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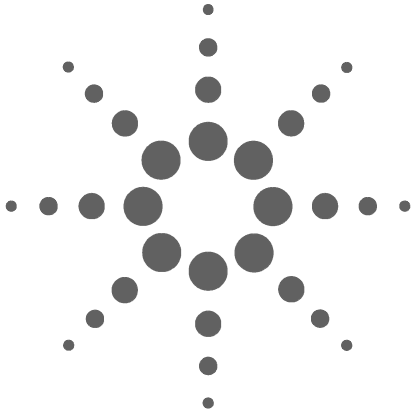
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Agilent TS-5400 Functional Test System Series IIB

Test System Interface Wiring Guide



Manual Part Number E8770-90031



Agilent Technologies

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Documentation History

All Editions and Updates of this manual and their creation date are listed below. The first Edition of the manual is Edition 1. The Edition number increments by 1 whenever the manual is revised. Updates, which are issued between Editions, contain replacement pages to correct or add additional information to the current Edition of the manual. Whenever a new Edition is created, it will contain all of the Update information for the previous Edition. Each new Edition or Update also includes a revised copy of this documentation history page.

Edition 1 (E8770-90000)July 1999

Edition 2 (E8770-90021)September 2000

Edition 3 (E8770-90031) August 2003

Manual Part Number

E8770-90031

Printed in USA

Agilent Technologies, Inc.
1601 California Street
Palo Alto, CA 94304 USA

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WARNING

A WARNING notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.

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Safety Summary

The following general safety precautions must be observed during all phases of operation of this system. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture, and intended use of the system. Agilent Technologies, Inc. assumes no liability for the customer's failure to comply with these requirements.

General

This product is provided with a protective earth terminal. The protective features of this product may be impaired if it is used in a manner not specified in the operation instructions.

WARNING: DO NOT OPERATE IN AN EXPLOSIVE ATMOSPHERE

Do not operate the system in the presence of flammable gases or flames.

If the equipment in this system is used in a manner not specified by Agilent Technologies, the protection provided by the equipment may be impaired.

Cleaning Instructions

Clean the system cabinet using a soft cloth dampened in water.

WARNING: DO NOT REMOVE ANY SYSTEM COVER

Operating personnel must not remove system covers. Component replacement and internal adjustments must be made only by qualified service personnel. Equipment that appears damaged or defective should be made inoperative and secured against unintended operation until they can be repaired by qualified service personnel.

Environmental Conditions

Unless otherwise noted in the specifications, this system is intended for indoor use in an installation category II, pollution degree 2 environment. It is designed to operate at a maximum relative humidity of 80% and at altitudes of up to 2000 meters. Refer to the specifications tables for the ac mains voltage requirements and ambient operating temperature range.

Before applying power

Verify that all safety precautions are taken. Note the external markings described in “Safety Symbols and Regulatory Markings” on page 4.

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Ground the System

To minimize shock hazard, the system chassis must have a hard-wired connection to an electrical protective earth ground. The system must also be connected to the ac power mains through a power cable that includes a protective earth conductor. The power cable ground wire must be connected to an electrical ground (safety ground) at the power outlet. Any interruption of the protective grounding will cause a potential shock hazard that could result in personal injury.

Fuses

Use only fuses with the required rated current, voltage, and specified type (normal blow, time delay). Do not use repaired fuses or short-circuited fuse holders. To do so could cause a shock or fire hazard.

Operator Safety Information

MODULE CONNECTORS AND TEST SIGNAL CABLES CONNECTED TO THEM CANNOT BE OPERATOR ACCESSIBLE: Cables and connectors are considered inaccessible if a tool (e.g., screwdriver, wrench, socket, etc.) or a key (equipment in a locked cabinet) is required to gain access to them. Additionally, the operator cannot have access to a conductive surface connected to any cable conductor (High, Low or Guard).

ASSURE THE EQUIPMENT UNDER TEST HAS ADEQUATE INSULATION BETWEEN THE CABLE CONNECTIONS AND ANY OPERATOR-ACCESSIBLE PARTS (DOORS, COVERS, PANELS, SHIELDS, CASES, CABINETS, ETC.): Verify there are multiple and sufficient protective means (rated for the voltages you are applying) to assure the operator will NOT come into contact with any energized conductor even if one of the protective means fails to work as intended. For example, the inner side of a case, cabinet, door, cover or panel can be covered with an insulating material as well as routing the test cables to the module's front panel connectors through non-conductive, flexible conduit such as that used in electrical power distribution.

Safety Symbols and Regulatory Markings

Symbols and markings on the system, in manuals and on instruments alert you to potential risks, provide information about conditions, and comply with international regulations. Table 1 defines the symbols and markings you may encounter.

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Table 1 Safety Symbols and Markings

Safety symbols	
	Warning: risk of electric shock.
	Caution: refer to accompanying documents.
	Alternating current.
	Both direct and alternating current.
	Earth (ground) terminal
	Protective earth (ground) terminal
	Frame or chassis terminal
	Terminal is at earth potential. Used for measurement and control circuits designed to be operated with one terminal at earth potential.
	Switch setting indicator. O = Off, | = On.
	Standby (supply); units with this symbol are not completely disconnected from ac mains when this switch is off. To completely disconnect the unit from ac mains, either disconnect the power cord, or have a qualified electrician install an external switch.
Regulatory Markings	
	The CE mark is a registered trademark of the European Community.
	The CSA mark is a registered trademark of the Canadian Standards Association.
 N10149	The C-tick mark is a registered trademark of the Spectrum Management Agency of Australia. This signifies compliance with the Australian EMC Framework regulations under the terms of the Radio Communications Act of 1992.
ISM 1-A	This text indicates that the product is an Industrial Scientific and Medical Group 1 Class A product (CISPR 11, Clause 4).

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Service and Support

Any adjustment, maintenance, or repair of this product must be performed by qualified personnel. Contact your customer engineer through your local Agilent Technologies Service Center.

Agilent on the Web

You can find information about technical and professional services, product support, and equipment repair and service on the Web:

http://www.agilent.com

Click the link to **Test & Measurement**. Select your country from the drop-down menus. The Web page that appears next has contact information specific for your country.

Agilent by Phone

If you do not have access to the Internet, call one of the numbers in Table 2.

Table 2 Agilent Call Centers and Regional Headquarters

United States and Canada:	Test and Measurement Call Center (800) 452 4844 (toll-free in US)
Europe:	(41 22) 780 8111
Japan:	Measurement Assistance Center (81) 0426 56 7832
Latin America:	305 269 7548
Asia-Pacific:	(85 22) 599 7777

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Chapter 1
Test System Interface Overview

This chapter contains an overview of the Test System Interface and the system equipment connected to it. Chapter contents are:

- Test System Interface Description . . . . . page 9
- Test System Interface Connectors. . . . . page 10
- Typical System . . . . . page 12
- Plug-In Card Descriptions. . . . . page 14
- Switch/Load Unit Description . . . . . page 15

Test System Interface Description

The Agilent TS-5400 Test System Interface provides a common connection interface between the test stand and your test fixture/Unit Under Test (UUT). The Test System Interface provides these features:

- Scalable, standardized interface allows up to eight 156-pin detachable Test Connectors (TC1 - TC8) for connecting the test system to your UUT test fixture,
- Flexibility for specific test requirements,
- Pre-wired and integrated to test stand equipment,
- Up to eight high-power load card connectors (HP1 through HP8),
- Knock-outs for up to eight user installed BNC connectors (RF1 through RF8).

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Test System Interface Connectors

As shown in Figure 1-1, the Test System Interface contains up to eight Test Connectors (TC1 - TC8) and up to eight High Power Connectors (HP1 - HP8).

TC1 through TC8 Test Connectors

Test Connectors TC1 through TC8 provide the majority of the connections to the UUT. These connectors are 156-pin, ITT Cannon Zero-Insertion-Force connectors.

The TC1 and TC2 Test Connectors provide the following connections to the UUT:

- Load Cards,
- Pin Matrix Cards,
- Custom Cards,
- RS-232,
- Digital I/O,
- Current Sense,
- Power Bus Sense,
- DAC Channel 1 and 2,
- Spare Equipment Connections,
- Safety Grounds, System Grounds, and UUT COM Connections,

Specific connections to TC1 through TC8 depend on how many Switch/Load Units you have and the numbers and types of plug-in cards; Chapter 2 shows all variations.

HP1 through HP8 Connectors

Connectors HP1 through HP8 provide the connections to the Agilent E6178B High Power Load Cards.

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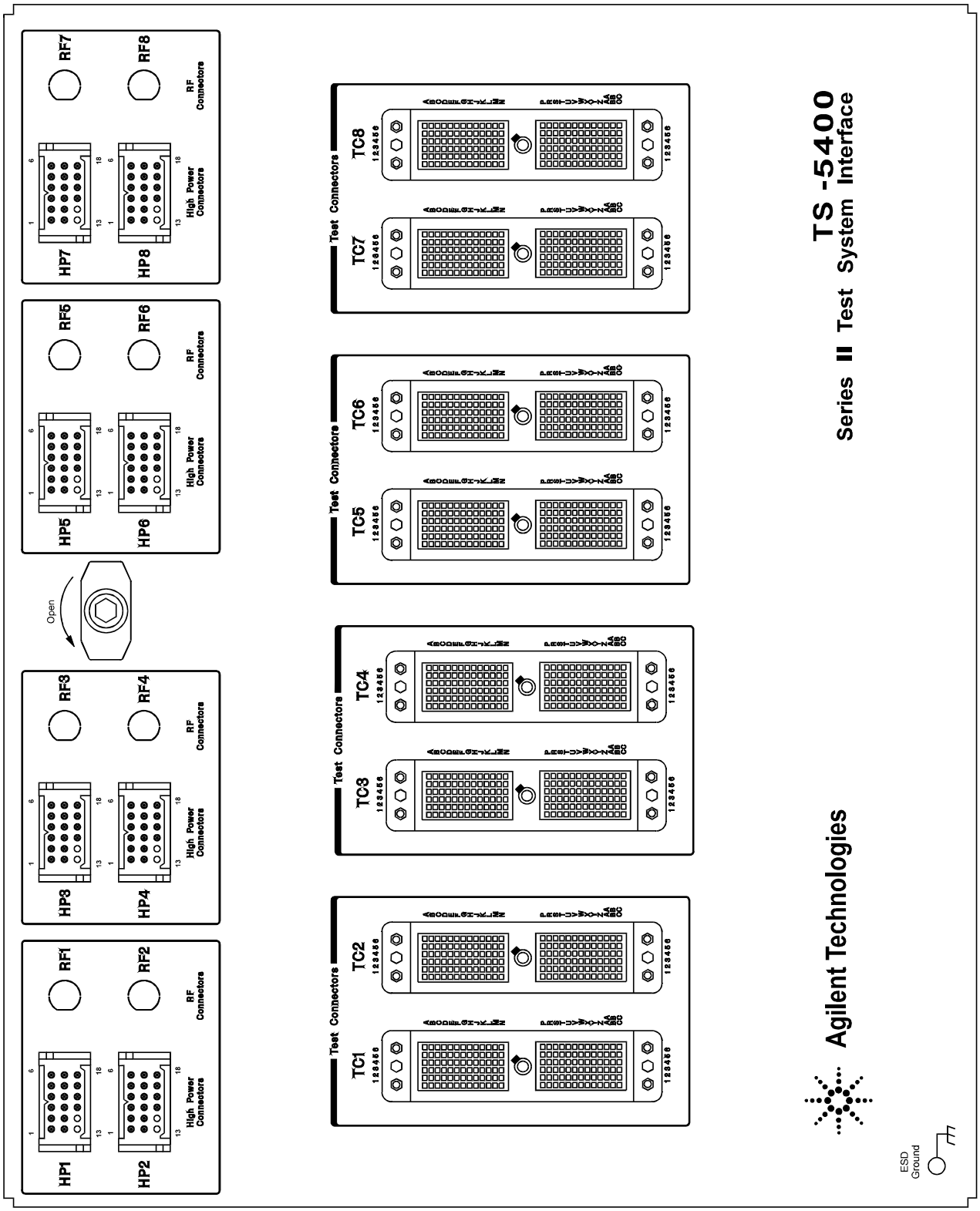


Figure 1-1. Test System Interface Features

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Typical System

Figure 1-2 shows a typical Agilent E8780B system. Figure 1-3 is a simplified system block diagram.

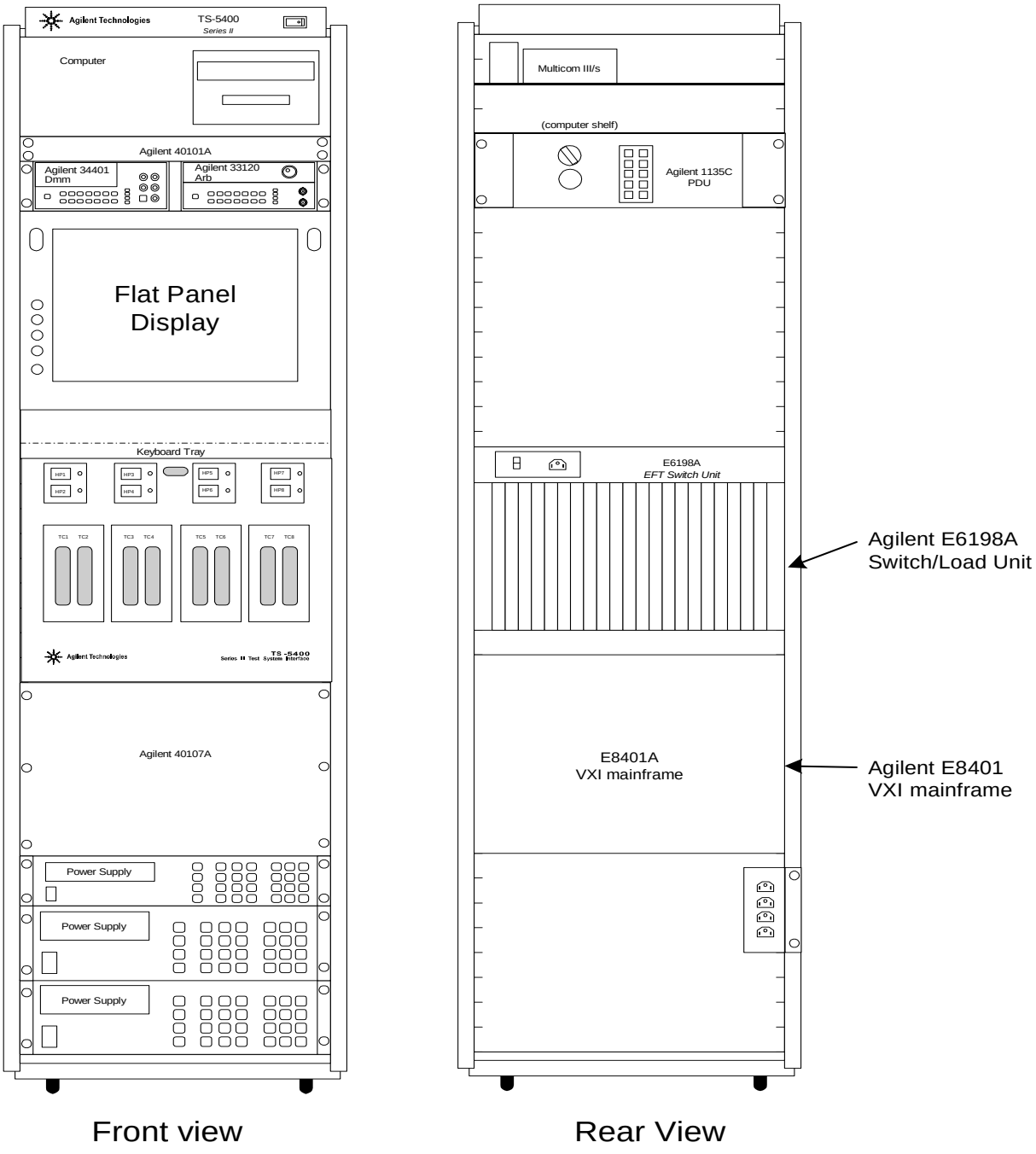
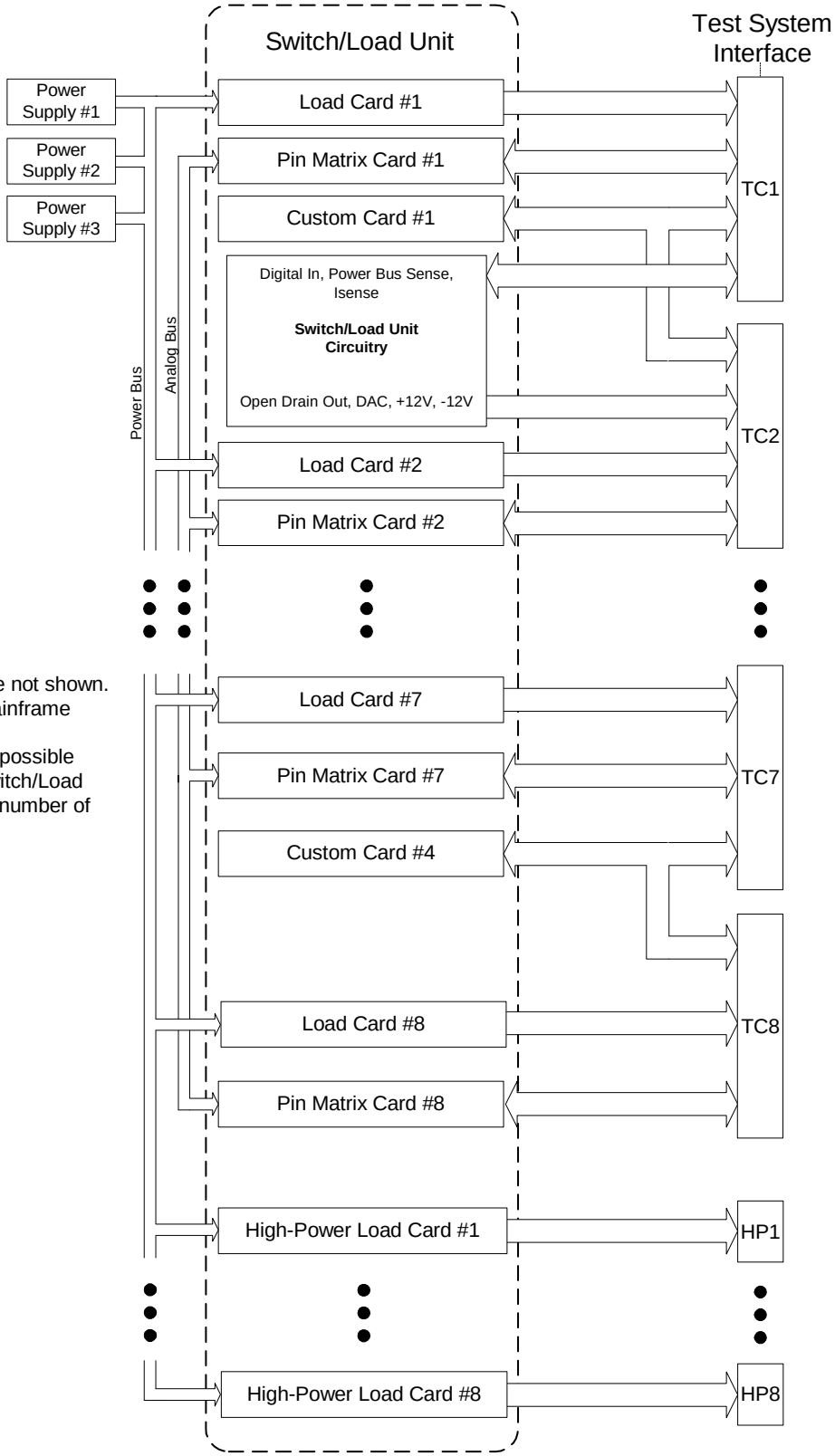


Figure 1-2. Typical Agilent E8780B Medium Pin Count System

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Notes:
1. Optional VXI Mainframe not shown. See Figure 2-7 for VXI Mainframe Details.
2. This drawing shows all possible plug-in cards--a single Switch/Load Unit will not hold the total number of cards shown here.

Figure 1-3. Simplified System Block Diagram

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Plug-In Card Descriptions

This section describes the equipment and signals shown in the previous system block diagrams.

Load Cards

The following load cards are available:

- Agilent E6175A8-Channel Load Card,
- Agilent E6176A 16-Channel Load Card,
- Agilent E6177A 24-Channel Load Card,
- Agilent E6178B 8-Channel, High Power Load Card.

The loads from the Agilent E6175A, E6176A, or E6177A load cards connect to the UUT via Test Connectors TC1 through TC8. The loads from the High Power Load Card connect to the UUT via the High-Power Connectors HP1 through HP8. Refer to Chapters 2 and 3 of this manual for more information on making connections to the load cards.

Pin Matrix Cards

Two pin matrix cards are available:

Agilent E8792A Pin Matrix Card with instrumentation support,

Agilent E8793A 32-Channel Pin Matrix Card.

Refer to the *Agilent E6198A Switch/Load Unit User's Manual* for more information on these cards.

Custom Card

The custom card has two purposes:

1. General-purpose breadboard for use by system integrators to add custom circuitry when necessary.
2. Emulation of the TS-5430. Refer to the *Agilent E6198A Switch/Load Unit User's Manual* for more information on the Custom Card.

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Switch/Load Unit Description

In addition to holding load cards, pin matrix cards and custom cards the Switch/Load Unit(s) provides the following built-in capabilities:

- Digital I/O,
- Current Sense,
- Power Bus Sense,
- Two DAC Channels
- +12V, -12V Power.

Digital I/O

The Switch/Load Unit provides 8-bits of digital input and 8-bits of digital output (Open Drain). Typical uses for the digital I/O:

- Automation control,
- Digital control of circuitry on the Custom Card,
- Digital switches (for example, to indicate door open/closed),
- Actuator control,
- Fixture ID.

There is no handshaking capability. The reset state of the digital output bits is configurable in the hardware handler.

Use the supplied action DigitalReadSU to read an 8-bit word; use DigitalWriteSU to write an 8-bit word.

Digital Input

The digital input bits have TTL thresholds (0.55 vdc for low, 3.0 Vdc for high) and are protected to ±24 Vdc. Figure 1-4 shows a typical digital input example using one input bit.

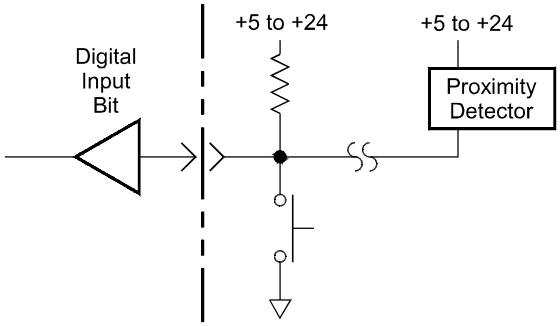


Figure 1-4. Digital Input Example

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Open Drain Digital Output

The digital output bits use open drain drive circuitry designed for pull-ups up to +24 Vdc. The output FET can sink up to 250mA. Figure 1-5 shows an example of using one digital output bit to control a relay. Writing a 1 to this bit turns on the output FET which closes the relay.

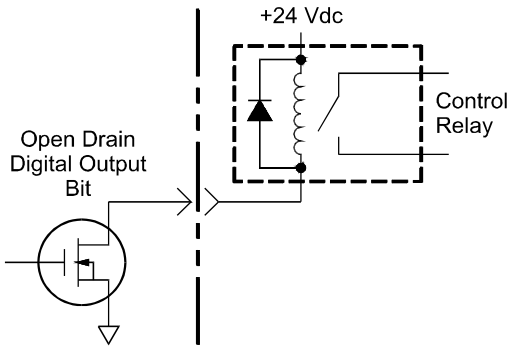


Figure 1-5. Digital Output Example

DAC Channels

The two 14-bit channels of DAC provide ±16 volts at 10 mA each. In order to provide this voltage swing, a charge pump is used to step-up the ±12 volt supply. The DAC channels are typically used for general-purpose UUT control or for controlling non-isolated voltage-controlled power supplies. Refer to the *Agilent E6198A Switch/Load Unit User's Manual* for more information on the DAC channels.

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+12Vdc, -12Vdc

+12V and -12V from the Switch/Load Unit Power Supply. The +12V supply can deliver 1A, the -12V supply can deliver 800mA.

Note

These power supplies have resettable fuses located on the Switch/Load Unit. Should an overload occur, the fuse(s) will open. To reset the fuse(s), remove power from the Switch/Load Unit for approximately 20 seconds. The fuse(s) will reset when power is re-applied.

Current Sense

The Isense+ and Isense- lines connect to the current sense bus on the Switch/Load Unit backplane. These lines are used for sensing current on a selected load card channel. The 8-Channel and 16-Channel High Current Load Cards are designed to connect to the current sense bus. Each channel's current sense lines are multiplexed so that on each card only one channel at a time can be connected to the current sense bus. Isense+ and Isense- from Switch/Load Unit #1 are connected in parallel to both TC1 and TC2. Refer to the *Agilent E6198A Switch/Load Unit User's Manual* for more information on the current sense lines.

Power Bus Sense

Power Bus Sense 1 - 4 are the remote sense lines for the power supplies connected to power buses 1 - 4. Remote sensing compensates for losses in the system wiring and ensures that the voltage value set will be applied at the sense point. Refer to the *Agilent E6198A Switch/Load Unit User's Manual* for more information.

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Instrument Connectors

The following instrument connectors are accessible from the back of the Test System Interface. Wiring from these connectors to the Switch/Load Unit, Pin Matrix Modules, Custom Card, etc.was completed and tested at the factory. Figure 1-6 shows the back side of a typical Test System Interface containing two pc boards, callouts to J5 - J9 are shown for PC board #1--these connectors are identical for all PC boards.

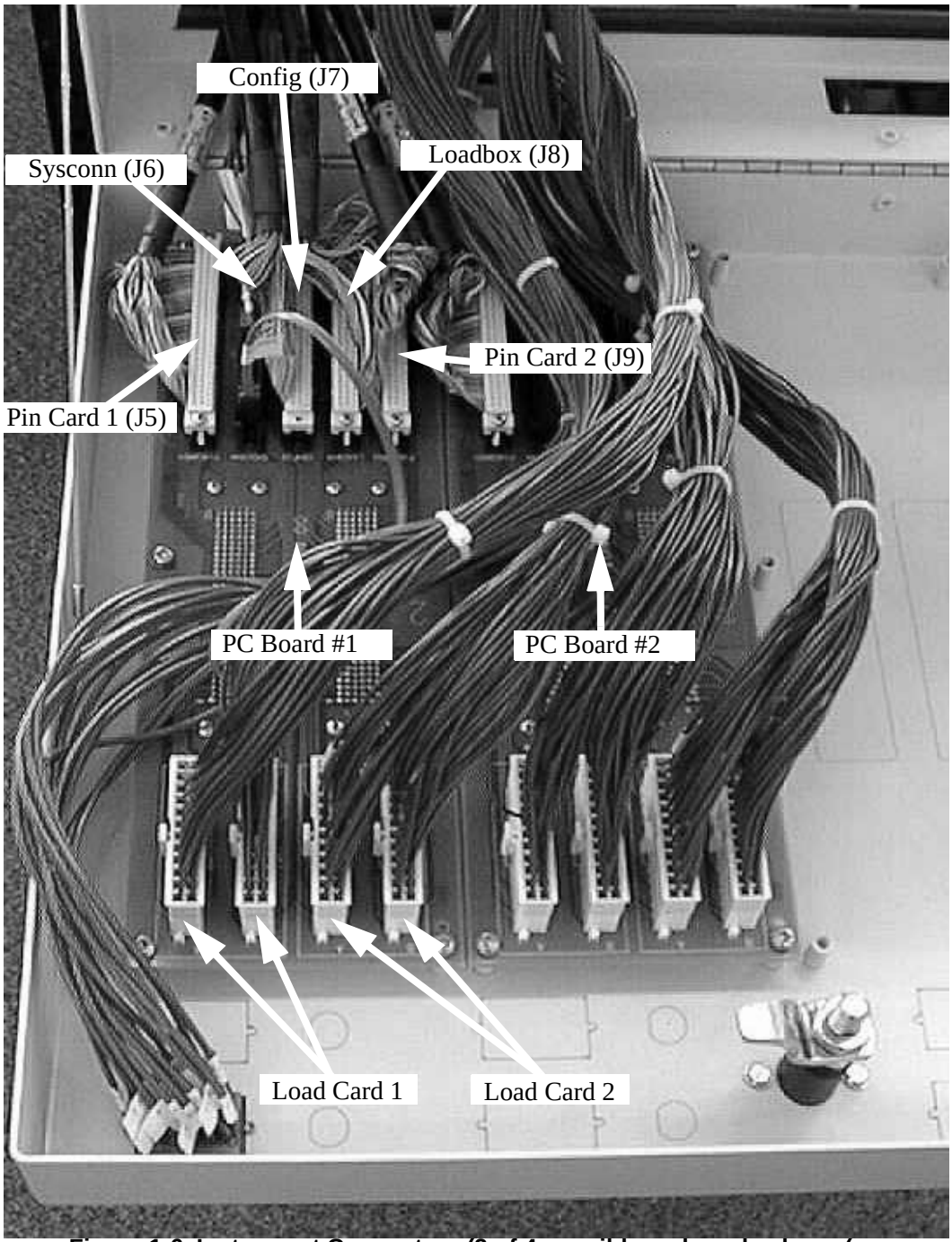


Figure 1-6. Instrument Connectors (2 of 4 possible pc boards shown(

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Sysconn (J6)

The first Sysconn Connector (J6) is where the following system components connect (through the PC board) to Test System Interface connectors TC1 and TC2:

- Spare instruments (see “Adding Spare Instruments” on page 37 for details),
- DAC Channels 1 and 2,
- RS-232 from the computer,
- Optional Agilent E6171 Measurement Control Module,
- Channel 2 of the optional Agilent E6173A Arbitrary Waveform Generator,
- Optional Agilent E6174A Event Detector External Clock.

If you have additional TC connectors (TC3-TC8), the corresponding Sysconn connectors can be used for custom user connections (see “Making Connections to the Sysconn Connector J6” on page 37 for details).

Pin Card 1 (J5), Pin Card 2 (J9)

The Pin Card 1 Connector is where the lower numbered Pin Matrix Card connects to the Test System Interface. Pin Card 2 is where the higher numbered Pin Matrix Card connects to the Test System Interface. For example, on TC1 and TC2, Pin Matrix Card #1 connects through J5 to TC1 and Pin Matrix Card #2 (if present) connects through J9 to TC2.

Config Connector (J7)

The Config Connector is where the Agilent E8794A Custom Card connects to the Test System Interface. Any unused Config Connectors can be used for custom user connections (see “Making Connections to the Config Connector J7” on page 39 for details).

Loadbox Connector (J8)

The Loadbox Connector connects via cable to J104 on the Switch/Load Unit. The Loadbox Connector carries these signals to the Test System Interface: Digital I/O, ISense, power bus sense, +12V, -12V and the Spare Power supply.

Load Card 1 (J10, J11) Load Card 2 (J12, J13)

The Load Card 1 Connector is where the lower numbered Load Card connects to the Test System Interface. Load Card 2 is where the higher numbered Load Card connects to the Test System Interface. For example, on TC1 and TC2, Load Card #1 connects through J10/J11 to TC1 and Load Card #2 (if present) connects through J12/J13 to TC2.

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Chapter 2
Making Connections

This chapter describes how to make connections to the Test System Interface connectors. Chapter contents are:

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- Connecting Wiring to Test Connectors TC1- TC8 . . . . . page 22
  - Crimping Wires to Contacts . . . . . page 22
  - Inserting Contacts and Assembling the Connector . . . . . page 23
  - Connecting to the Test System Interface . . . . . page 24
  - ESD Protection Measures . . . . . page 25
  - Removing a Contact . . . . . page 26
  - TC1-TC8 Signal Definitions . . . . . page 27
  - TC1-TC2 Connections . . . . . page 29
  - TC3-TC8 Connections . . . . . page 32
- Connecting Wiring to High Power Connectors HP1- HP8 . . . . . page 35
- System Grounding . . . . . page 36
- Sysconn (J6) and Config (J7) Connections . . . . . page 37
- Agilent E6171A/B Safety Interlock . . . . . page 41

Connectors and Tools

The specialized connectors and tools referenced in this chapter are available from Agilent Technologies as these options/part numbers:

- Agilent E6229 Option 001--Test Connector Housing Kit. Contains one 156-pin, ITT Cannon Zero-Insertion-Force mating connector and contacts.
- Agilent Part Number 1252-7785--Crimp tool for Cannon connector contacts.
- Agilent Part Number 1252-7796--Extraction tool for Cannon connector contacts.
- Agilent E6244A Option 020--High Power Mating Connector Kit.

Standard connectors such as BNC connectors should be acquired from your local electronic parts supplier.

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Connecting Wiring to Test Connectors TC1- TC8

The figures on this and the following pages show how to connect wiring and assemble the mating connectors for Test Connectors TC1 through TC8. Should you make a mistake, Figure 2-6 on page 26 shows how to remove a contact from a connector. Each Test Connector contact is rated at 3A (continuous).

Caution **Use only the Agilent supplied connector kit with its non-conductive handle screw. Failure to use the Agilent supplied kit (Agilent E6229 Opt. 001) may void the warranty.**

Crimping Wires to Contacts

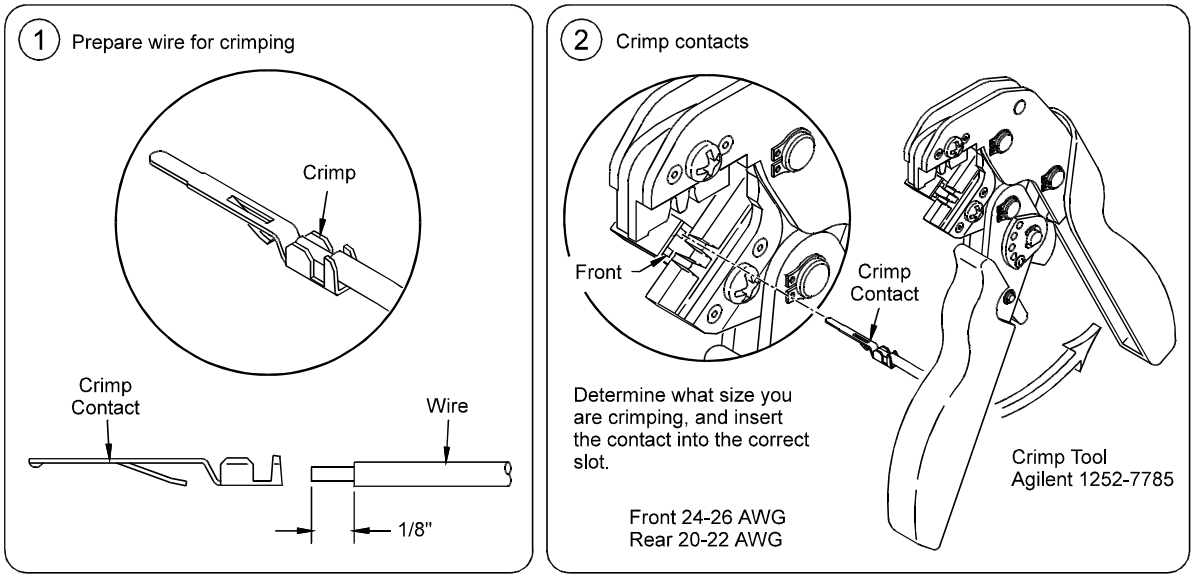


Figure 2-1. Crimping Wires to Contacts

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Inserting Contacts and Assembling the Connector

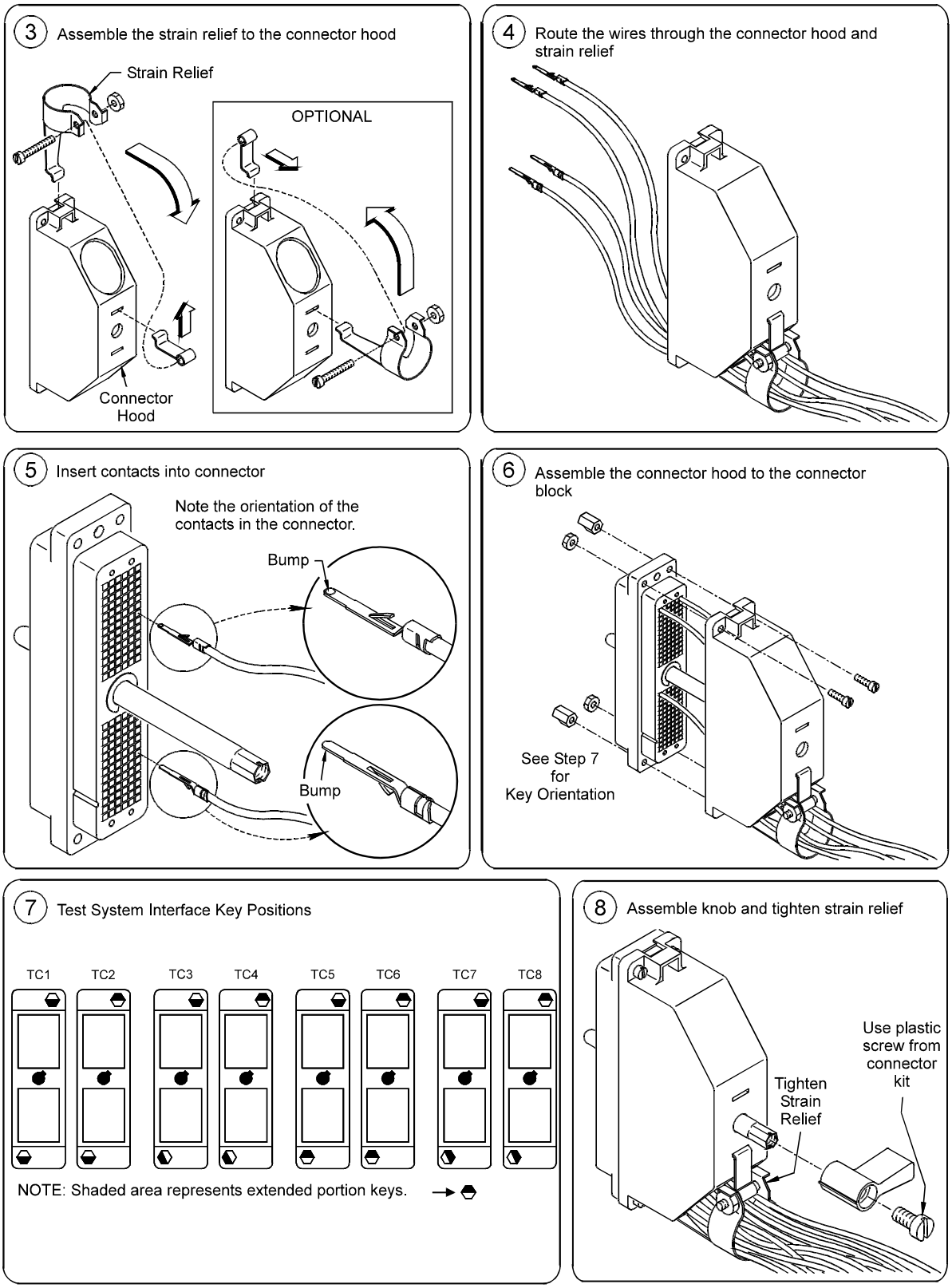


Figure 2-2. Assembling TC1 - TC8 Mating Connectors

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Connecting to the Test System Interface

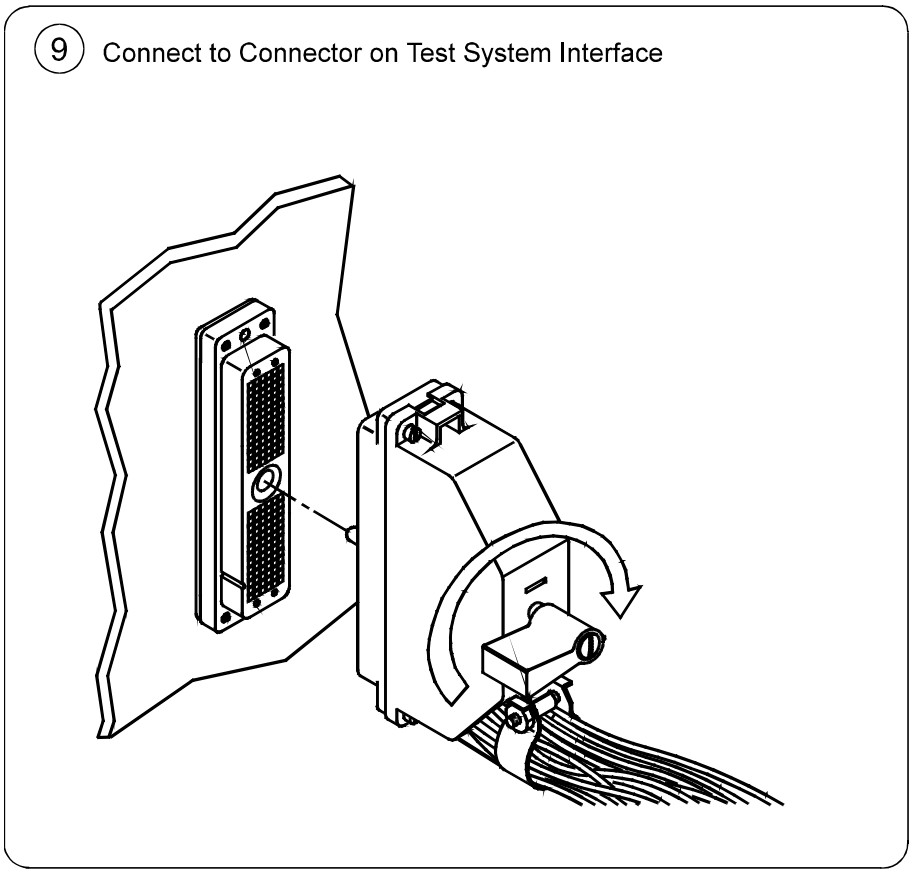


Figure 2-3. Connecting to the Test System Interface

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ESD Protection Measures

In geographic areas where ESD (electro-static discharge) potential may be high (low humidity, etc.), you may need to add a grounding strap to the center shafts of the Test Connector mating connector assembly. Figure 2-4 shows how to add the grounding strap. Positions J1 through J6 are safety ground connections on the Test Connector.

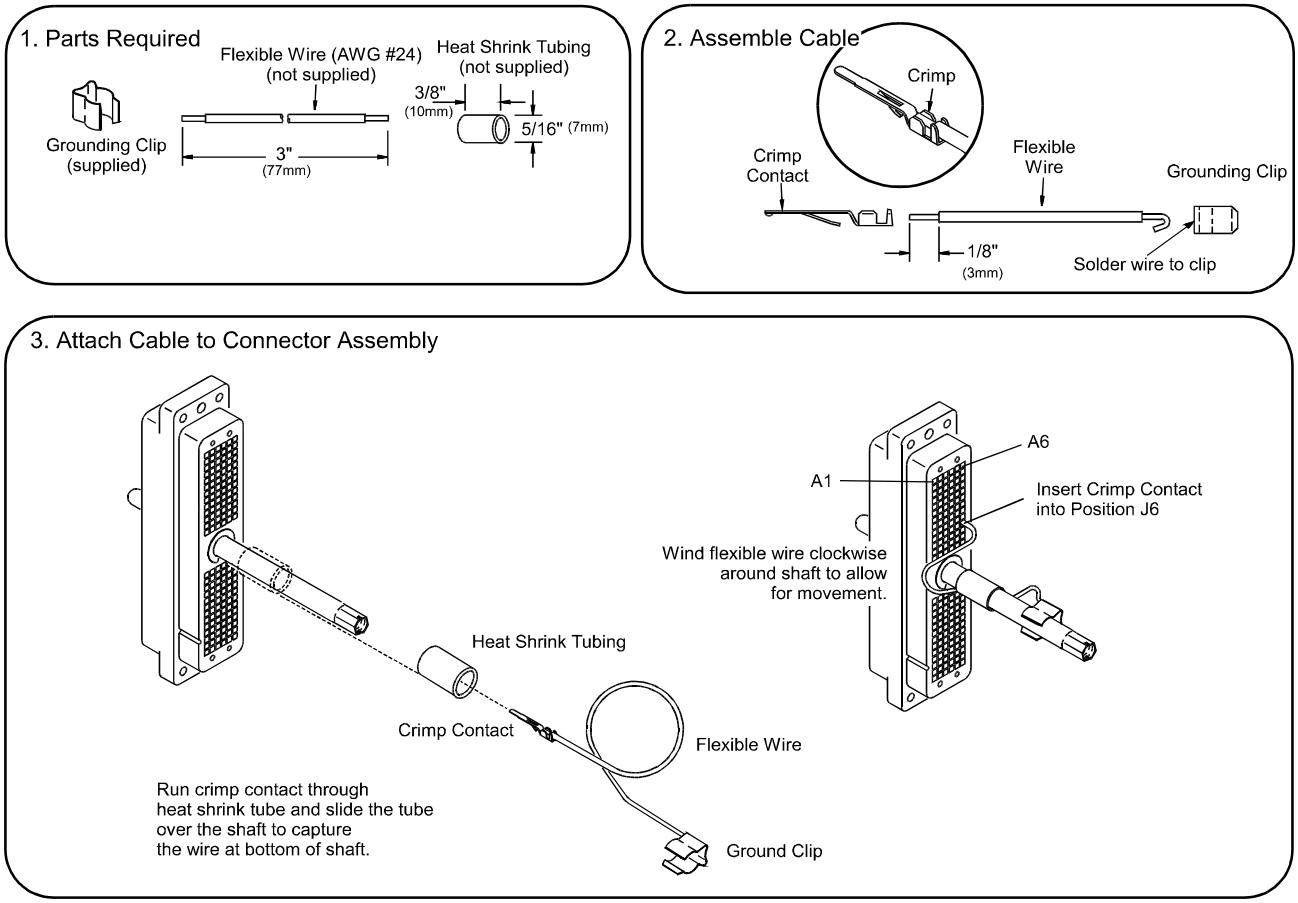


Figure 2-4. Adding a Grounding Strap to reduce ESD

Operator Wrist Strap ESD Connector

A connector is provided on the front of the Test System Interface for an operator ESD wrist strap connection. The connector is wired to Safety (Earth) ground.

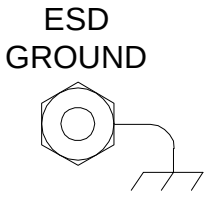


Figure 2-5. Wrist Strap ESD Connector

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Removing a Contact

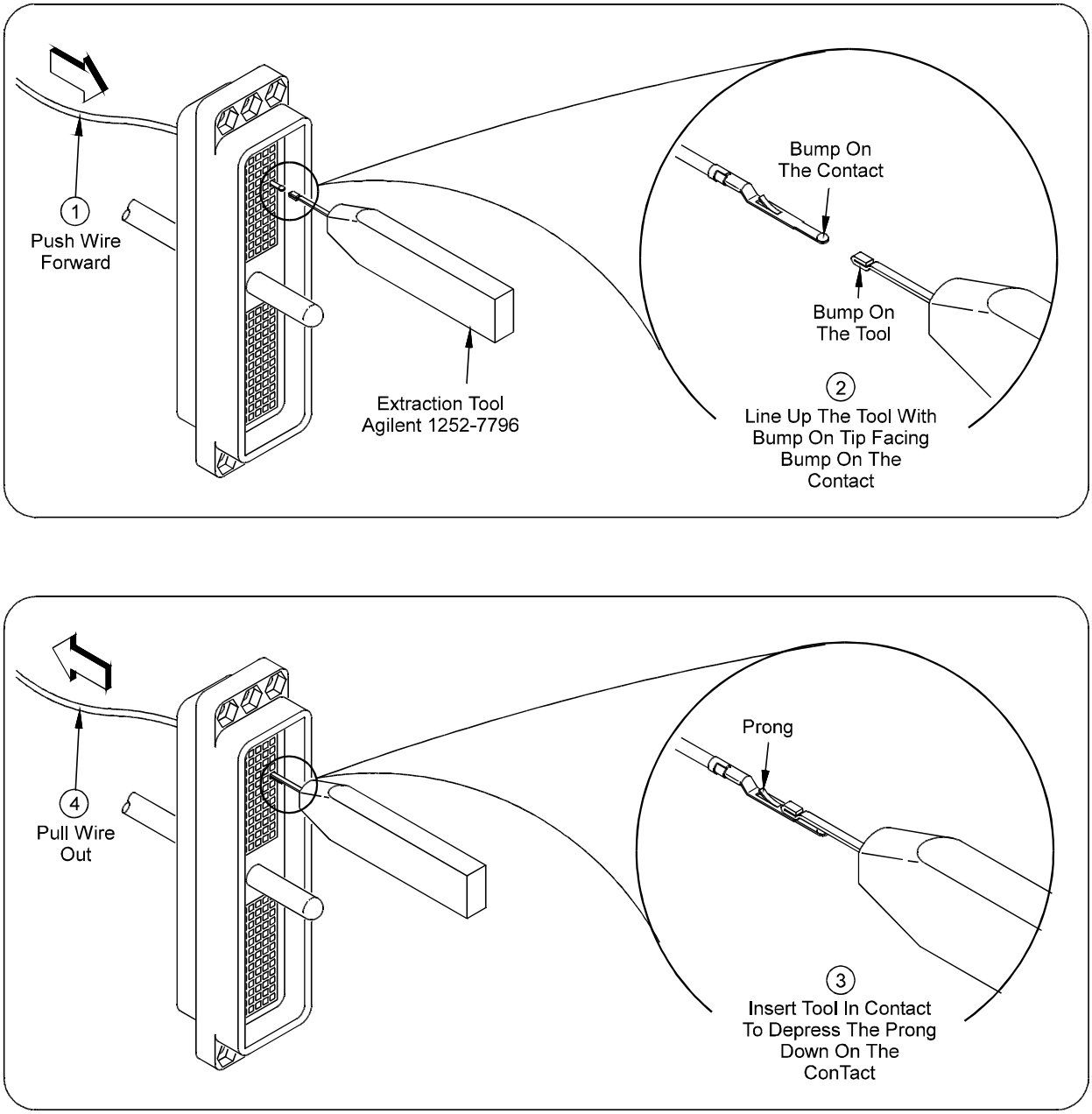


Figure 2-6. Removing a Test Connector Contact

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TC1-TC8 Signal Definitions

Table 2-1 defines the signals available on Test Connector TC1 - TC8. Signal names are listed here alphabetically and are referenced to the TC1 - TC8 block diagrams and pinout figures on the following pages.

Table 2-1. TC1 - TC8 Signal Definitions

+12Vdc, -12Vdc Supply	+12V and -12V from the Switch/Load Unit Power Supply--referenced to System Ground. The +12V supply can deliver 1A, the -12V supply can deliver 800mA.
Spare Supply	Connection for a user installed power supply not included in the standard system. Refer to *Connecting an Additional (Spare) Power Supply* in the *Switch/Load Unit User's Manual* for details.
ARB Channel 2 High ARB Channel 2 Low	Connections to channel 2 of the optional Agilent E6173 VXI Arbitrary Function Generator. Refer to *Arbitrary Function Generator User's Manual* for details.
CCard *n*, Pin *n* CCard Common	Custom Card #*n*, Pin *n*--referenced to CCard Common. Connections to the Agilent 8794 Custom Card. The custom card is used to 1) emulate the TS-5430 personality card, and 2) as a General-purpose breadboard card for custom circuitry.
DAC Channel 1 DAC Channel 2 DAC Common	The Switch/Load Unit provides two 14-bit channels of DAC which supply ±16 volts at 10 mA each. These DAC channels are referenced to DAC Common.
Digital In 0 - 7 Open Drain Out 0 - 7	The Switch/Load Unit provides 8-bits of digital input and 8-bits of open drain digital output. There is no handshaking capability. Reference to System Ground.
E6174 Ext. Clock	External clock connection for the optional Agilent E6174 Event Detector Module. Refer to the *Event Detector User's Manual* for details.
Isense+ Isense-	The Isense+ and Isense- lines connect to the current sense bus on the Switch/Load Unit backplane. These lines are used for sensing current on a selected load card channel. The 8-Channel and 16-Channel High Current Load Cards are designed to connect to the current sense bus. Each load card channel's current sense lines are multiplexed so that on each card only one channel at a time can be connected to the current sense bus. Isense+ and Isense- from the Switch/Load Unit are connected in parallel to both TC1 and TC2.
Load Card *n*	Connections to the Agilent E6175A, E6176A, or E6177A Load Cards. Actual connections vary depending on which type of load card is present. Refer to Chapter 3 of this manual and to the Switch/Load Unit Manual for detailed wiring for each type of load card.
MCM Ext. Trigger 1 - 4 MCM Aux. Inst 1 - 4 MCM System Ground MCM Safety Interlock	Connections to the optional Agilent E6171 VXI Measurement Control Module (MCM). The safety interlock shuts down the MCM. When an MCM is in the system, the safety interlock must be connected to signal ground for the MCM to operate. Refer to "Agilent E6171A/B Safety Interlock" on page 41 for more information.
Pmatrix *n*, Row *n*	Pin Matrix Card #*n*, Row #*n*--referenced to UUT Common*. Connections to the Agilent E8792A or E8793A Pin Matrix Card. Refer to the Switch/Load Unit Manual for a schematic.
Power Bus Sense 1 - 4	The remote sense lines for the power supplies connected to power buses 1 - 4.
RS-232 Common RS-232 Rx RS-232 Tx	One channel of basic RS-232 capability provided by the computer. The RS-232 lines provided are Rx, Tx, and Common.

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Table 2-1. TC1 - TC8 Signal Definitions

Safety Ground	This is a high current/high noise ground. It connects the instrument rack to safety or earth ground. There are six Safety Ground pins per Test Connector. Be sure to connect ALL Safety Ground lines to your UUT to ensure proper current sharing. Refer to Chapter 2 in the Agilent TS-5400 System Integrator's Manual for information on safety grounding.
Spare Inst.	These connectors connect to the Sysconn Connector (J6) on the back of the Test System Interface. You can connect additional instruments to the Sysconn Connector(s) and have them accessible on TC1 - TC8.
System Ground	Earth referenced ground used by the Switch/Load Unit and optional VXI modules such as the Agilent E6174 Event Detector.
UUT Common	Floating ground of the UUT. This is a low current/low noise (clean) ground and connects to high accuracy signal measuring instruments such as the Agilent E1411 DMM and to the Pin Matrix Cards.*

**UUT Common can be connected to System Ground by closing a relay connected to the INST2 line on the Agilent E8792A 32-Pin Matrix Card. Refer to the Agilent TS-5400 Series IIB Software User's Manual for more information.*

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TC1-TC2 Connections

Figure 2-7 is a block diagram showing TC1 and TC2 connections. Figure 2-8 shows the pinouts for TC1 and Figure 2-9 shows the pinouts for TC2.

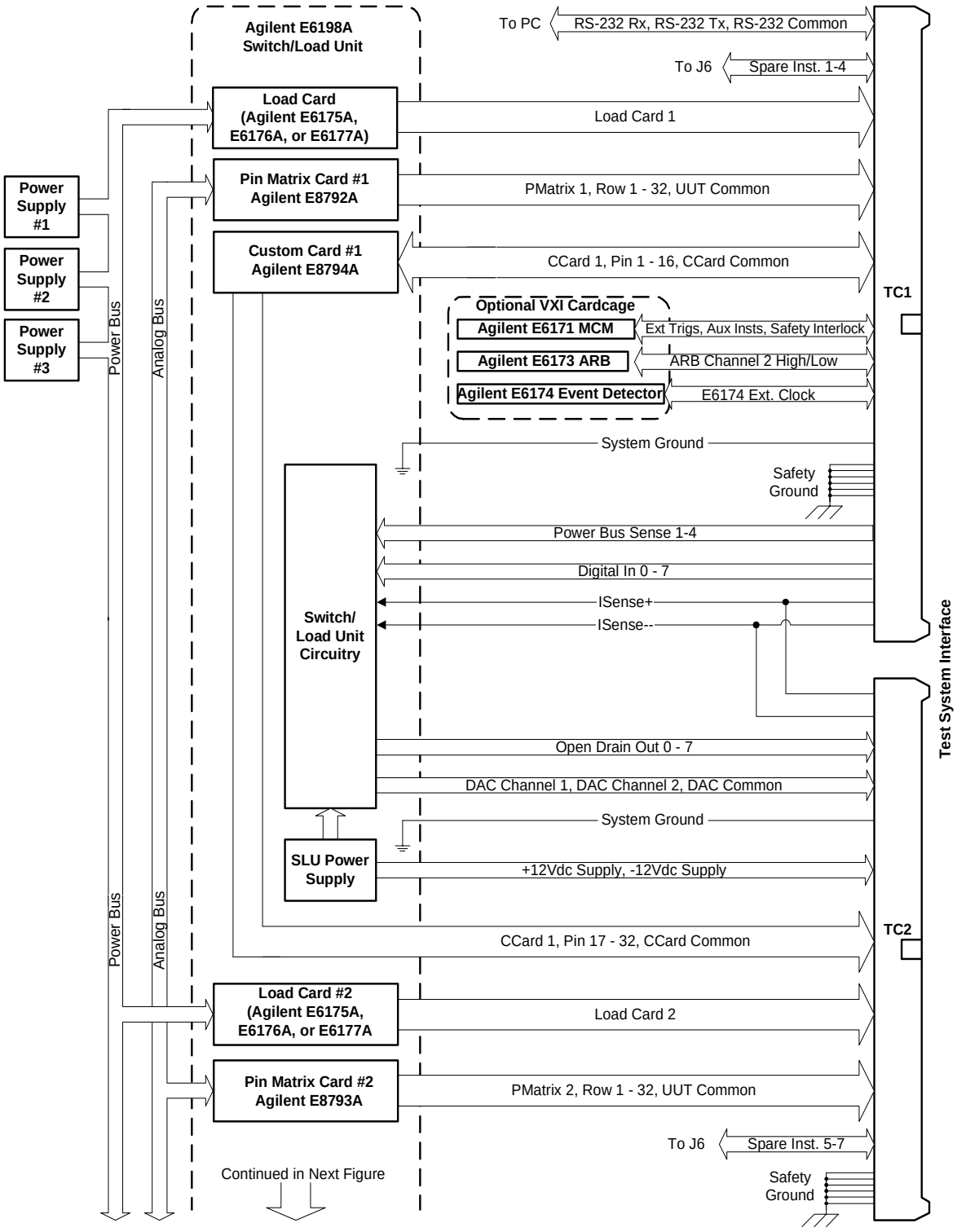
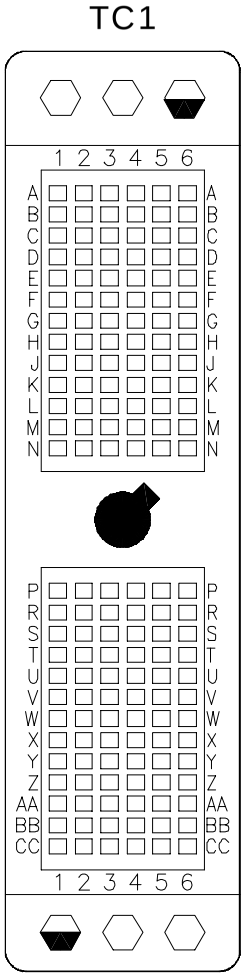


Figure 2-7. TC1 and TC2 Block Diagram

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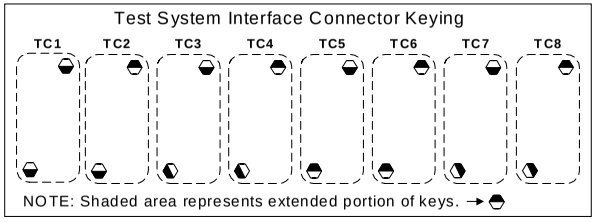
	1	2	3	4	5	6	
A	Load Card 1	Load Card 1	Load Card 1	Load Card 1	Load Card 1	Load Card 1	A
B	Load Card 1	Load Card 1	Load Card 1	Load Card 1	Load Card 1	Load Card 1	B
C	Load Card 1	Load Card 1	Load Card 1	Load Card 1	Load Card 1	Load Card 1	C
D	Load Card 1	Load Card 1	Load Card 1	Load Card 1	Load Card 1	Load Card 1	D
E	Load Card 1	Load Card 1	Load Card 1	Load Card 1	Load Card 1	Load Card 1	E
F	Load Card 1	Load Card 1	Load Card 1	Load Card 1	Load Card 1	Load Card 1	F
G	Load Card 1	Load Card 1	Load Card 1	Load Card 1	Load Card 1	Load Card 1	G
H	Load Card 1	Load Card 1	Load Card 1	Load Card 1	Load Card 1	Load Card 1	H
J	Safety Ground	Safety Ground	Safety Ground	Safety Ground	Safety Ground	Safety Ground	J
K	Digital In 0	Digital In 1	System Ground	Power Bus Sense 1	MCM Ext. Trigger #1	MCM System Ground	K
L	Digital In 2	Digital In 3	RS-232 Common	Power Bus Sense 2	MCM Ext. Trigger #2	MCM Safety Interlock	L
M	Digital In 4	Digital In 5	RS-232 Rx	Power Bus Sense 3	MCM Ext. Trigger #3	ISense+	M
N	Digital In 6	Digital In 7	RS-232 Tx	Power Bus Sense 4	MCM Ext. Trigger #4	ISense-	N
P	CCard 1 Pin 1	CCard 1 Pin 2	CCard 1 Pin 3	CCard 1 Pin 4	MCM Aux. Inst. #1	MCM Aux. Inst. #2	P
R	CCard 1 Pin 5	CCard 1 Pin 6	CCard 1 Pin 7	CCard 1 Pin 8	System Ground	System Ground	R
S	CCard Common	CCard Common	CCard Common	CCard Common	Spare Inst. #1	Spare Inst. #2	S
T	CCard 1 Pin 9	CCard 1 Pin 10	CCard 1 Pin 11	CCard 1 Pin 12	Spare Inst. #3	Spare Inst. #4	T
U	CCard 1 Pin 13	CCard 1 Pin 14	CCard 1 Pin 15	CCard 1 Pin 16	ARB Channel 2 High	ARB Channel 2 Lo	U
V	UUT Common	UUT Common	UUT Common	UUT Common	PMatrix 1, Row 1	PMatrix 1, Row 2	V
W	PMatrix 1, Row 3	PMatrix 1, Row 4	PMatrix 1, Row 5	PMatrix 1, Row 6	PMatrix 1, Row 7	PMatrix 1, Row 8	W
X	PMatrix 1, Row 9	PMatrix 1, Row 10	PMatrix 1, Row 11	PMatrix 1, Row 12	PMatrix 1, Row 13	PMatrix 1, Row 14	X
Y	UUT Common	UUT Common	UUT Common	UUT Common	UUT Common	UUT Common	Y
Z	PMatrix 1, Row 15	PMatrix 1, Row 16	PMatrix 1, Row 17	PMatrix 1, Row 18	PMatrix 1, Row 19	PMatrix 1, Row 20	Z
AA	PMatrix 1, Row 21	PMatrix 1, Row 22	PMatrix 1, Row 23	PMatrix 1, Row 24	PMatrix 1, Row 25	PMatrix 1, Row 26	AA
BB	UUT Common	UUT Common	UUT Common	UUT Common	UUT Common	UUT Common	BB
CC	PMatrix 1, Row 27	PMatrix 1, Row 28	PMatrix 1, Row 29	PMatrix 1, Row 30	PMatrix 1, Row 31	PMatrix 1, Row 32	CC
	1	2	3	4	5	6	

Figure 2-8. TC1 Pinouts



Notes:

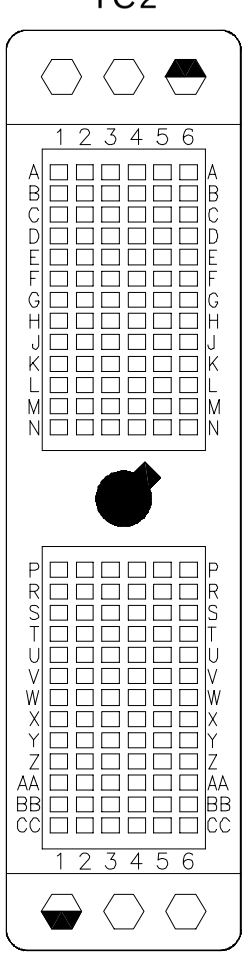
1. **Load Card 1:** See Chapter 3 for connection details for specific load cards.
2. **CCard 1 Pin n:** Custom Card #1, Pin n. See the Switch/Load Unit Manual for a schematic. .
3. **Pin Matrix 1, Row n:** See the Switch/Load Unit Manual for a schematic. .
4. Shaded cells indicate optional VXI Modules.



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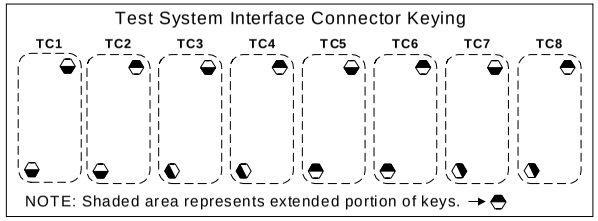
	1	2	3	4	5	6	
A	Load Card 2	Load Card 2	Load Card 2	Load Card 2	Load Card 2	Load Card 2	A
B	Load Card 2	Load Card 2	Load Card 2	Load Card 2	Load Card 2	Load Card 2	B
C	Load Card 2	Load Card 2	Load Card 2	Load Card 2	Load Card 2	Load Card 2	C
D	Load Card 2	Load Card 2	Load Card 2	Load Card 2	Load Card 2	Load Card 2	D
E	Load Card 2	Load Card 2	Load Card 2	Load Card 2	Load Card 2	Load Card 2	E
F	Load Card 2	Load Card 2	Load Card 2	Load Card 2	Load Card 2	Load Card 2	F
G	Load Card 2	Load Card 2	Load Card 2	Load Card 2	Load Card 2	Load Card 2	G
H	Load Card 2	Load Card 2	Load Card 2	Load Card 2	Load Card 2	Load Card 2	H
J	Safety Ground	Safety Ground	Safety Ground	Safety Ground	Safety Ground	Safety Ground	J
K	Open Drain Out 0	Open Drain Out 1	System Ground	System Ground	System Ground	UUT Common	K
L	Open Drain Out 2	Open Drain Out 3	System Ground	+12 Vdc Supply	System Ground	UUT Common	L
M	Open Drain Out 4	Open Drain Out 5	System Ground	-12 Vdc Supply	System Ground	Isense+	M
N	Open Drain Out 6	Open Drain Out 7	E6174 Ext. Clock	Spare Supply*	System Ground	Isense-	N
P	CCard 1 Pin 17	CCard 1 Pin 18	CCard 1 Pin 19	CCard 1 Pin 20	MCM Aux. Inst. #3	MCM Aux. Inst. #4	P
R	CCard 1 Pin 21	CCard 1 Pin 22	CCard 1 Pin 23	CCard 1 Pin 24	System Ground	System Ground	R
S	CCard Common	CCard Common	CCard Common	CCard Common	Spare Inst. #5	Spare Inst. #6	S
T	CCard 1 Pin25	CCard 1 Pin 26	CCard 1 Pin 27	CCard 1 Pin 28	Spare Inst. #7	DAC Channel 1	T
U	CCard 1 Pin 29	CCard 1 Pin 30	CCard 1 Pin 31	CCard 1 Pin 32	DAC Channel 2	DAC Common	U
V	UUT Common	UUT Common	UUT Common	UUT Common	PMatrix 2, Row 1	PMatrix 2, Row 2	V
W	PMatrix 2, Row 3	PMatrix 2, Row 4	PMatrix 2, Row 5	PMatrix 2, Row 6	PMatrix 2, Row 7	PMatrix 2, Row 8	W
X	PMatrix 2, Row 9	PMatrix 2, Row 10	PMatrix 2, Row 11	PMatrix 2, Row 12	PMatrix 2, Row 13	PMatrix 2, Row 14	X
Y	UUT Common	UUT Common	UUT Common	UUT Common	UUT Common	UUT Common	Y
Z	PMatrix 2, Row 15	PMatrix 2, Row 16	PMatrix 2, Row 17	PMatrix 2, Row 18	PMatrix 2, Row 19	PMatrix 2, Row 20	Z
AA	PMatrix 2, Row 21	PMatrix 2, Row 22	PMatrix 2, Row 23	PMatrix 2, Row 24	PMatrix 2, Row 25	PMatrix 2, Row 26	AA
BB	UUT Common	UUT Common	UUT Common	UUT Common	UUT Common	UUT Common	BB
CC	PMatrix 2, Row 27	PMatrix 2, Row 28	PMatrix 2, Row 29	PMatrix 2, Row 30	PMatrix 2, Row 31	PMatrix 2, Row 32	CC
	1	2	3	4	5	6	

Figure 2-9. TC2 Pinouts



* User installed Spare Power Supply --see Switch/Load Unit User's Manual for details.

Notes:
1. **Load Card 2:** See Chapter 3 for connection details for specific load cards.
2. **CCard 1 Pin n:** Custom Card #1, Pin n. See the Switch/Load Unit Manual for a schematic.
3. **Pin Matrix 2, Row n:** See the Switch/Load Unit Manual for a schematic.
4. Shaded cells indicate optional VXI Modules.



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TC3-TC8 Connections

Figure 2-10 is a block diagram showing TC3 through TC8 connections. Figure 2-11 shows the pinouts for TC3, 5, or 7 and Figure 2-12 shows the pinouts for TC4, 6, or 8.

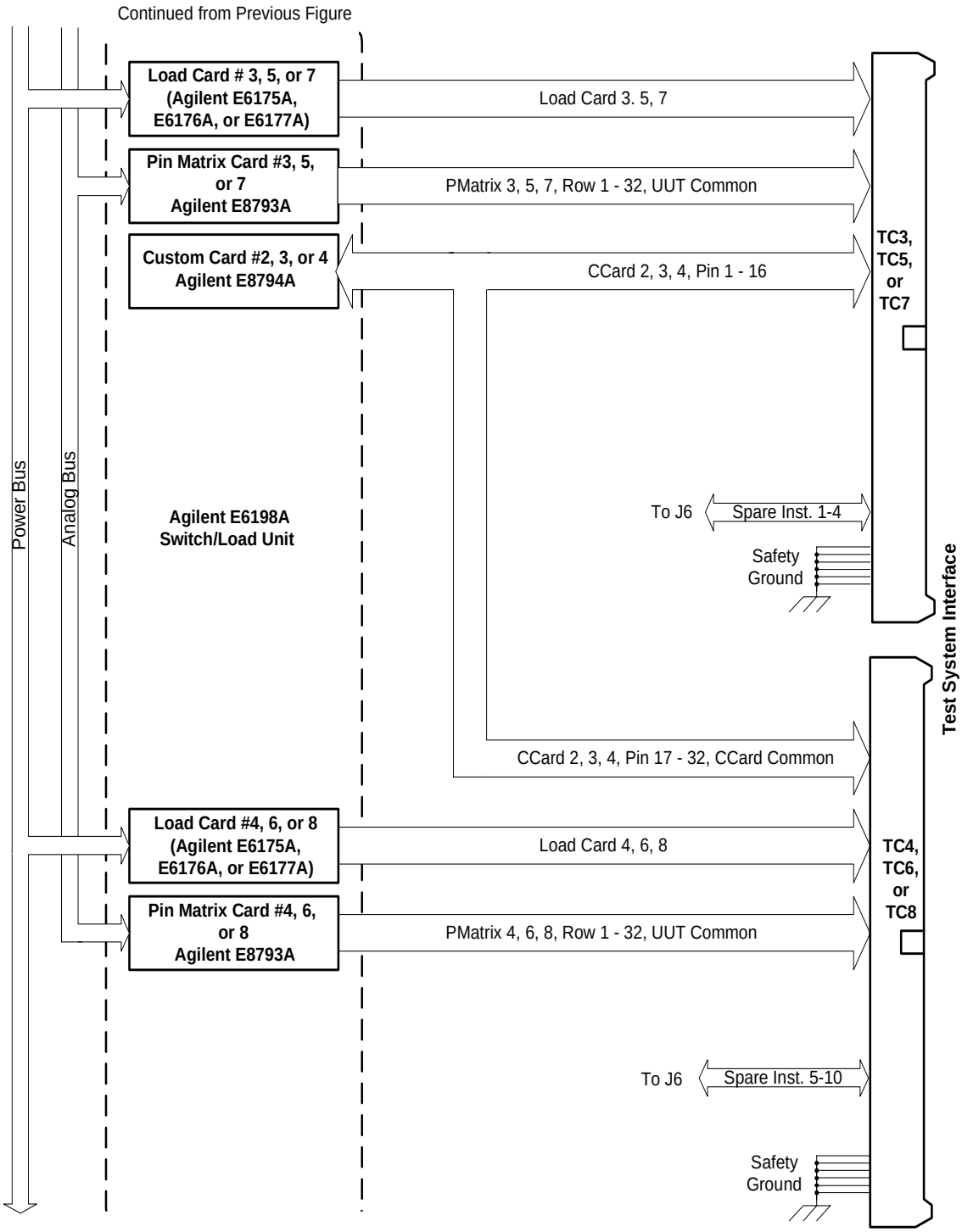


Figure 2-10. TC3-TC8 Block Diagram

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	1	2	3	4	5	6	
A	Load Card 3/5/7	Load Card 3/5/7	Load Card 3/5/7	Load Card 3/5/7	Load Card 3/5/7	Load Card 3/5/7	A
B	Load Card 3/5/7	Load Card 3/5/7	Load Card 3/5/7	Load Card 3/5/7	Load Card 3/5/7	Load Card 3/5/7	B
C	Load Card 3/5/7	Load Card 3/5/7	Load Card 3/5/7	Load Card 3/5/7	Load Card 3/5/7	Load Card 3/5/7	C
D	Load Card 3/5/7	Load Card 3/5/7	Load Card 3/5/7	Load Card 3/5/7	Load Card 3/5/7	Load Card 3/5/7	D
E	Load Card 3/5/7	Load Card 3/5/7	Load Card 3/5/7	Load Card 3/5/7	Load Card 3/5/7	Load Card 3/5/7	E
F	Load Card 3/5/7	Load Card 3/5/7	Load Card 3/5/7	Load Card 3/5/7	Load Card 3/5/7	Load Card 3/5/7	F
G	Load Card 3/5/7	Load Card 3/5/7	Load Card 3/5/7	Load Card 3/5/7	Load Card 3/5/7	Load Card 3/5/7	G
H	Load Card 3/5/7	Load Card 3/5/7	Load Card 3/5/7	Load Card 3/5/7	Load Card 3/5/7	Load Card 3/5/7	H
J	Safety Ground	Safety Ground	Safety Ground	Safety Ground	Safety Ground	Safety Ground	J
K	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	K
L	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	L
M	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	M
N	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	N
P	CCard 2/3/4 Pin 1	CCard 2/3/4 Pin 2	CCard 2/3/4 Pin 3	CCard 2/3/4 Pin 4	Not Used	Not Used	P
R	CCard 2/3/4 Pin 5	CCard 2/3/4 Pin 6	CCard 2/3/4 Pin 7	CCard 2/3/4 Pin 8	Not Used	Not Used	R
S	CCard Common	CCard Common	CCard Common	CCard Common	Spare Inst. #1	Spare Inst. #2	S
T	CCard 2/3/4 Pin 9	CCard 2/3/4 Pin 10	CCard 2/3/4 Pin 11	CCard 2/3/4 Pin 12	Spare Inst. #3	Spare Inst. #4	T
U	CCard 2/3/4 Pin 13	CCard 2/3/4 Pin 14	CCard 2/3/4 Pin 15	CCard 2/3/4 Pin 16	Not Used	Not Used	U
V	UUT Common	UUT Common	UUT Common	UUT Common	PMatrix 3/5/7, Row 1	PMatrix 3/5/7, Row 2	V
W	PMatrix 3/5/7, Row 3	PMatrix 3/5/7, Row 4	PMatrix 3/5/7, Row 5	PMatrix 3/5/7, Row 6	PMatrix 3/5/7, Row 7	PMatrix 3/5/7, Row 8	W
X	PMatrix 3/5/7, Row 9	PMatrix 3/5/7, Row 10	PMatrix 3/5/7, Row 11	PMatrix 3/5/7, Row 12	PMatrix 3/5/7, Row 13	PMatrix 3/5/7, Row 14	X
Y	UUT Common	UUT Common	UUT Common	UUT Common	UUT Common	UUT Common	Y
Z	PMatrix 3/5/7, Row 15	PMatrix 3/5/7, Row 16	PMatrix 3/5/7, Row 17	PMatrix 3/5/7, Row 18	PMatrix 3/5/7, Row 19	PMatrix 3/5/7, Row 20	Z
AA	PMatrix 3/5/7, Row 21	PMatrix 3/5/7, Row 22	PMatrix 3/5/7, Row 23	PMatrix 3/5/7, Row 24	PMatrix 3/5/7, Row 25	PMatrix 3/5/7, Row 26	AA
BB	UUT Common	UUT Common	UUT Common	UUT Common	UUT Common	UUT Common	BB
CC	PMatrix 3/5/7, Row 27	PMatrix 3/5/7, Row 28	PMatrix 3/5/7, Row 29	PMatrix 3/5/7, Row 30	PMatrix 3/5/7, Row 31	PMatrix 3/5/7, Row 32	CC
	1	2	3	4	5	6	

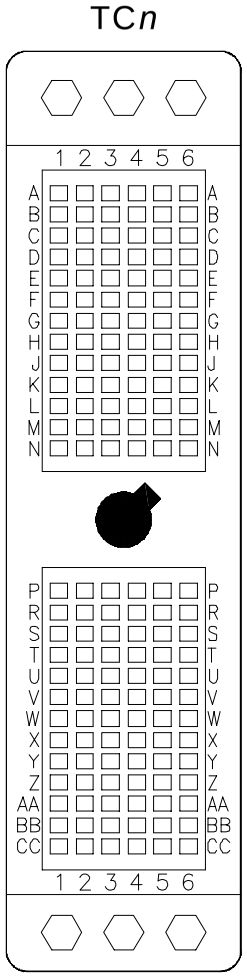
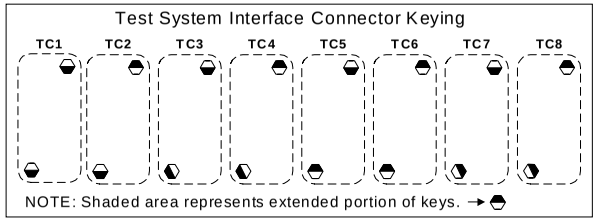


Figure 2-11. TC3, 5, or 7 Pinouts

Notes:

1. **Load Card 3/5/7:** See Chapter 3 for connection details for specific load cards.
2. **CCard 2/3/4 Pin n:** Custom Card #1, Pin n. See the Switch/Load Unit Manual for a schematic.
3. **Pin Matrix 3/5/7, Row n:** See the Switch/Load Unit Manual for a schematic.



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	1	2	3	4	5	6	
A	Load Card 4/6/8	Load Card 4/6/8	Load Card 4/6/8	Load Card 4/6/8	Load Card 4/6/8	Load Card 4/6/8	A
B	Load Card 4/6/8	Load Card 4/6/8	Load Card 4/6/8	Load Card 4/6/8	Load Card 4/6/8	Load Card 4/6/8	B
C	Load Card 4/6/8	Load Card 4/6/8	Load Card 4/6/8	Load Card 4/6/8	Load Card 4/6/8	Load Card 4/6/8	C
D	Load Card 4/6/8	Load Card 4/6/8	Load Card 4/6/8	Load Card 4/6/8	Load Card 4/6/8	Load Card 4/6/8	D
E	Load Card 4/6/8	Load Card 4/6/8	Load Card 4/6/8	Load Card 4/6/8	Load Card 4/6/8	Load Card 4/6/8	E
F	Load Card 4/6/8	Load Card 4/6/8	Load Card 4/6/8	Load Card 4/6/8	Load Card 4/6/8	Load Card 4/6/8	F
G	Load Card 4/6/8	Load Card 4/6/8	Load Card 4/6/8	Load Card 4/6/8	Load Card 4/6/8	Load Card 4/6/8	G
H	Load Card 4/6/8	Load Card 4/6/8	Load Card 4/6/8	Load Card 4/6/8	Load Card 4/6/8	Load Card 4/6/8	H
J	Safety Ground	Safety Ground	Safety Ground	Safety Ground	Safety Ground	Safety Ground	J
K	Not Used	Not Used	Not Used	Not Used	Not Used	UUT Common	K
L	Not Used	Not Used	Not Used	Not Used	Not Used	UUT Common	L
M	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	M
N	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	N
P	CCard 2/3/4 Pin 17	CCard 2/3/4 Pin 18	CCard 2/3/4 Pin 19	CCard 2/3/4 Pin 20	Not Used	Not Used	P
R	CCard 2/3/4 Pin 21	CCard 2/3/4 Pin 22	CCard 2/3/4 Pin 23	CCard 2/3/4 Pin 24	Not Used	Not Used	R
S	CCard Common	CCard Common	CCard Common	CCard Common	Spare Inst. #5	Spare Inst. #6	S
T	CCard 2/3/4 Pin25	CCard 2/3/4 Pin 26	CCard 2/3/4 Pin 27	CCard 2/3/4 Pin 28	Spare Inst. #7	Spare Inst. #8	T
U	CCard 2/3/4 Pin 29	CCard 2/3/4 Pin 30	CCard 2/3/4 Pin 31	CCard 2/3/4 Pin 32	Spare Inst. #9	Spare Inst. #10	U
V	UUT Common	UUT Common	UUT Common	UUT Common	PMatrix 4/6/8, Row 1	PMatrix 4/6/8, Row 2	V
W	PMatrix 4/6/8, Row 3	PMatrix 4/6/8, Row 4	PMatrix 4/6/8, Row 5	PMatrix 4/6/8, Row 6	PMatrix 4/6/8, Row 7	PMatrix 4/6/8, Row 8	W
X	PMatrix 4/6/8, Row 9	PMatrix 4/6/8, Row 10	PMatrix 4/6/8, Row 11	PMatrix 4/6/8, Row 12	PMatrix 4/6/8, Row 13	PMatrix 4/6/8, Row 14	X
Y	UUT Common	UUT Common	UUT Common	UUT Common	UUT Common	UUT Common	Y
Z	PMatrix 4/6/8, Row 15	PMatrix 4/6/8, Row 16	PMatrix 4/6/8, Row 17	PMatrix 4/6/8, Row 18	PMatrix 4/6/8, Row 19	PMatrix 4/6/8, Row 20	Z
AA	PMatrix 4/6/8, Row 21	PMatrix 4/6/8, Row 22	PMatrix 4/6/8, Row 23	PMatrix 4/6/8, Row 24	PMatrix 4/6/8, Row 25	PMatrix 4/6/8, Row 26	AA
BB	UUT Common	UUT Common	UUT Common	UUT Common	UUT Common	UUT Common	BB
CC	PMatrix 4/6/8, Row 27	PMatrix 4/6/8, Row 28	PMatrix 4/6/8, Row 29	PMatrix 4/6/8, Row 30	PMatrix 4/6/8, Row 31	PMatrix 4/6/8, Row 32	CC
	1	2	3	4	5	6	

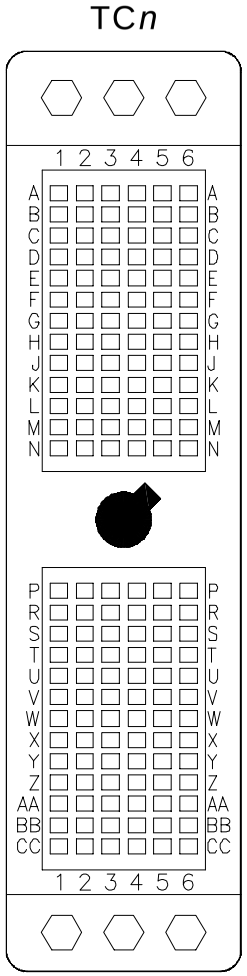
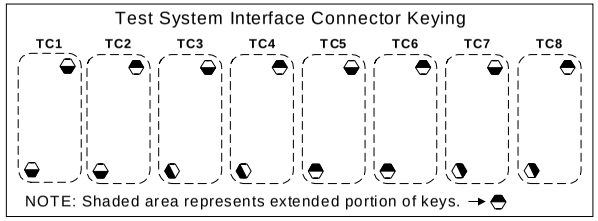


Figure 2-12. TC4, 6, or 8 Pinouts

Notes:

1. **Load Card 4/6/8:** See Chapter 3 for connection details for specific load cards.
2. **CCard 2/3/4 Pin n:** Custom Card #1, Pin n. See the Switch/Load Unit Manual for a schematic.
3. **Pin Matrix 4/6/8, Row n:** See the Switch/Load Unit Manual for a schematic.



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Connecting Wiring to High Power Connectors HP1- HP8

Connections to the High Power connectors are made using a Positronic Industries PLC18F connector. Refer to Chapter 3 for details on using this connector with the Agilent E6178B Heavy Duty Load Card. A kit of parts, available from Agilent (E6244A Opt. 020), provides the following:

- 20 Male contacts (Agilent 1252-8236) for shield-mounted connector
- 20 Female Contacts (Agilent 1252-8235) for Agilent 1252-8234 connector housing
- Mating female connector housing (Agilent 1252-8234)

WARNING **Do not exceed 60 VDC, 42VAC peak, or 30VAC rms or a maximum 15A on any pin of an HP1 - HP8 connector.**

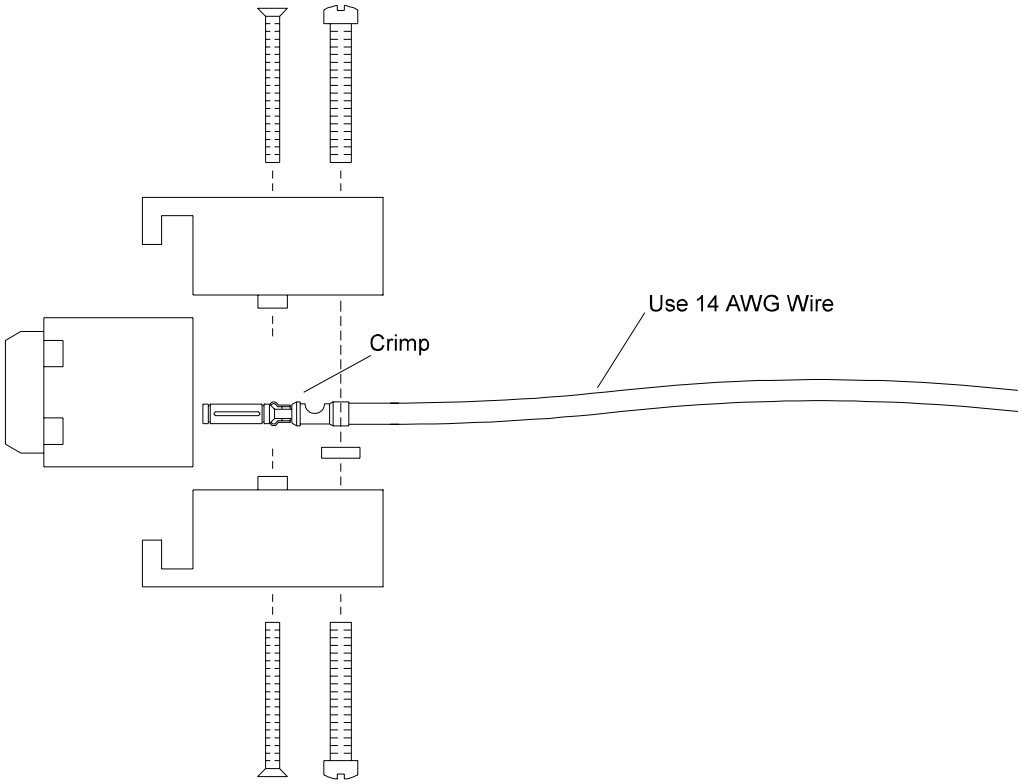


Figure 2-13. Connecting to HP1 - HP8

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System Grounding

The Agilent TS-5400 Test System has these four grounds:

- UUT Common:
  -- Floating ground of the UUT. Typically this is a low current/low noise (clean) ground and connects to the Agilent E8792A and E8793A 32-Pin Matrix Cards and to high accuracy signal measuring instruments such as the Agilent E1411 DMM.
- System Ground:
  -- Earth referenced ground used by the Switch/Load Unit and for earth referenced measuring instruments such as the Agilent E6174 Event Detector.
- Power Supply Grounds:
  -- Floating ground from the UUT Power Supplies. Typically this is Power Bus 1 (PB1).
- Safety or Earth (Earthed) Ground:
  -- This is typically a high current/high noise ground. It connects the instrument rack to safety or earth ground. Refer to Chapter 2 in the Agilent TS-5400 System Integrator's Manual for information on safety grounding.

Agilent recommends that you connect all four grounds together at the UUT (forming a star pattern). Refer to Figure 2-14.

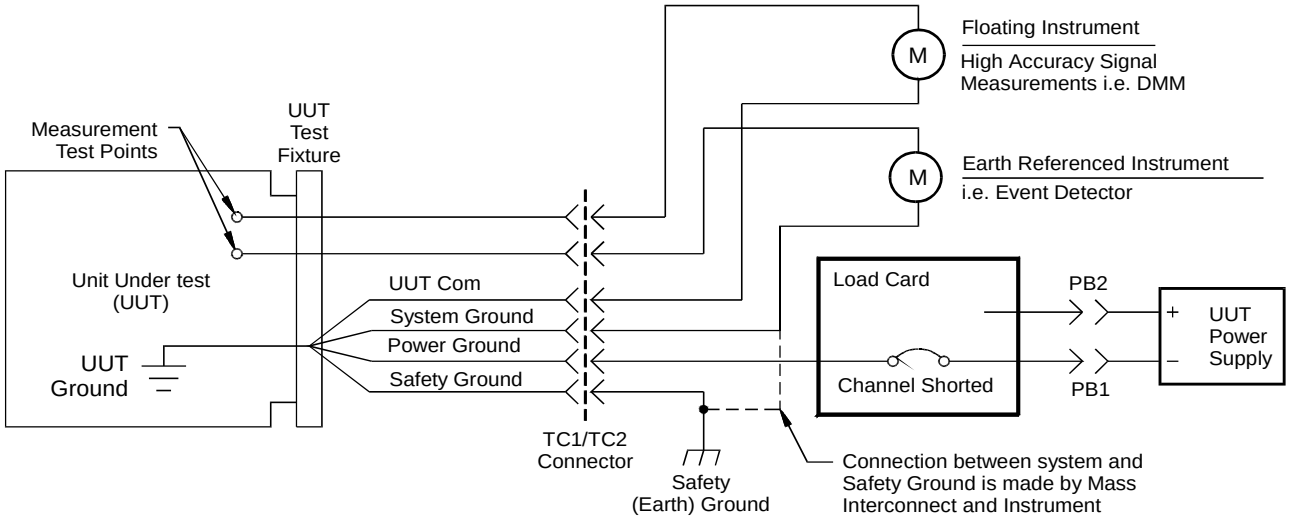


Figure 2-14. Recommended System Grounding

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Sysconn (J6) and Config (J7) Connections

The Sysconn and Config connectors are located on the back of the Test System Interface. These connectors are usually pre-wired at the factory but are sometimes used by the end-user to route miscellaneous signals from the test system to the Test System Interface TC1-TC8 connectors.

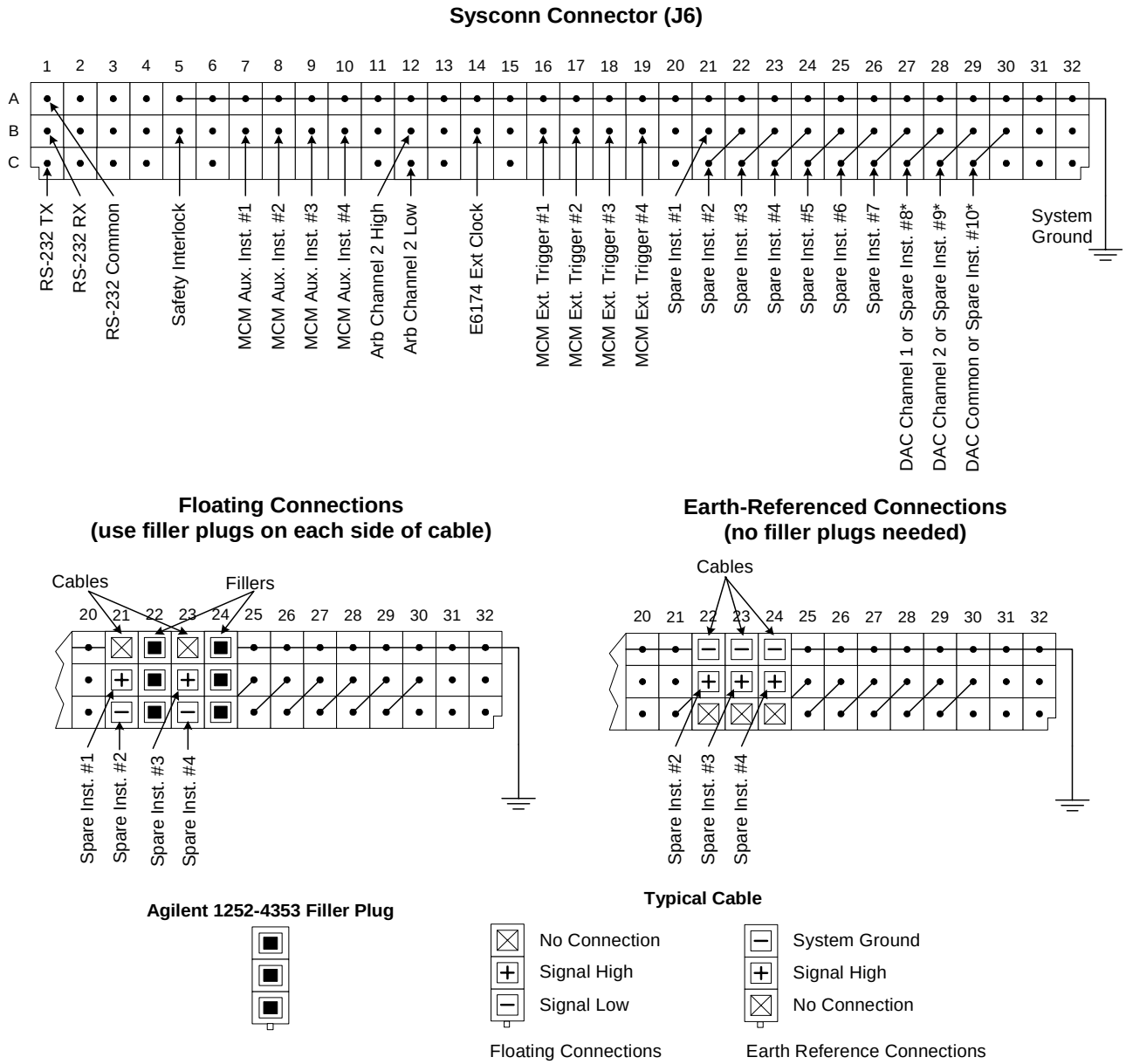
Making Connections to the Sysconn Connector J6

Figure 2-15 shows the possible signals connected to the *first* Sysconn Connector (the one that connects to the Switch/Load Unit). These signals connect through the PC board to the TC connectors on the front of the Test System Interface. For example, *RS-232 TX* is pin C32 on J6 which is connected to TC2 pin N3 (see the TC2 pinouts Figure 2-9 on page 31). If you have additional Sysconn Connectors (for TC3-TC8), they do not connect to the Switch/Load Unit so all pins are available for custom connections.

Adding Spare Instruments

Figure 2-15 shows where the spare instruments can be added to the Sysconn Connector(s). Notice in Figure 2-15 that each spare instrument has a Row C pin that connects via the PC board to a pin in Row B of the adjacent column. This arrangement allows you to make either floating or earth-referenced connections (refer to the *Agilent TS-5400 System Integrator's Manual* for cable descriptions). The orientation of the cable determines whether the connections will be floating or earth-referenced. The inset drawings in Figure 2-15 show how to make floating or earth-referenced connections.

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**These pins are reserved for the DAC on the J6 connector that connects to the Switch/Load Unit. These pins are available as Spare Instruments on all J6 connectors that DO NOT connect to the Switch/Load Unit.*

Figure 2-15. SYSCONN (J6) Connections and Adding Spare Instruments

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Making Connections to the Config Connector J7

The Config connector is intended to connect the optional Custom Card to the TC connectors. If you do not have a Custom Card connected to the Config Connector, the pins can be used for custom connections. Figure 2-16 shows the pinouts for the Config Connector. These pins connect to the TC connectors and have the same signal names. For example, *CCard n Pin 1* on J7 connects to TC1 pin P1 (see the TC1 pinouts Figure 2-8 on page 30).

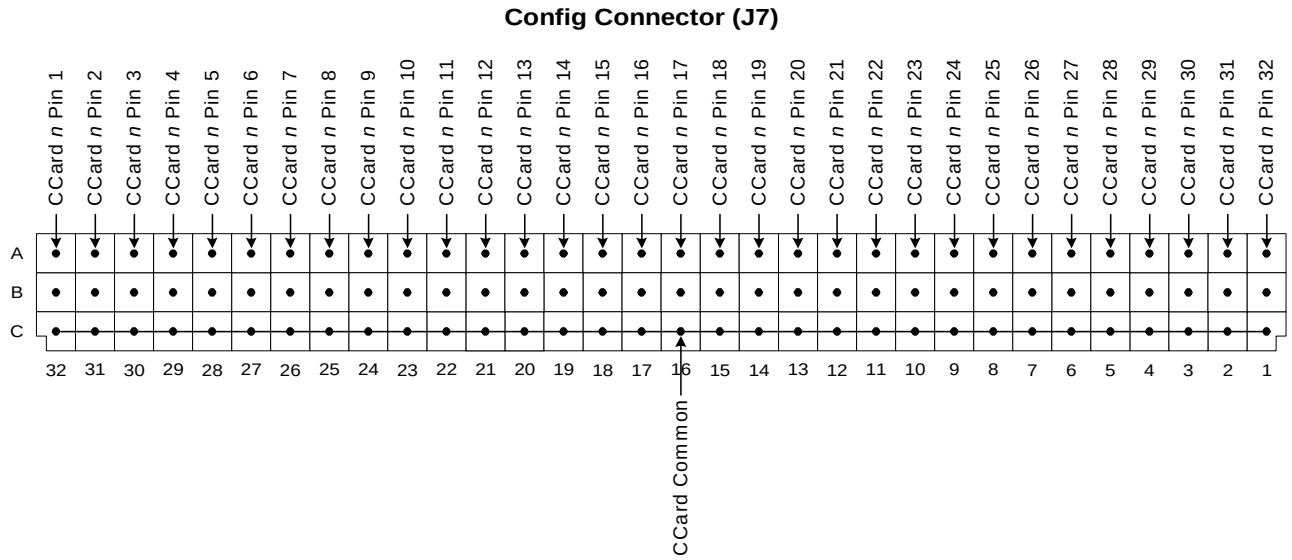


Figure 2-16. Config Connector (J7) Pinouts

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Installing BNC Connectors

The Test System Interface contains knockouts for mounting BNC connectors. Typical applications include connection to Remote Keyless Entry equipment, an RF signal generator, External Trigger or External Clock for the Agilent E6174A Event Detector, and Marker, Trigger, or External Clock Inputs on the Agilent E6173A Arbitrary Waveform Generator.

WARNING **Wear suitable eye protection (safety glasses) when removing knock-outs.**

1. Remove AC power from the system.
2. Using a light hammer and a punch, remove one or more of the RF knock-outs.
3. Mount the floating BNC connector(s) on the Test System Interface as shown in Figure 2-17.
4. Connect BNC cabling to the RF equipment. Re-apply power to the system.

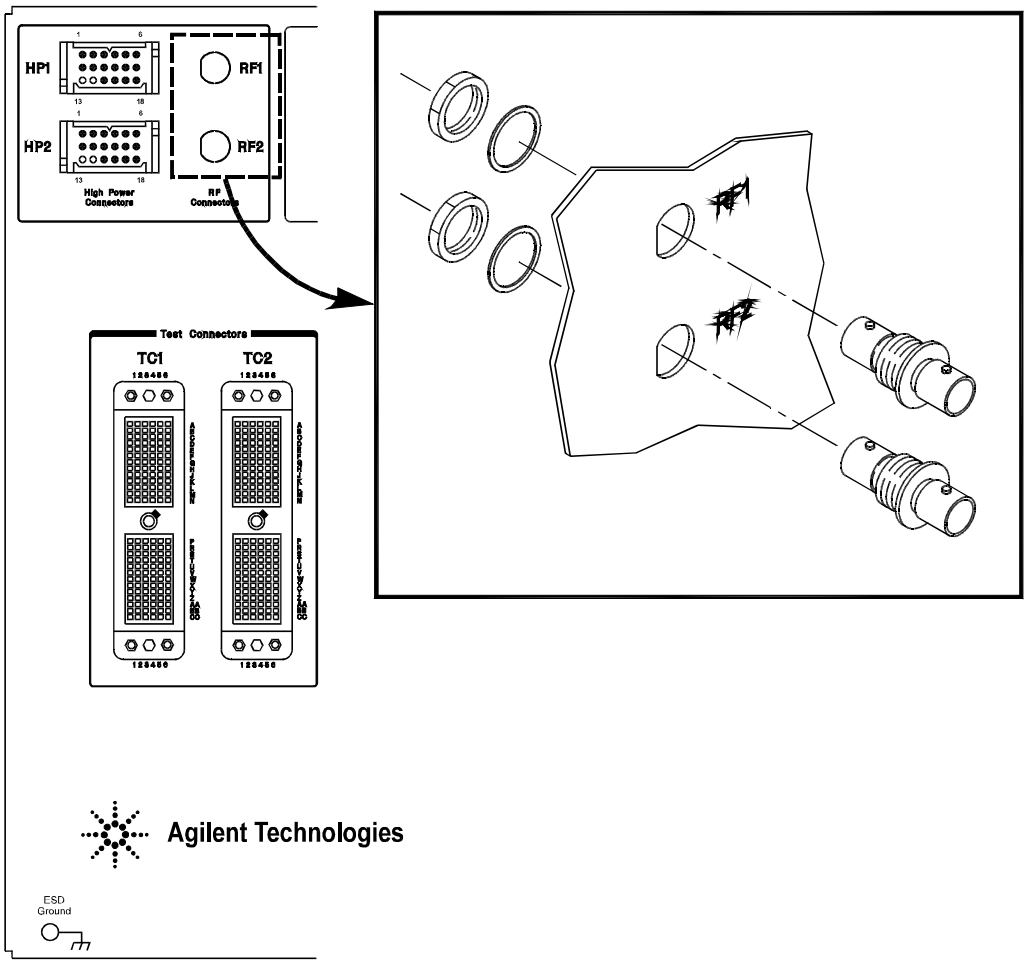


Figure 2-17. Installing BNC Connectors (2 of 8 RF Connectors Shown)

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Agilent E6171A/B Safety Interlock

The optional Agilent E6171 VXI Measurement Control Module (MCM) is capable of sourcing greater than 100 Vdc and 160Vp-p. For the MCM to function normally, the safety interlock terminal must be grounded. Normal MCM operation disables all high voltage source outputs and opens all relays on the MCM upon opening the interlock loop. This condition is latched and indicated by the red INTRLCK LED on the Agilent E6171's front panel and remains until cleared by the software. The safety interlock is available on Test Connector pin TC1L6; a suitable ground pin is TC1K6. See the Test Connector TC1 Pin Out earlier in this chapter. The interlock connection is also available on pin 14 of the Sysconn Connector (J6).

A common implementation of a safety interlock scheme is to have a switch on the test fixture indicating when the UUT and/or safety covers are in place. Connect the switch's Normally Open contacts across the safety interlock connections. This implementation allows normal MCM operation if the UUT/safety covers are present (switch closed); otherwise the MCM will be shutdown in a safety interlock protect mode.

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Chapter 3
Load Card Connections

The Agilent E6175A, E6176A, or E6177A load cards connect to the UUT via Test Connectors TC1 through TC8. The High Power Load Cards connect to the UUT via the High-Power Connectors HP1 through HP8. The wiring configuration of each type of load card is unique. This chapter shows the UUT connections to load cards. Chapter contents are:

- Connecting to the Agilent E6175A/E6176A Load Cards . . . page 44
- Connecting to the Agilent E6177A Load Card . . . . . page 47
- Connecting to the Agilent E6178B Load Card . . . . . page 49

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Connecting to the Agilent E6175A/E6176A Load Cards

For the Agilent 6175A 8-Channel load card and the Agilent E6176A 16-Channel load card, each channel uses three pins on the Test Connector.

Caution **Wire all three Test Connector pins in parallel when using the Agilent 6175A 8-Channel or the Agilent E6176A 16-Channel load card. This ensures sufficient PC board traces for the rated current. See Figure 3-1.**

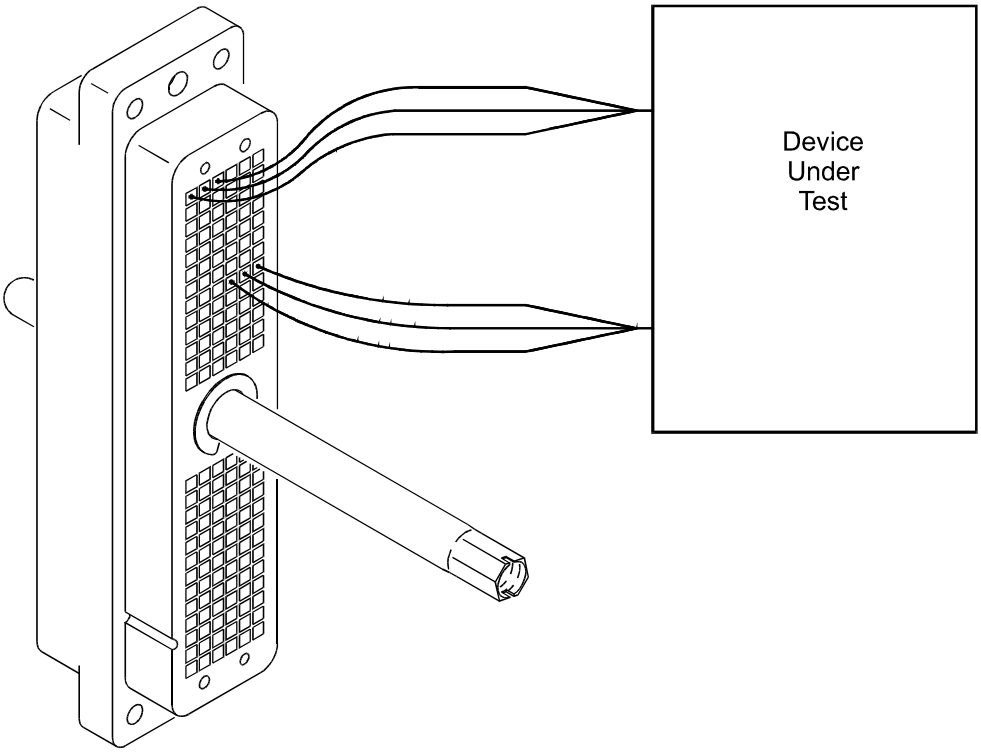


Figure 3-1. Sample Wiring of Test Connector with 8- or 16-Channel Load Card

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Agilent E6175A Connections

Table 3-1 and Figure 3-2 show how to make connections to the Agilent E6175A .

Table 3-1. Agilent E6175A 8-Channel Load Card Test Connector Pin Numbers

Load Card Channel Number	Test Connector Pin Numbers		Load Card Channel Number	Test Connector Pin Numbers
Channel 1	A1, A2, A3		Channel 5	E1, E2, E3
Channel 2	B1, B2, B3		Channel 6	F1, F2, F3
Channel 3	C1, C2, C3		Channel 7	G1, G2, G3
Channel 4	D1, D2, D3		Channel 8	H1, H2, H3

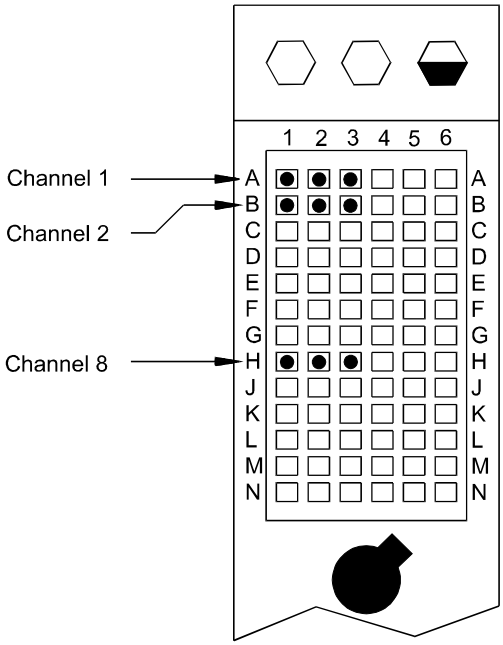


Figure 3-2. Agilent E6175A 8-Channel Load Card to Test Connector Pins

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Agilent E6176A Connections

Table 3-2 and Figure 3-3 show how to make connections to the Agilent E6176A

Table 3-2. Agilent E6176A 16-Channel Load Card Test Connector Pin Numbers

Load Card Channel Number	Test Connector Pin Numbers		Load Card Channel Number	Test Connector Pin Numbers
Channel 1	A1, A2, A3		Channel 9	E1, E2, E3
Channel 2	A4, A5, A6		Channel 10	E4, E5, E6
Channel 3	B1, B2, B3		Channel 11	F1, F2, F3
Channel 4	B4, B5, B6		Channel 12	F4, F5, F6
Channel 5	C1, C2, C3		Channel 13	G1, G2, G3
Channel 6	C4, C5, C6		Channel 14	G4, G5, G6
Channel 7	D1, D2, D3		Channel 15	H1, H2. H3
Channel 8	D4, D5, D6		Channel 16	H4, H5, H6

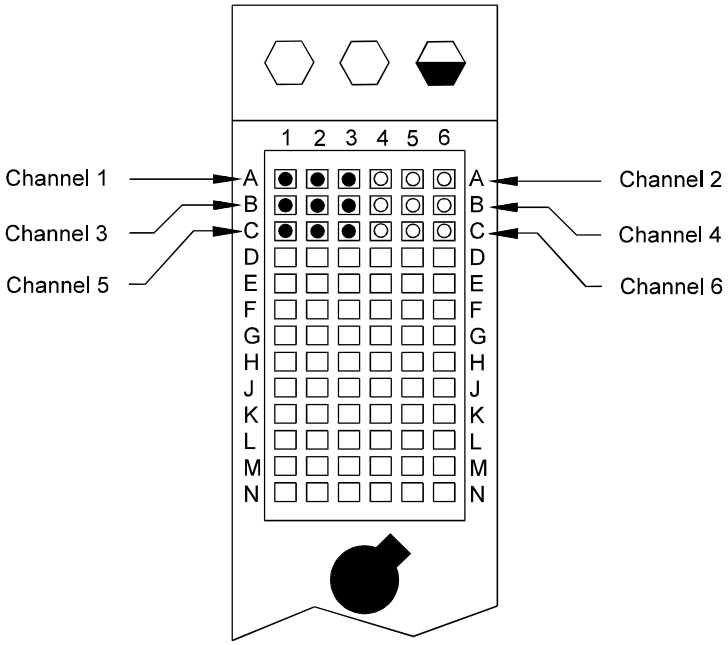


Figure 3-3. Agilent E6176A 16-Channel Load Card to Test Connector Pins

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Connecting to the Agilent E6177A Load Card

On the Agilent E6177A 24-Channel load card, each channel uses only one pin on the Test Connector (plus one pin for the common or power connection).

Table 3-3. Agilent E6177A 24-Channel Load Card Test Connector Pin Numbers

Load Card Channel Number	Test Connector Pin Numbers		Load Card Channel Number	Test Connector Pin Numbers
Channel 1 Channel 1 COM	A1 A4		Channel 13 Channel 13 COM	E1 E4
Channel 2 Channel 2 COM	A2 A5		Channel 14 Channel 14 COM	E2 E5
Channel 3 Channel 3 COM	A3 A6		Channel 15 Channel 15 COM	E3 E6
Channel 4 Channel 4 COM	B1 B4		Channel 16 Channel 16 COM	F1 F4
Channel 5 Channel 5 COM	B2 B5		Channel 17 Channel 17 COM	F2 F5
Channel 6 Channel 6 COM	B3 B6		Channel 18 Channel 18 COM	F3 F6
Channel 7 Channel 7 COM	C1 C4		Channel 19 Channel 19 COM	G1 G4
Channel 8 Channel 8 COM	C2 C5		Channel 20 Channel 20 COM	G2 G5
Channel 9 Channel 9 COM	C3 C6		Channel 21 Channel 21 COM	G3 G6
Channel 10 Channel 10 COM	D1 D4		Channel 22 Channel 22 COM	H1 H4
Channel 11 Channel 11 COM	D2 D5		Channel 23 Channel 23 COM	H2 H5
Channel 12 Channel 12 COM	D3 D6		Channel 24 Channel 24 COM	H3 H6

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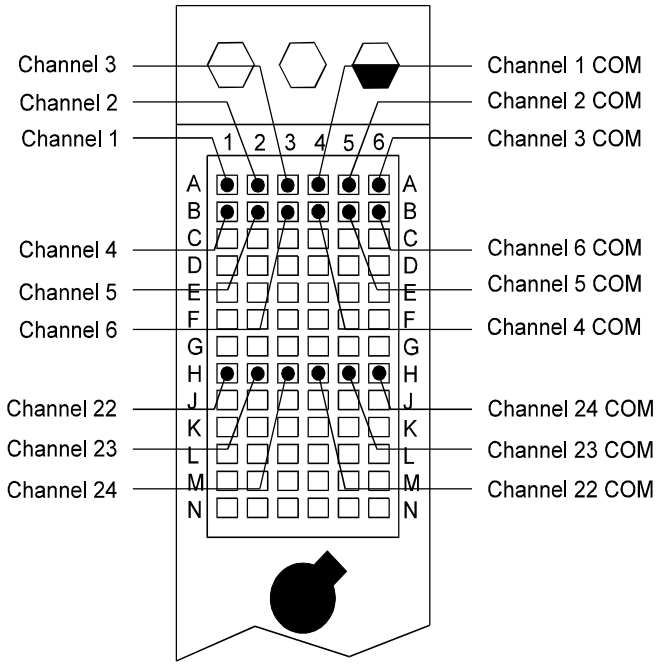


Figure 3-4. Agilent E6177A 24-Channel Load Card Test Connector Pins

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Connecting to the Agilent E6178B Load Card

Figure 3-5 shows the pinout of the HP1 through HP8 high-power load card connectors. Notice that two pins are used for each channel--this is for current sharing. Make certain that your mating connector wires to both pins to ensure proper current sharing.

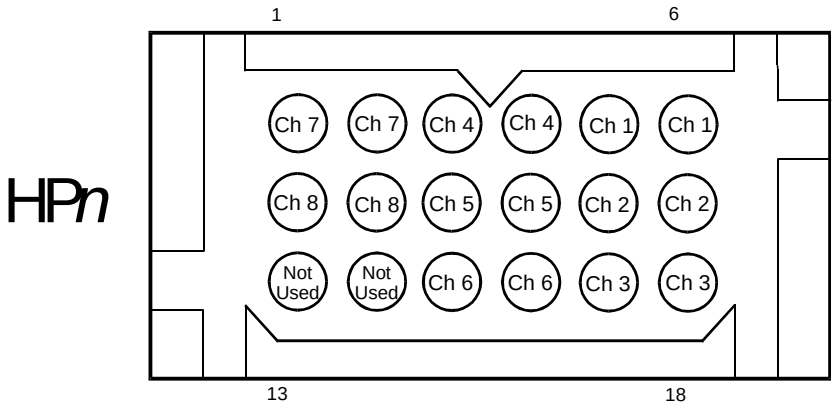


Figure 3-5. Agilent E6178B High-Power Load Card Connections

Wiring Recommendations

Use 14 AWG wire from the high-power mating connector to the UUT. A mating connector kit (Agilent E6244A Option 020) is available from Agilent.

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Notes:

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