

Specification
Guide

Keysight M9537A AXIe Embedded Controller



Notices

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Safety Information

The following general safety precautions must be observed during all phases of operation of this instrument. Failure to comply with these precautions or with specific warnings or operating instructions in the product manuals violates safety standards of design, manufacture, and intended use of the instrument. Keysight Technologies assumes no liability for the customer's failure to comply with these requirements.

General

Do not use this product in any manner not specified by the manufacturer. The protective features of this product must not be impaired if it is used in a manner specified in the operation instructions.

Before Applying Power

Verify that all safety precautions are taken. Make all connections to the unit before applying power. Note the external markings described under "Safety Symbols".

Ground the Instrument

Keysight chassis' are provided with a grounding-type power plug. The instrument chassis and cover must be connected to an electrical ground to minimize shock hazard. The ground pin must be firmly connected to an electrical ground (safety ground) terminal at the power outlet. Any interruption of the protective (grounding) conductor or disconnection of the protective earth terminal will cause a potential shock hazard that could result in personal injury.

Do Not Operate in an Explosive Atmosphere

Do not operate the module/chassis in the presence of flammable gases or fumes.

Do Not Operate Near Flammable Liquids

Do not operate the module/chassis in the presence of flammable liquids or near containers of such liquids.

Cleaning

Clean the outside of the Keysight module/chassis with a soft, lint-free, slightly dampened cloth. Do not use detergent or chemical solvents.

Do Not Remove Instrument Cover

Only qualified, service-trained personnel who are aware of the hazards involved should remove instrument covers. Always disconnect the power cable and any external circuits before removing the instrument cover.

Keep away from live circuits

Operating personnel must not remove equipment covers or shields. Procedures involving the removal of covers and shields are for use by service-trained personnel only. Under certain conditions, dangerous voltages may exist even with the equipment switched off. To avoid dangerous electrical shock, DO NOT perform procedures involving cover or shield removal unless you are qualified to do so.

DO NOT operate damaged equipment

Whenever it is possible that the safety protection features built into this product have been impaired, either through physical damage, excessive moisture, or any other reason, REMOVE POWER and do not use the product until safe operation can be verified by service-trained personnel. If necessary, return the product to an Keysight Technologies Sales and Service Office for service and repair to ensure the safety features are maintained.

DO NOT block the primary disconnect

The primary disconnect device is the appliance connector/power cord when a chassis used by itself, but when installed into a rack or system the disconnect may be impaired and must be considered part of the installation.

Do Not Modify the Instrument

Do not install substitute parts or perform any unauthorized modification to the product. Return the product to an Keysight Sales and Service Office to ensure that safety features are maintained.

In Case of Damage

Instruments that appear damaged or defective should be made inoperative and secured against unintended operation until they can be repaired by qualified service personnel

CAUTION

Do NOT block vents and fan exhaust: To ensure adequate cooling and ventilation, leave a gap of at least 50mm (2") around vent holes on both sides of the chassis.

Do NOT operate with empty slots: To ensure proper cooling and avoid damaging equipment, fill each empty slot with an AXle filler panel module.

Do NOT stack free-standing chassis: Stacked chassis should be rack-mounted.

All modules are grounded through the chassis: During installation, tighten each module's retaining screws to secure the module to the chassis and to make the ground connection.

WARNING

Operator is responsible to maintain safe operating conditions. To ensure safe operating conditions, modules should not be operated beyond the full temperature range specified in the Environmental and physical specification. Exceeding safe operating conditions can result in shorter lifespan, improper module performance and user safety issues. When the modules are in use and operation within the specified full temperature range is not maintained, module surface temperatures may exceed safe handling conditions which can cause discomfort or burns if touched. In the event of a module exceeding the full temperature range, always allow the module to cool before touching or removing modules from the chassis.

Safety and Regulatory Symbols








CAUTION

A CAUTION denotes a hazard. It calls attention to an operating procedure or practice, that, if not correctly performed or adhered to could result in damage to the product or loss of important data. Do not proceed beyond a CAUTION notice until the indicated conditions are fully understood and met.

WARNING

A WARNING denotes a hazard. It calls attention to an operating procedure or practice, 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.

Products display the following symbols:

-  Warning, risk of electric shock
-  Refer to manual for additional safety information.
-  Earth Ground.
-  Chassis Ground.
-  Alternating Current (AC).
-  Standby Power. Unit is not completely disconnected from AC mains when switch is in standby.
-  Antistatic precautions should be taken.
- CAT I IEC Measurement Category I, II, III, or IV
- CAT II
- CAT III
- CAT IV

For localized Safety Warnings, Refer to Keysight Safety document (p/n 9320-6792).



The CSA mark is a registered trademark of the Canadian Standards Association and indicates compliance to the standards laid out by them. Refer to the product Declaration of Conformity for details.



Notice for European Community: This product complies with the relevant European legal Directives: EMC Directive and Low Voltage Directive .



The Regulatory Compliance Mark (RCM) mark is a registered trademark. This signifies compliance with the Australia EMC Framework regulations under the terms of the Radio Communication Act of 1992.

ICES/NMB-001

ICES/NMB-001 indicates that this ISM device complies with the Canadian ICES-001.

Cet appareil ISM est conforme a la norme NMB-001 du Canada.



This symbol represents the time period during which no hazardous or toxic substance elements are expected to leak or deteriorate during normal use. Forty years is the expected useful life of this product.



M9537A
MSIP-REM-Kst-xxxxx

South Korean Class A EMC Declaration. this equipment is Class A suitable for professional use and is for use in electromagnetic environments outside of the home.

A 급 기기 (업무용 방송통신기자재) 이 기기는 업무용 (A 급) 전자파적합기 기로서 판 매자 또는 사용자는 이 점을 주의 하시기 바라 며 , 가정외의 지역에서 사용하는 것을 목적으로 합니다.



Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC

This product complies with the WEEE Directive (2002/96/EC) marking requirement. The affixed product label (see below) indicates that you must not discard this electrical/electronic product in domestic household waste.

Product Category: With reference to the equipment types in the WEEE directive Annex 1, this product is classified as a "Monitoring and Control instrumentation" product.

Do not dispose in domestic household waste.

To return unwanted products, contact your local Keysight office for more information.



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About this Guide

This document contains technical specifications for all manufacturing versions of the M9537A module. If a specification only applies to a certain manufacturing version of the equipment, it is indicated in this document. Such changes are usually designated by a serial number break.

Technical Characteristics

The Keysight M9537A provides warranted performance. Specifications include guard-bands to account for the expected statistical performance distribution, measurement uncertainties, and changes in performance due to environmental conditions. All specifications and characteristics apply over the operating environment outlined in Environmental and Regulatory on page 14. In addition, the following conditions must be met:

- Instrument is within its calibration cycle if calibration is required
- Instrument has been stored for a minimum of 1 hour within the operating temperature range prior to turn-on and after a 30 minute warm-up period

Characteristics: Characteristics describe product performance that is useful in the application of the product, but that is not covered by the product warranty. Characteristics are often referred to as Typical and Nominal values.

Typical: This is the expected performance of an average unit when operated over a 20 °C to 30 °C temperature range. Typical performance is not warranted. The instrument must be within its calibration cycle if calibration is required.

Nominal: Nominal describes representative performance that is useful in the application of the product when operated over a 20 °C to 30 °C temperature range. Nominal performance is not warranted.

Additional information: All data are measured from multiple units at room temperature and are representative of product performance within the operating temperature range unless otherwise noted.

The specifications contained in this document are subject to change.

Technical Specification

General characteristics	
Standards compliance	
	AXIe 1.0 base architecture specification
	AdvancedTCA PICMG 3.0 R2.0 specification
Chassis slot compatibility	
	For M9502A 2-slot or M9505A 5-slot A Xie chassis: Insert M9537A in slot 1 (AXIe 1.0 secondary hub slot). Both chassis include an integrated system module.
	For M9514A 14-slot chassis: You may insert the M9537A in slots 1-6 and 8-14. The M9521A AXIe system module must be in slot 7.
Controller characteristics	
CPU	Intel i7-6820EQ quad-core
CPU threads	8
CPU clock frequency	2.8 GHz
Chipset	Intel 5520/ICH10R
Video	
Type	Intel HD graphics 530 with 1.7 GB max video memory
Maximum resolution	DP: 3840x2160 @ 60 Hz
	DVI: 1920x1200 @ 60 Hz (with Y1261A)
	Display port adapters to other display standards are available in the market.
	Maximum resolution achieved is dependent on the adapter chosen.

General characteristics	
Memory	
L2 cache	8 MB
RAM type	Two DDR4-2133 260-pin SODIMM Sockets
RAM capacity	8 GB standard, 16 GB optional, 32 GB maximum
System storage	
Type	2.5" SSD
Interface	SATA III
Size	240 GB
Optional high-speed disk cache	
Type	2.5" NVMe SSD
Interface	PCIe x4 Gen 3
Size	400 GB
Operating system support	Microsoft Windows Embedded System 7 64-bit Microsoft Windows 10 Enterprise 2016 LTSC 64-bit
Pre-loaded software	Operating system and Keysight I/O libraries and AXIe chassis drivers
Mechanical	
Form factor	1-slot AXIe
Size	30.48 mm W x 322.25 mm H x 280 mm D
Weight	2.9 kg (6.4 lbs)
Electrical characteristics	
Current input	3.5A @ 48 V, nominal
Power dissipation	166 W
I/O characteristics	
Front panel connections	
USB	Two USB 2.0 (type A) and four USB 3.0
Ethernet	Two 10/100/1000 BASE-T (RJ45 connector)
Video	Three DisplayPort 1.2
PCIe	x8 Gen 3 iPass

General characteristics	
GPIB	Micro-D 25-pin
AXIe backplane I/O	
PCIe Link	
Configuration	Base configuration: x4 Gen 2
	Max configuration: x16 Gen 3
	Configuration selected based on chassis capability
Max data band width	Up to 16 GB/s (Gen 3) depending on chassis capability
Ethernet	Two 10/100/1000 BASE-T channels
Shock and vibration	
Operating random vibration: type-tested at 5 to 500 Hz, 0.21 g rms	
Survival random vibration: type-tested at 5 to 500 Hz, 2.09 g rms	

Environmental and Regulatory

Environmental characteristics^{1 2}		
	Operating	Storage
Temperature	0 °C to 55 °C	-40 °C to 70 °C
Altitude	Up to 10,000 ft (3048 m)	Up to 15,000 ft (4572 m)
Humidity	Type-tested at 95%, +40 °C (non-condensing)	
Regulatory Characteristics		
EMC	EC 61326-1	

1 Samples of this product have been type tested in accordance with the Keysight Environmental Test Manual and verified to be robust against the environmental stresses of storage, transportation and end-use. Those stresses include but are not limited to temperature, humidity, shock, vibration, altitude and power line conditions.

2 Test Methods are aligned with IEC 60068-2 and levels are similar to MIL-PRF-28800F Class 3.

Software Information

Model	Description
Supported operating systems	Microsoft Windows Embedded Standard 7 (64-bit) and Microsoft Windows 10 Enterprise 2016 LTSB (64-bit)
Instrument drivers included	M9502A, M9505A, and M9514A
Keysight IO Libraries	Includes VISA Libraries, Keysight Connection Expert, IO Monitor

Default Administrator Password

As of M9537A Serial Number TW58040001 and Manufacturer's ID (MNID) IC58040001, the M9537A is shipped with the default Administrator's Password: **Keysight4y!**. Refer to the M9537A User Guide for instructions to change this password.



This information is subject to change
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