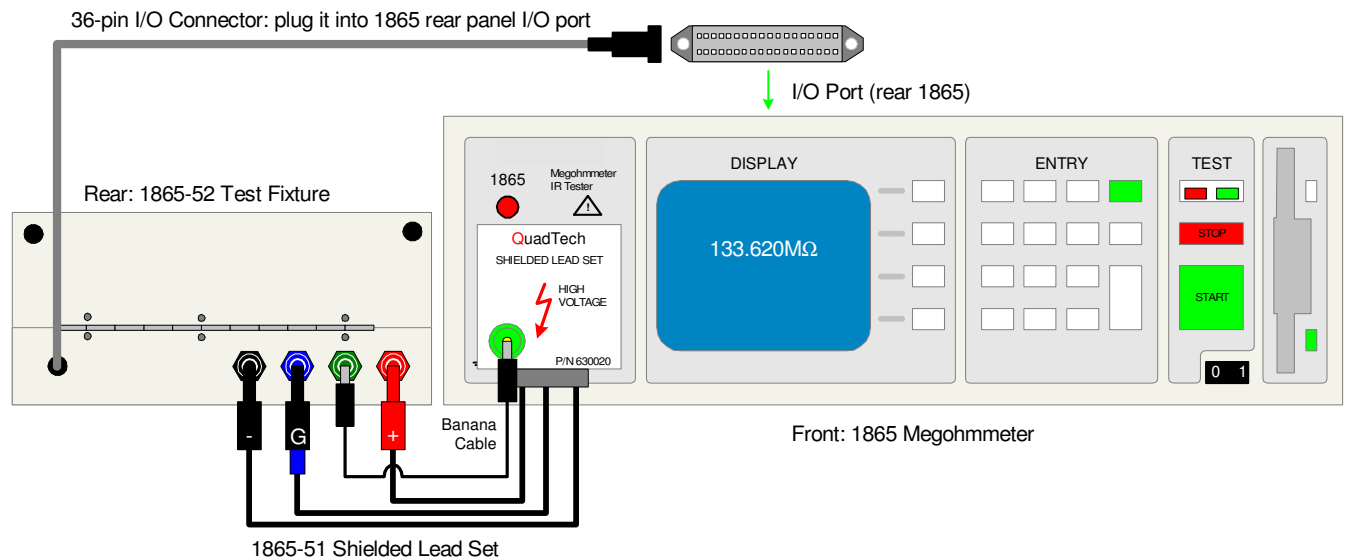


Figure: 2-1: Connection 1865-52 to 1865 Megohmmeter

WARNING

DO NOT USE THIS FIXTURE WITHOUT THE CABLE WHICH CONNECTS THE GROUND CONNECTOR (GREEN) ON THE FIXTURE TO THE GROUND CONNECTOR (GREEN) ON THE 1865.

The interlock connector and cable (hard wired to the test fixture) must be plugged into the 1865 rear panel connector labeled I/O Interface. This acts as a safety feature and prevents the 1865 high voltage from being turned on unless the fixture cover is closed.

2.3 Component Module Installation

The axial lead plug-in module (shown below), SMD plug-in module or Flat table plug-in module are installed as follows:

- If a module is presently installed pull the two clamps up and remove the module (Refer to Figure 2-2, below).
- Insert the desired plug-in module in the opening of the fixture assembly, Hi/Lo connectors towards the rear.
- Push the clamps down firmly (as shown in Figure 2-3, below).
- Connect the miniature banana cables (as shown in Figure 2-4).

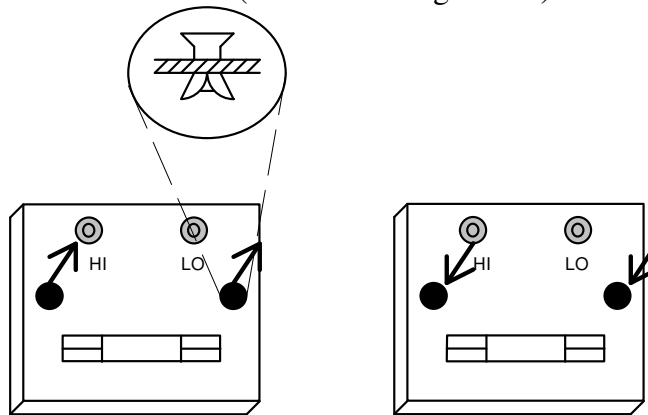


Figure 2-2
Component Module Removal

Figure 2-3
Component Module Installation

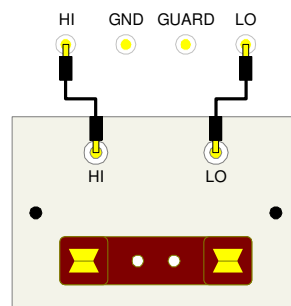


Figure 2-4: Miniature Banana Cables

2.4 Resistor/Short Plug Installation

The Component Test Fixture includes four banana plugs as standard accessories which plug into the receptacle to the left of the component plug-in module, labeled QUIETING RESISTOR. This receptacle is in series with the HIGH connection and **MUST CONTAIN A BANANA PLUG AT ALL TIMES**. Normally the SHORT would be used except when measuring high capacitance components. In such cases the 100k Ω and 1M Ω or one with a custom component is recommended.

Connecting a resistor in series with high capacitance devices makes for more stable readings and has little to no effect on the measurement. Generally the 100k Ω is recommended for 1865 ranges 100nA or greater and the 1M Ω for 1865 ranges 10nA or less

2.5 Fixture Zeroing

During fixture zeroing the 1865 measures stray parameters with the fixture open (and no device under test installed), retains the corrections and applies them to ongoing measurement results.

2.5.1 Zero Procedure

- MAKE SURE THE 1865 HIGH VOLTAGE IS OFF. PRESS STOP on the 1865.
- Configure the Component Test Fixture Plug-in as follows:
 - Axial Lead Plug-in**
Remove the device under test (DUT) from the test socket.
 - SMD Plug-in**
Remove the device under test but leave the spacing the same as the DUT spacing and tighten the screw (cw) that holds the electrode.

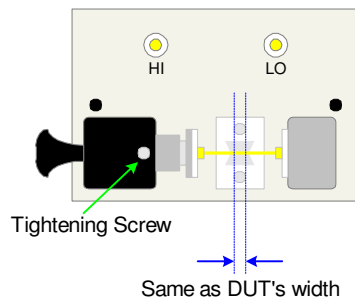


Table Plug-in with Alligator clips

Place any banana cables and or alligator clips in the approximate measurement position.

- Close the cover of the fixture
- Proceed with the 1865 zeroing per paragraph 2.6.4.3 of the 1865 instruction manual. As stated in this paragraph is important to make sure the zeroing is done at the test voltage of interest.

2.6 Measurement Procedure

All basic 1865 measurement procedures should be followed when using the component test fixture. The 1865 START, PASS/FAIL indicators and HIGH VOLTAGE indicator (shown as TEST ACTIVE) are all duplicated on the front of the test fixture.

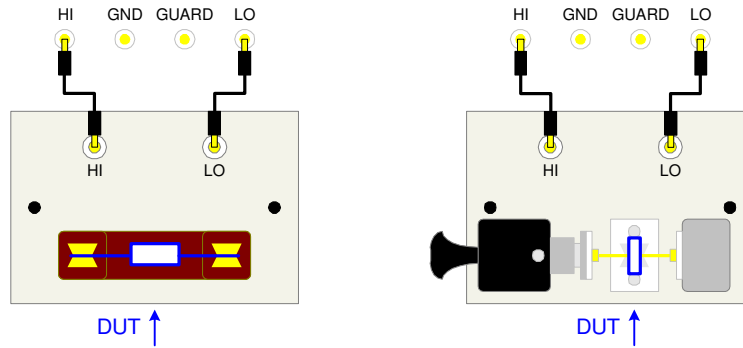


Figure 2-5: Connection of DUT to 1865-52 Test Fixture

NOTE

The cover must be closed for operation, otherwise the safety interlock feature prevents the 1865 from initiating a measurement.

The following conditions should be noted:

Auto Mode

The TEST ACTIVE light may be inconsistent if a Start is initiated by the 1865 START button. The START button on the fixture is recommended.

The PASS or FAIL light does not clear between every measurement, but only clears as result of a change in subsequent measurements.

Manual Mode

TEST ACTIVE light on fixture does not function when a test is sequenced from the 1865 START button.

In this mode, the Start of a sequence can be initiated from the fixture but the Stop must be initiated from the 1865. The TEST ACTIVE light will remain on after the sequence is completed.

TEST ACTIVE light remains ON when fixture cover is opened.

3.1 General

Our warranty (at the front of the manual) attests the quality of materials and workmanship in our products. If malfunction should be suspected, or other information be desired applications engineers are available for technical assistance. Application assistance is available in the U.S. by calling 800-899-8438 and asking for Applications Support. For support outside of the United States please contact your local IET Labs Distributor.

3.2 Instrument Return

Before returning an instrument to IET Labs for service please call our Service Department at 800-899-8438 for return material authorization. It will be necessary to include a Purchase Order Number to insure expedient processing, although units found to be in warranty will be repaired at no-charge. For any questions on repair costs or shipment instructions please contact our Service Department at the above number. To safeguard an instrument during storage and shipping please use packaging that is adequate to protect it from damage, i.e., equivalent to the original packaging and mark the box "Delicate Electronic Instrument".

