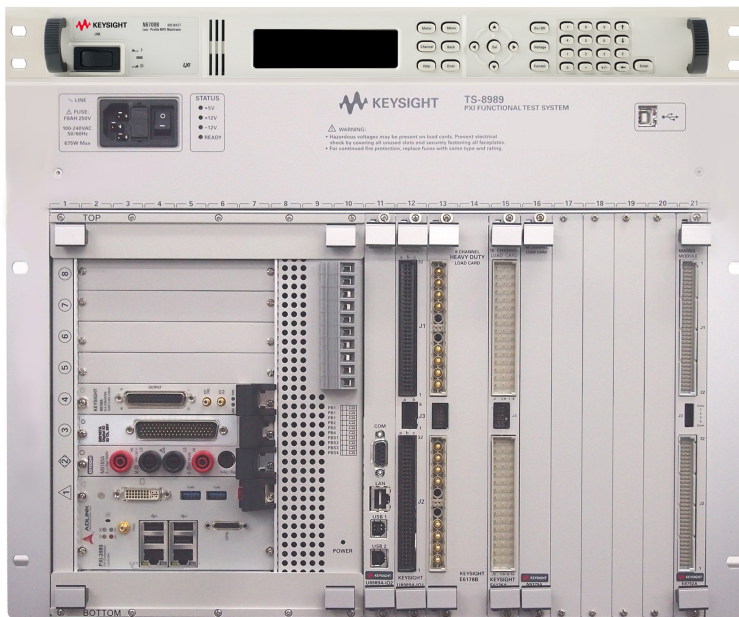


Keysight Technologies

TS-8989 Automotive Body and Safety Test Reference Solution

Configuration Guide



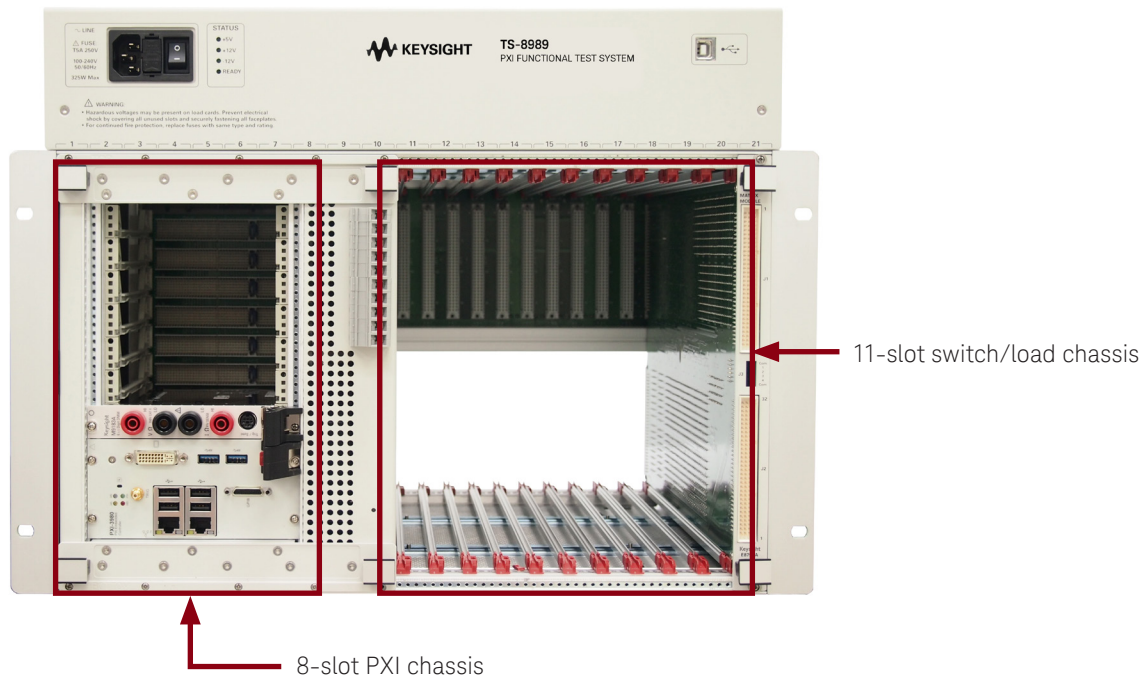
Introduction

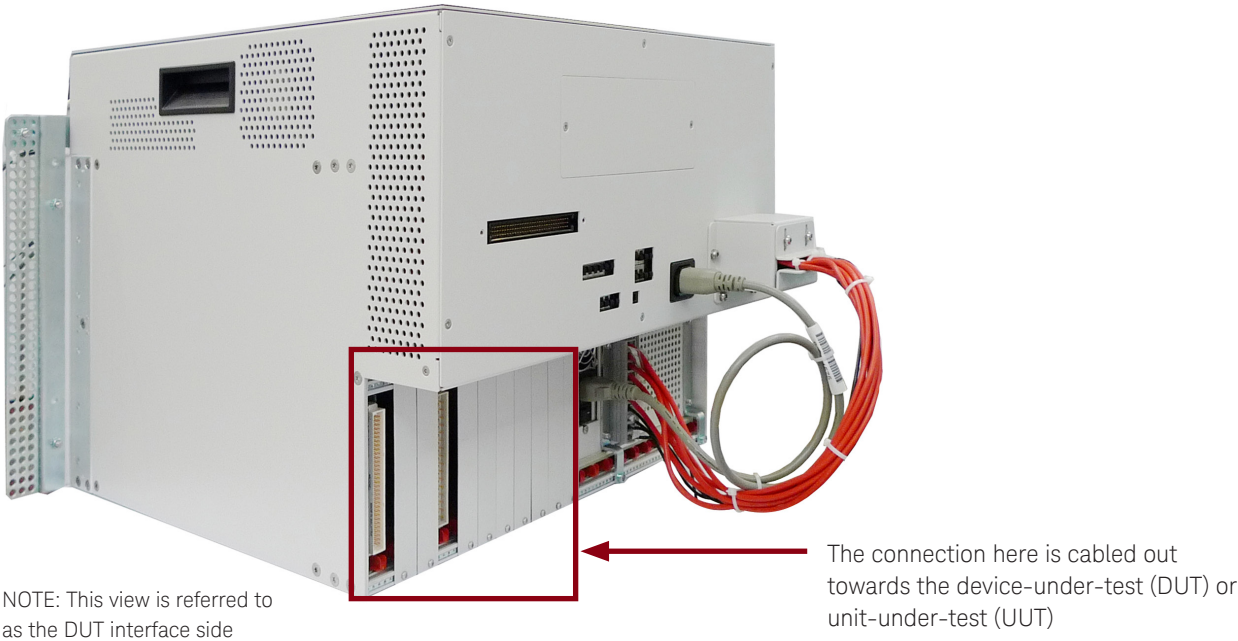
This configuration guide contains information to help you configure your body and safety test reference solution with the TS-8989 functional tester, and tailor the system to meet your requirements. The configuration for this solution primarily uses U8989A which has already a number of pre-configured instruments created for each selection/option, hence the user does not need to consider the individual options of the instruments.

The power supply is configured separately and not included in the U8989A options.

What the solution includes

- 1 x 8-slot PXI chassis
- 1 x 11-slot switch/load chassis





A. Selecting the Stimulus Instruments

Recommended stimulus instruments for Body and Safety, Reference Solution indicated below with ■. Not all available instruments from Keysight are shown below. See www.keysight.com/find/pxi for more details on available instruments.

Step 1. Select the M9188A Analog Output (occupies 1 PXI slot)			
■	Qty 1	U8989A-337	M9188A Analog Output / DAC, 16-ch, 0 V – 30 V, 20 mA, 16-bit Inclusive cable set that connects the M9188A output to the instrument routing card, please refer to Section F
Step 2. Select the M9186A Voltage/Current Source (occupies 2 PXI slot)			
■	Qty 1	U8989A-340	M9186A V/I Source, 1-ch, 100 V, 20 mA Inclusive of cable set that connects the M9186A output to the instrument matrix E8792A/E8782A, please refer to Section D – Selecting Signal Switching Cards

B. Selecting the Measurement Instruments

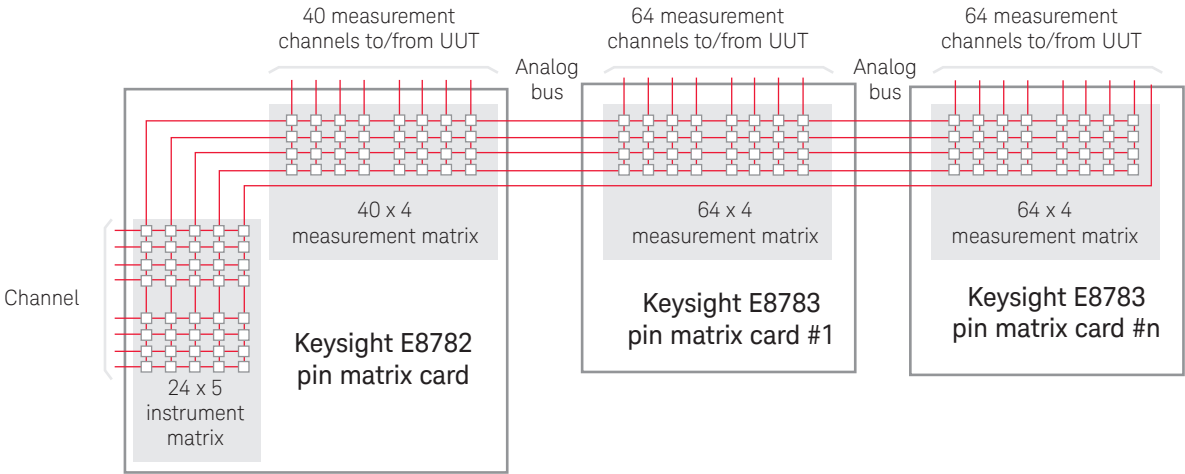
Recommended measurement instruments for Body and Safety, Reference Solution indicated below with ■. Not all available instruments from Keysight are shown below. See www.keysight.com/find/pxi for more details on available instruments.

Step 1. Select a digital multimeter for measurements			
■	Qty 1	U8989A-311	M9183A-FG PXI Digital Multimeter, 6½ digit, Enhanced Performance Inclusive of cable set that connects the M9183A output to the instrument matrix E8792A/ E8782A

C. Selecting Signal Switching Cards

Signal switching cards enable connection to different pins of the DUT/UUT for the purpose of measurement or supplying signals. The signal switching cards are fitted into the switch/load chassis. Following are the recommendations for Body and Safety, Reference Solution indicated below ■. See www.keysight.com/find/slu for more details on available matrix cards.

Step 1. Select a signal switching card (Please refer to the diagram below, illustrating the architecture and connection concept of E8782A and E8783A)			
■	Qty 1	E8782A	Pin Card with Instrumentation Matrix, 1 slot – 24 channels for instruments – 40 channels for measurement The E8782A Pin Card is a matrix type switching card, consist of 4 analog BUS lines and a 5th UUT common line, hence 40 x 5.
	Qty 1	E8783A	Pin Card Measurement Matrix, 1 slot 64 channels for measurement The E8783A Pin Card is a matrix type switching card, consist of 4 analog BUS lines and a 5th UUT common line, hence 64 x 5. The E8783A can be cascaded with the E8782A, expanding the number of channels.



More details of the internal architecture and connection between instruments, matrix cards and load cards to DUT/UUT are illustrated in the TS-8989 System Block Diagram and can be found in the Document Library of www.keysight.com/find/ts8989ref

D. Selecting Load Switching Cards

Load switching cards can be used for the purpose of simulating a load input into the DUT/UUT or as a load output to the DUT/UUT. The load cards are fitted into the switch/load chassis. The following are the recommendations for configuring a Body and Safety, Reference Solution indicated below with ■. Available load cards from Keysight are listed in a table below. See www.keysight.com/find/slu for more details on available load cards.

Step 1. Select a load card to handle current switching

■	Qty 1	U7177A	24-Ch Load Card, 2A, Current Sense Resistor, 1-slot Simulating input from discrete switches
■	Qty 1	U7178A	8-Ch Load Card, 40A, Current Transducer, 2-slots Switches input power supply to DUT/UUT and are also able to simulate load effects, for example: motors at high currents
■	Qty 1	U7179A	16-Ch Load Card, 15A, Current Sense Resistor, 2 slots Simulate load effect, for example: lamps at moderate currents

This table provides more description of the load cards:

Function	E6175A	E6176A	E6177A	U7177A	E6178B	N9377A	N9378A	N9379A	U7178A	U7179A
Number of Channels (maximum)	8	16	24	24	8	16, dual load	24, quad load	48, dual load	8	16
Number of channels – unshared relays	4	16	24	24	8	16	24	48	8	16
Maximum current per channel	7.5 A (15 A peak)	7.5 A (15 A peak)	2A	2A	30A	7.5 A (15A peak)	2A	2A	40A	15A
Current measuring with sense resistor	Yes	Yes	No	Yes	No	Yes	No	No	No	Yes
Current measuring with current transducer	Yes	No	No	No	Yes	No	No	No	Yes	No
Fly-back protection available (user installed)	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes
Engineered for application	Inductive Load	Common Load	Low current	Low Current	High Current	High current, dual-load	Low current, quad load	Low current, quad load	High Current	High Current

E. Selecting the Cable Management

Recommended options for Body and Safety, Reference Solution indicated below with ■.

Step 1. Select Instrumentation Routing Card

■	Qty 2	U8989A-I01	Universal Instrumentation Routing Card The routing card is designed to connect the PXI and PCI modules from the instrument interface side to the DUT interface side.
For more information on the instrument routing card, please refer to the TS-8989 PXI Functional Test System Wiring Guide and Hardware Reference manual that can be found in the Document Library on www.keysight.com/find/ts8989			

F. Selecting the Controller, Display and Software

Recommended options for Body and Safety, Reference Solution indicated below with ■.

Step 1. Select a Controller

	Qty 1	U8989A-PC1	<ul style="list-style-type: none"> – TS-5000 External Industrial PC Controller – Core i5-2400 3.1 GHz Processor – 8 GB RAM, 500 GB HDD – No DVD-RW and FDD – PCIe-8560/PXI-8565 PCIe-to-PXI expansion – Windows 7 64-bit, TestExec SL v7 software with TS-5000 v7 library
■	Qty 1	U8989A-PC2	<ul style="list-style-type: none"> – TS-5000 Embedded PC controller – Core i7 2.1GHz processor – 8 GB S-DIMM – 500 GB HDD SATA – 2x Gigabit Ethernet ports – 4x USB 2.0 ports – 2x USB 3.0 ports with Built-in GPIB controller – Windows 7 64-bit, TestExec SL v7 software with TS-5000 v7 library

Step 2. Select Display - The display has been selected below. It is an option, and customer can choose to run their own display. Cabling is not provided. The Embedded PC Controller supports dual display with VGA + DVI connections.

	Qty 1	E6249A-012	Standalone LCD Display
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G. Selecting the Power Supplies

Recommended options for Body and Safety, Reference Solution indicated below with ■.

Step 1. Configure the N6951A Advance Power System

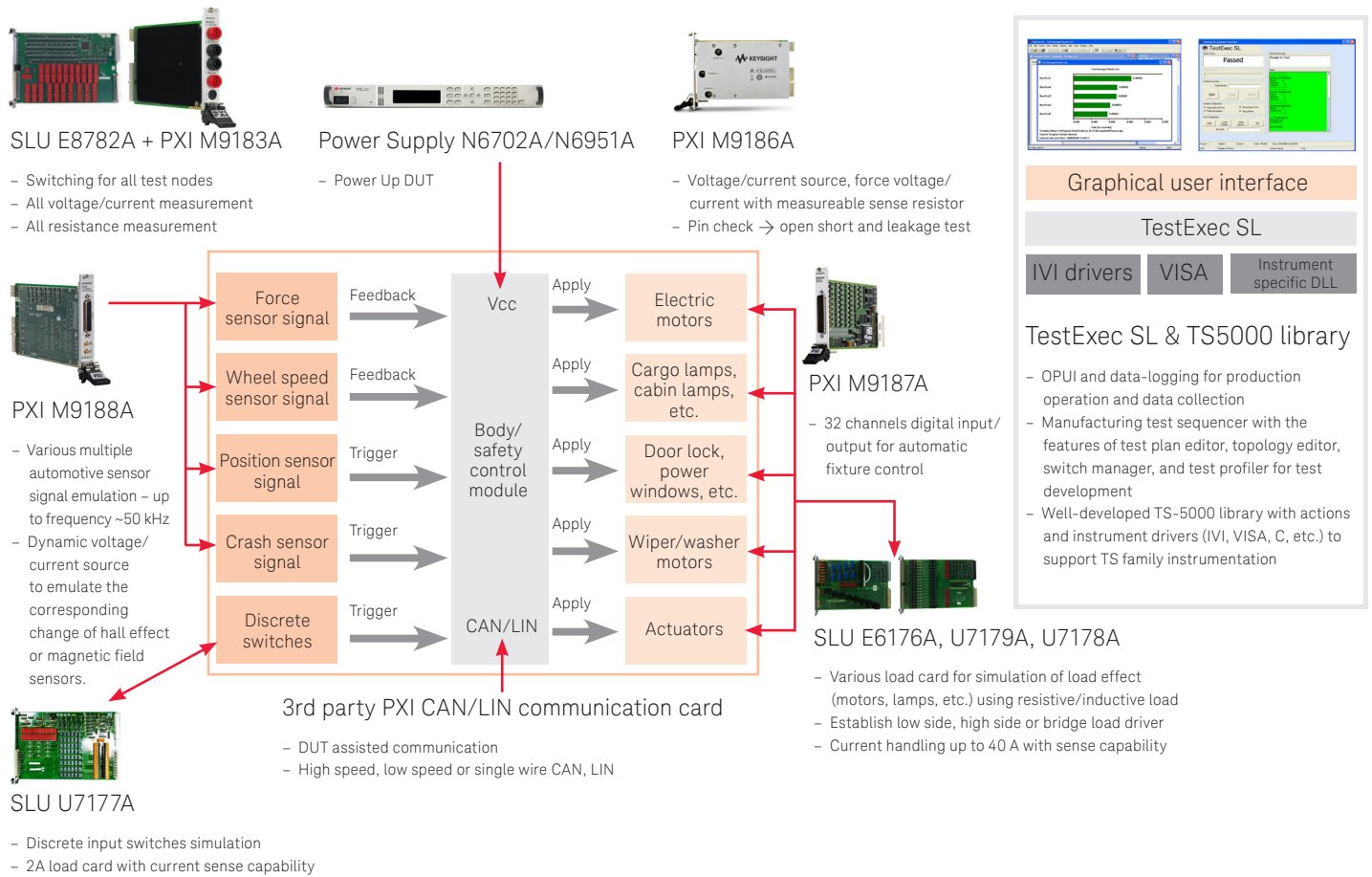
■	Qty 1	N6951A	Advanced Power System – DC Power Supply 20 V, 50 A, 1000 W
■	Qty 1	N6951A-UK6	Commercial calibration certificate with test data

Additional 3rd Party Instrument / Accessories

Automotive Electronic Communication

One of the key requirements for automotive electronic testing is the ability to talk / communicate with the DUT/UUT. CAN is one of the most common methods used. There are multiple suppliers of CAN PXI Cards to choose from, with users having a preferred supplier.

Reference Solution Diagram



Select Services

No selection required.

All parts under the U8989A is covered, including the M9188A, M9186A, M9183A, E8782A, E8783A, U7177A, U7178A, U7179A, U8989A-PC2 and all accompanying options that will be highlighted in the official quote.

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