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Overview

WARNING The procedures contained in this User's Guide are intended for use by qualified service personnel only. Do not perform these procedures unless qualified to do so. Failure to recognize and observe normal safety precautions could result in personal injury or death.

The 8101-PIV test fixture is a metal case with four female triaxial connectors (SMU1–4), two SMA connectors (AC+DC IN 1–2) and a latch on the outside (see Figure 1). Inside the test fixture are two 4-pin device holders (transistor sockets) and two plungers for parts with 2 leads.

SMU Device holder (near latch)

The inner conductor of each triax connector is wired to the closest pin on the 4-pin device holder (see Specifications at the end of this document). The inner shield of the triax connectors are "no connects." The triax connectors' outer shield is connected to the test fixture's metal case.

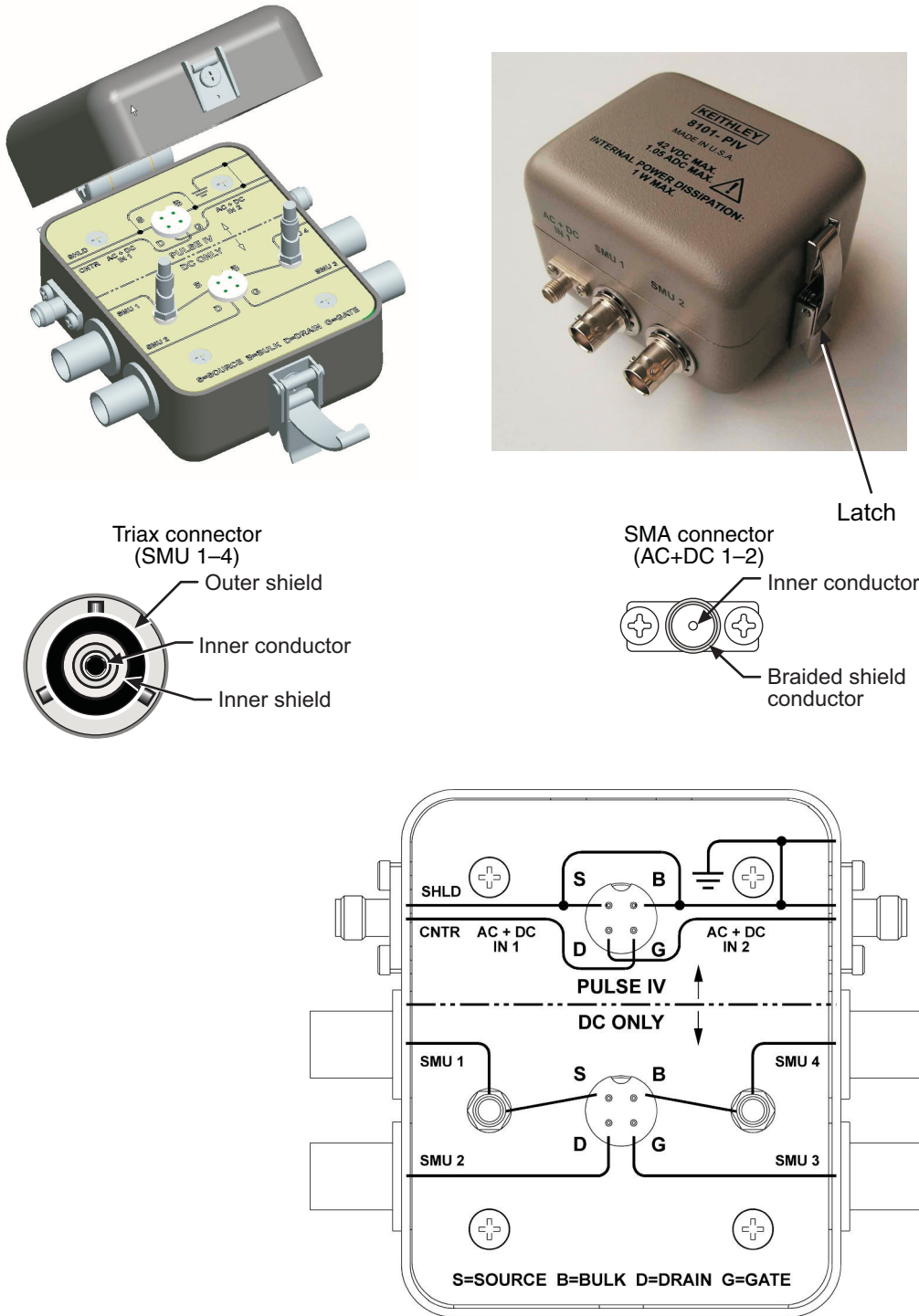
Two Leaded Part Plungers

The two plungers are useful for testing parts with only 2 leads, especially those with larger gauge wire. The left plunger is connected to SMU1 and the Source connection on the SMU Device socket. The right plunger is connected to SMU4 and the Body connection (see Figure 1).

PIV Device holder (near hinge)

The IN 1 center conductor is wired to the gate pin of the device holder (pin 2), while the IN 1 braided shield is wired to the body substrate case (pin 1). Pin1 is bridged to Pin 4 (source pin) of the device holder. The IN 2 center conductor is wired to the drain pin of the device holder (pin 3), while the IN 2 braided shield is wired to the source (pin 1).

Figure 1 – Test fixture



General definitions


The types of product users are:


Responsible body is the individual or group responsible for the use and maintenance of equipment, and for ensuring that operators are adequately trained.


Operators use the product for its intended function. They must be trained in electrical safety procedures and proper use of the instrument. They must be protected from electric shock and contact with hazardous live circuits.

Maintenance personnel perform routine procedures on the product to keep it operating, for example, setting the line voltage or replacing consumable materials. Maintenance procedures are described in the manual. The procedures explicitly state if the operator may perform them. Otherwise, they should be performed only by service personnel.

Service personnel are trained to work on live circuits, and perform safe installations and repairs of products. Only properly trained service personnel may perform installation and service procedures.

If  is present, connect it to safety earth ground using the wire recommended in the user documentation.

The  symbol on an instrument indicates that the user should refer to the operating instructions located in the manual.

The  symbol on an instrument shows that it can source or measure 1000 volts or more, including the combined effect of normal and common mode voltages. Use standard safety precautions to avoid personal contact with these voltages.

The  symbol indicates a connection terminal to the equipment frame.

The **WARNING** heading in a manual explains dangers that might result in personal injury or death. Always read the associated information very carefully before performing the indicated procedure.

The **CAUTION** heading in a manual explains hazards that could damage the instrument. Such damage may invalidate the warranty.

SMU device holder operation

WARNING There can be hazardous voltages exposed in this test fixture and risk of electric shock. Do not touch internal electrical connections. Remove all sources of power before opening cover and changing devices.

If this test fixture is used with an instrument capable of sourcing voltages greater than 42V, then the user must provide an additional safety barrier to prevent the possibility of electrical shock.

No interlock features are provided by this device—properly make all connections and close the lid before energizing instrumentation connected to this test fixture.

CAUTION The current leakage specifications depend upon a clean fixture. Avoid contamination that could cause degraded performance and increase current leakages beyond specified limits.

Model 4200-SCS

NOTE The current leakage specifications depend upon a clean fixture. Avoid contamination that could cause degraded performance and increase current leakages beyond specified limits.

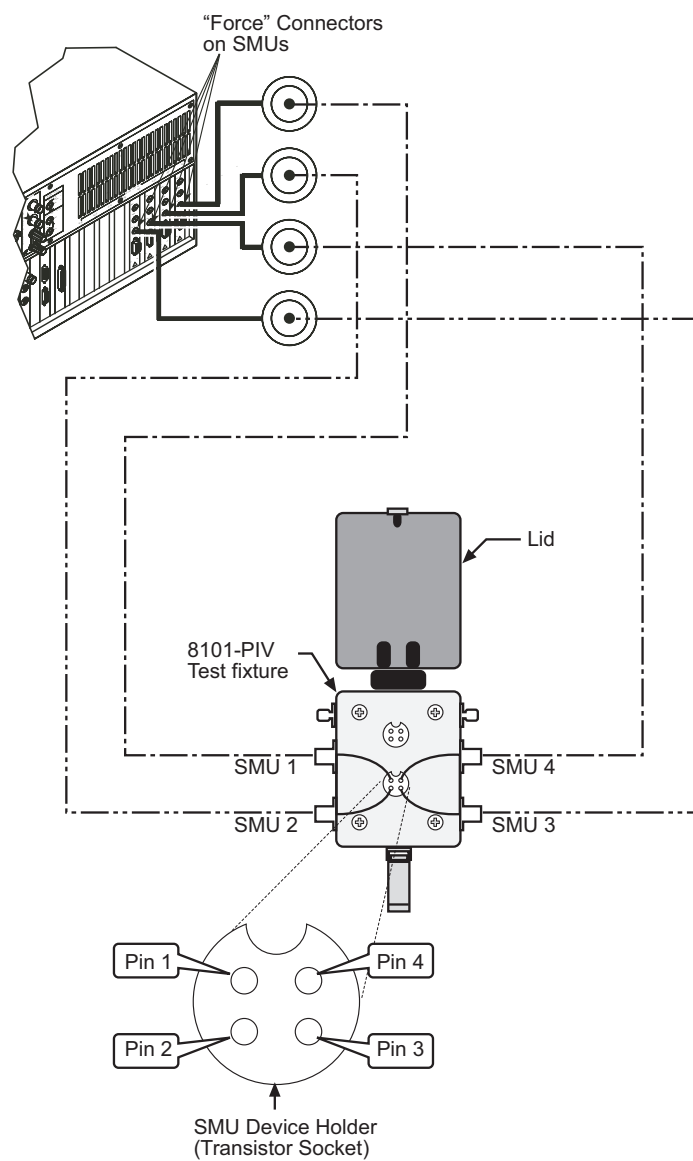
To operate and use with the 4200-SCS:

1. Install device (2, 3, or 4 terminal) on the SMU device holder (see transistor socket, Figure 3).
2. Note which device pin (from Step 1) is associated with the triax connection (SMU1, SMU2, SMU3, SMU4).
3. Make required connections using Figure 2 as a guide.
4. Close the lid on the test fixture.

WARNING Operating the fixture without closing the lid can expose the operator to hazardous voltages.

5. Conduct your test.

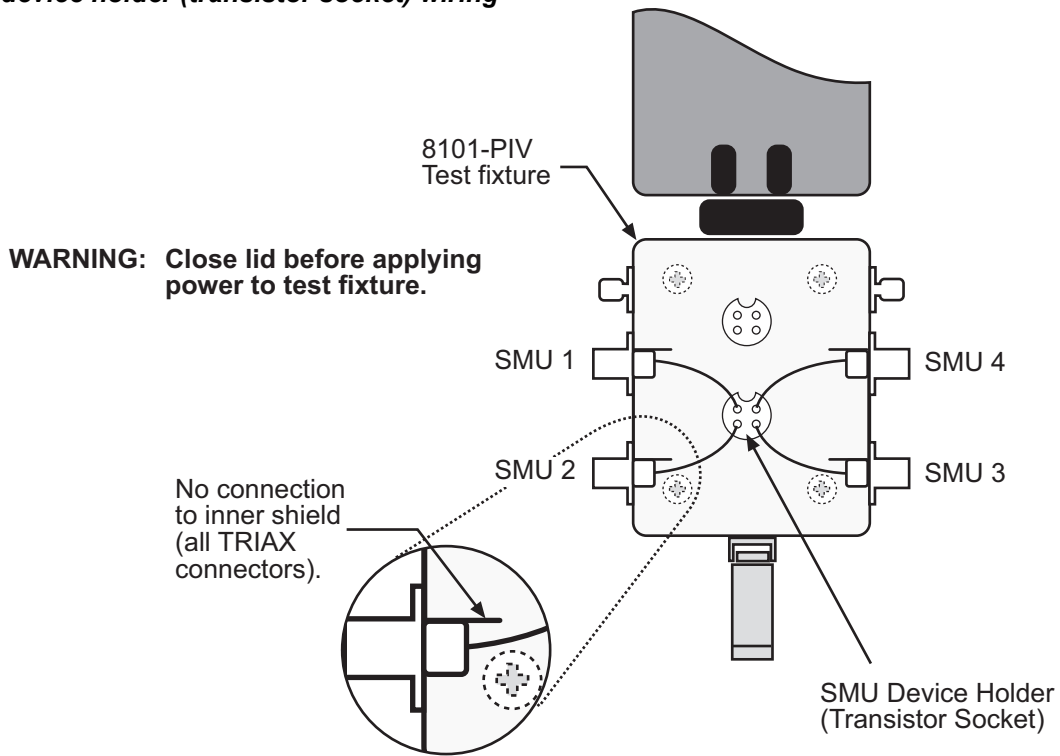
Figure 2 - 4200-SCS mainframe connection scheme (transistor socket)



WARNING: Close lid before applying power to test fixture.

NOTE Refer to the 4200-SCS Semiconductor Characterization System Applications Manual (document number 4200-904-01) for connection information with 4200-PG2 and 4200-RBT products.

Figure 3 - SMU device holder (transistor socket) wiring



Model 2600 Series

To operate and use with the 2600 Series:

1. Install device on SMU device holder (see transistor socket, Figure 3).
2. Refer to Table 1 for the parts required for 2 and 4 channel connections.
3. Use Figure 4 as a guide for the two channel scheme or Figure 5 for the four channel scheme, and make required connections.
4. Close the test fixture cover.

WARNING Operating the fixture without closing the lid can expose the operator to hazardous voltages.

5. Conduct your test (refer to the Model 2600 Series User's Manual for additional information).

Required components using Model 2602

| Channels | Model | Description | Qty | Reference |
|----------|---------------|----------------------------|-----|-----------|
| 2 | Model 2602 | Source Measure Instrument* | 1 | Figure 4 |
| | 2600-DEMO-TRX | Cable* | 2 | |
| | 8101-PIV | Test Fixture | 1 | |
| 4 | Model 2602 | Source Measure Instrument* | 2 | Figure 4 |
| | 2600-DEMO-TRX | Cable* | 4 | |
| | 8101-PIV | Test Fixture | 1 | |

***Not supplied with Model 8101-PIV test fixture.**

Figure 4 - Single Model 2602 connection scheme (2 channels)

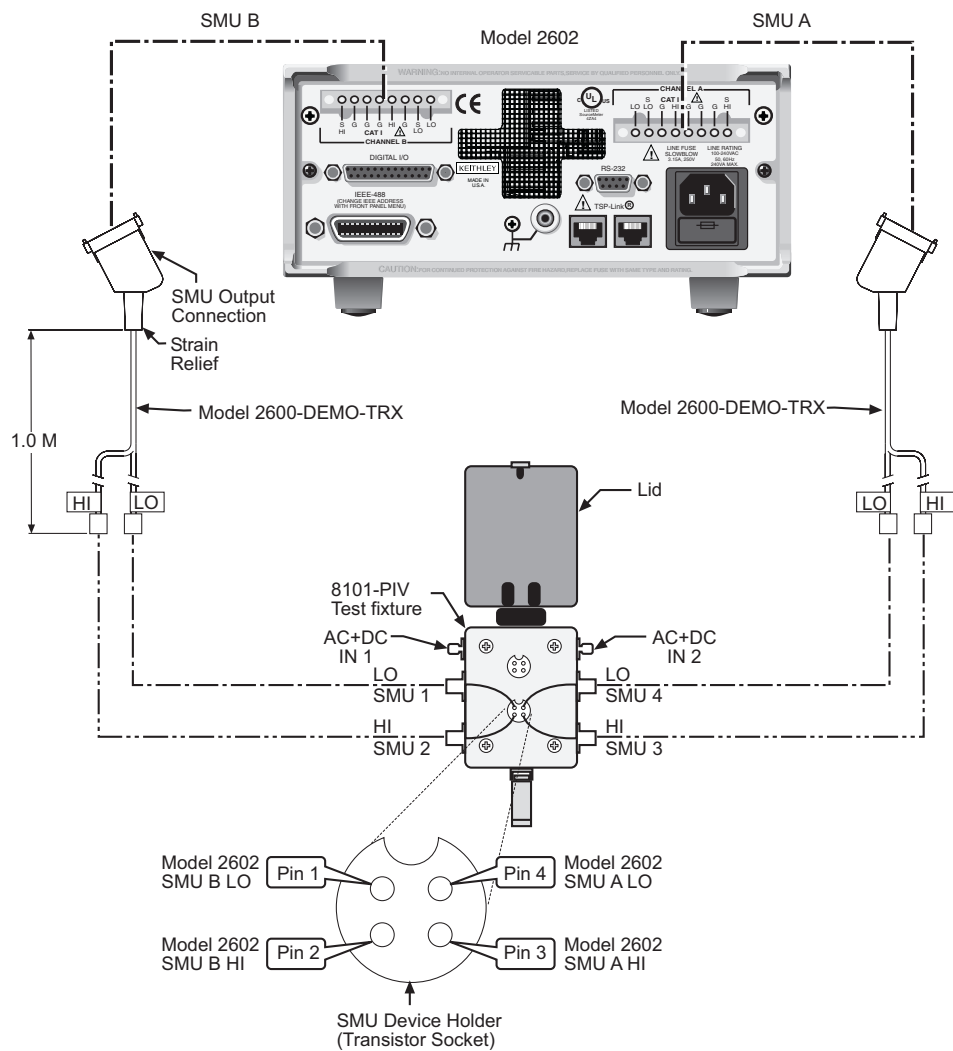
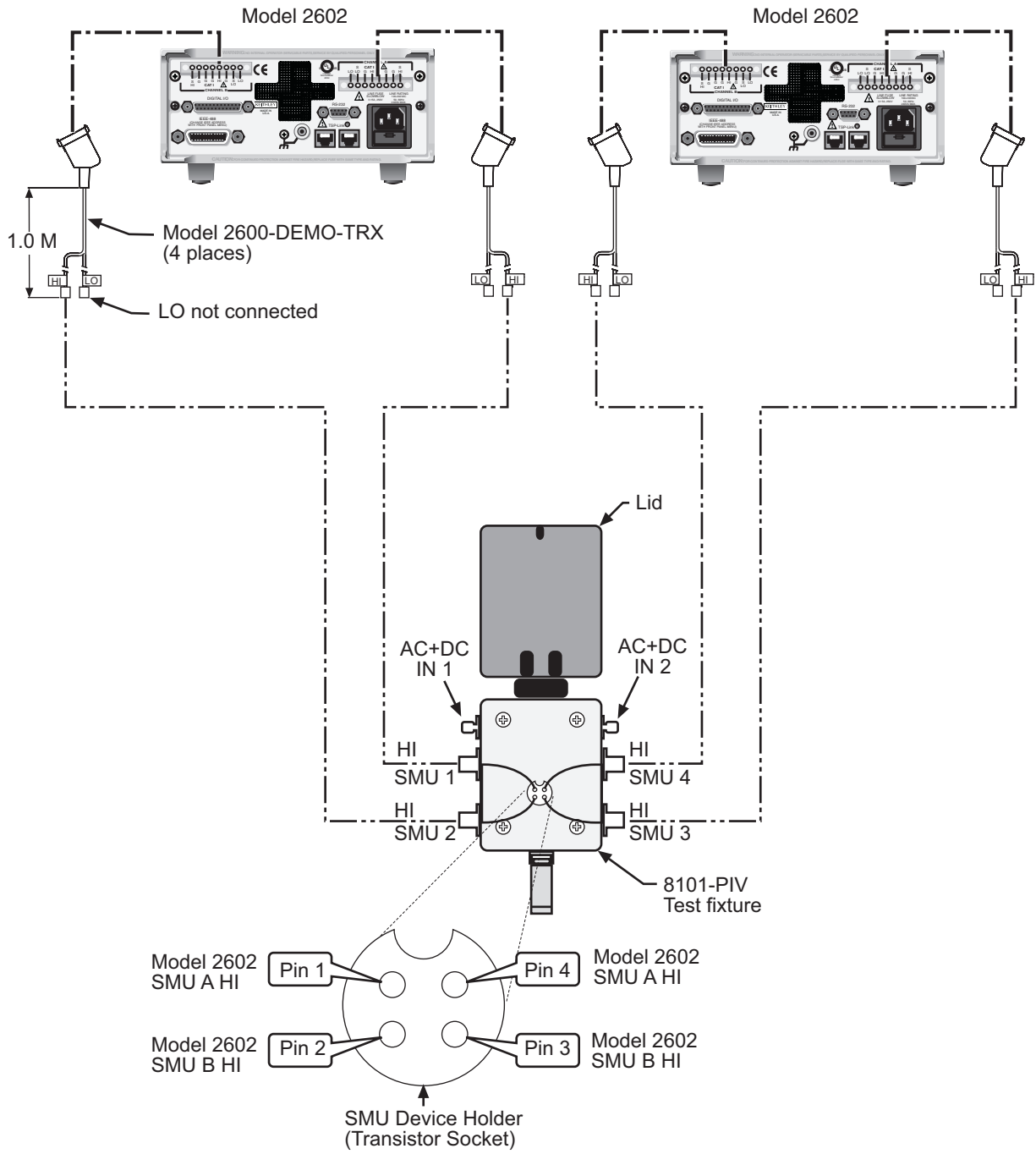


Figure 4 - Single Model 2602 connection scheme (2 channels)



WARNING: Close lid before applying power to test fixture.

PIV device holder operation

WARNING There can be hazardous voltages exposed in this test fixture and risk of electric shock. Do not touch internal electrical connections. Remove all sources of power before opening cover and changing devices.

If this test fixture is used with an instrument capable of sourcing voltages greater than 42V, then the user must provide an additional safety barrier to prevent the possibility of electrical shock.

No interlock features are provided by this device—properly make all connections and close the lid before energizing instrumentation connected to this test fixture.

CAUTION The current leakage specifications depend upon a clean fixture. Avoid contamination that could cause degraded performance and increase current leakages beyond specified limits.

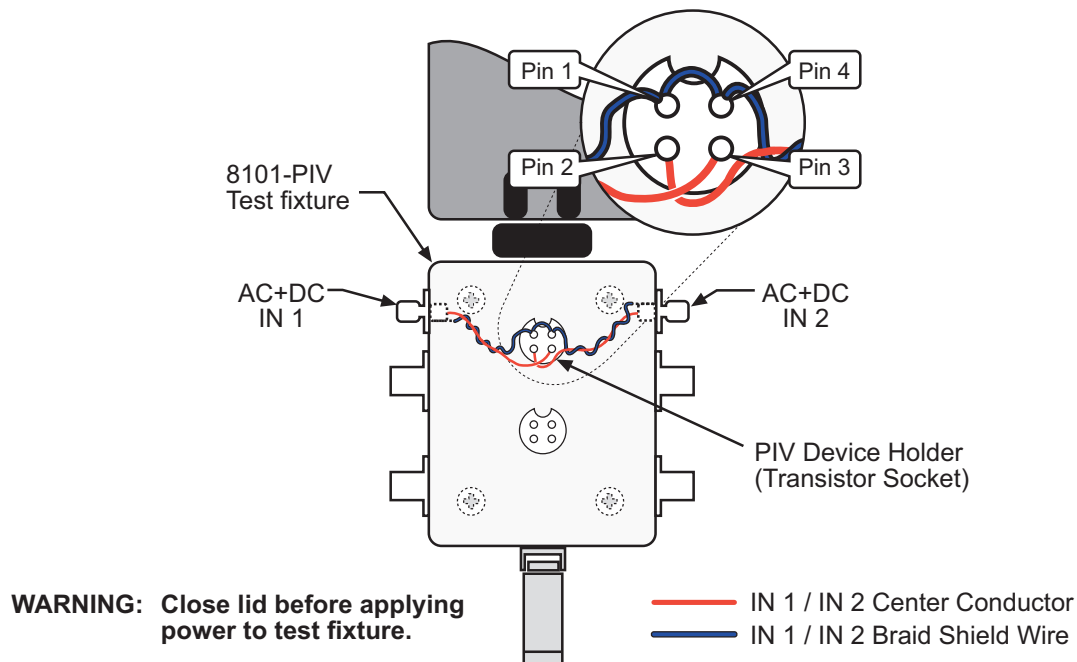
To operate and use with the 2600 Series:

1. Install device on PIV device holder (transistor socket).
2. Close the test fixture cover.
3. Make SMA connections as desired to IN 1 and IN 2.

WARNING Operating the fixture without closing the lid can expose the operator to hazardous voltages.

4. Conduct your test (refer to the Model 2600 Series User's Manual for additional information).

Figure 4 - Single Model 2602 connection scheme (2 channels)



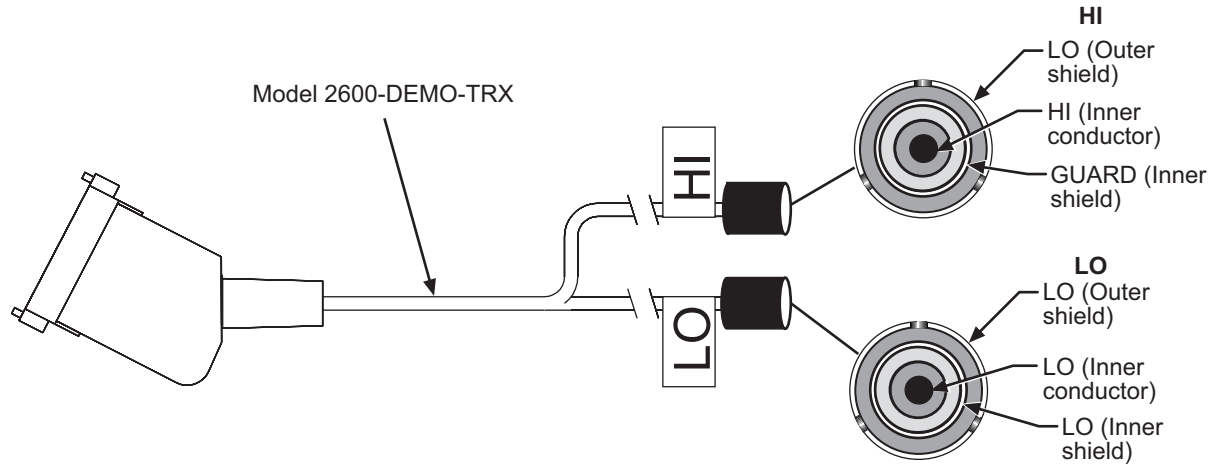
For example, Pin 1 could be source, Pin 2 gate (from IN2), Pin 3 drain (from IN1), and Pin 4 body substrate.

Model 2600-DEMO-TRX

NOTE This cable is not supplied with the fixture but is supplied as part of the Model 2600 demonstration kit.

The Model 2600-DEMO-TRX is an SMU Output to Triax Connector Adapter cable providing HI and LO outputs. Use this cable to connect SMU outputs to triax connectors on the 8101-PIV Test Fixture.

Figure 4 - **Single Model 2602 connection scheme (2 channels)**



Handling and cleaning

When inserting or removing a component from the test connector, use care not to touch the PC board or socket. This will help avoid contamination from body oils or other foreign matter. The current leakage specifications depend upon a clean fixture. Contamination could cause degraded performance, which might increase current leakages beyond specified limits.

Handling

Observe the following precautions when handling components:

- Wear cotton gloves.
- Avoid unnecessary touching of the test connector and PC board.

Cleaning

To clean the test fixture:

- Swab the test connector and PC board area with methanol.
- Quickly dry the test connector after cleaning by directing dry nitrogen gas over the PC board area.
- After cleaning, allow the test fixture to dry in a 50°C, low-humidity environment for one hour.