

## Service Guide

M9010A, M9018B, M9019A

# Keysight PXIe Chassis Family





# Notices

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## Sales and Technical Support

To contact Keysight for sales and technical support, refer to the support links on the following Keysight websites:

[www.keysight.com/find/M9010A](http://www.keysight.com/find/M9010A)

[www.keysight.com/find/M9018B](http://www.keysight.com/find/M9018B)

[www.keysight.com/find/M9019A](http://www.keysight.com/find/M9019A)

(product-specific information and support, software and documentation updates)

[www.keysight.com/find/assist](http://www.keysight.com/find/assist) (world-wide contact information for repair and service)

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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.

PXIe Chassis are for indoor use only.

Mains supply voltage fluctuations must not exceed  $\pm 10\%$  of the nominal supply voltage.

Transient overvoltages typically present on the Mains supply (installation CAT II)

### Do Not Operate in an Explosive Atmosphere

Do not operate 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 a 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 a 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 AXIe 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:



Refer to manual for additional safety information.



Earth Ground.



Chassis Ground.



Alternating Current (AC).



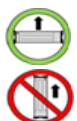
Direct Current (DC).



Standby Power. Unit is not completely disconnected from AC mains when power switch is in standby position



Indicates that antistatic precautions should be taken.



Operate the PXle chassis in the horizontal orientation. Do NOT operate this chassis in the vertical orientation.



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.



MSIP-REM-Kst-xxxxxxx

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 )  
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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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# 1 PXIe Chassis Replacement

## NOTE

This document is intended for use by qualified service personnel only. Unless specified, everything in this PXIe Chassis Family Service Guide pertains to all three PXI chassis (M9010A, M9018B, and M9019A). If there is anything that uniquely pertains to one of the three chassis, it is noted.

Keysight provides three PXIe chassis in the PXIe Chassis Family:

- M9010A – a 10-Slot PXI 24 GB/s, Gen 3 chassis
- M9018B – an 18-Slot PXI 8 GB/s, Gen 2 chassis
- M9019A – an 18-Slot PXI 24 GB/s, Gen 3 chassis

There is no replacement of the chassis fan or power supply assemblies at this time. The chassis repair strategy is to replace the entire core.

The following list shows Keysight part numbers for replacement chassis.

### M9010A

M9010-6610: 10-slot PXIe Chassis Assembly

M9010-6910: Refurbished 10-slot PXIe Chassis Assembly, Exch.

### M9018B

M9018-66201: 18-slot PXIe Chassis Assembly

M9018-69201: Refurbished 18-slot PXIe Chassis Assembly, Exch.

### M9019A

M9019-47901: PXIe Chassis (M9019A) Foot Kit

M9019-66101: 18-slot PXIe Chassis Assembly

M9019-69101: Refurbished 18-slot PXIe Chassis Assembly, Exch.

M9019-85001: PXIe Chassis (M9019A) Handle Kit

## About the Chassis Family

The Keysight Chassis Family is designed for easy integration into large systems containing multiple PXle chassis and other, non-PXI instrumentation. The Keysight PXle chassis have these key features:

- Up to 16 PXle hybrid slots (the M9010A has 8 hybrid slots), 1 PXle timing slot, and 1 PXle system slot.
- 4U chassis with innovative cooling design.
- Ultra high performance PCIe interface
  - The M9010A has Gen 3 fixed fabric, with a two-link (x8, x16) system slot and x8 links to the hybrid/timing slots.
  - The M9018B provides configurable 2-Link (2x8) and 4-Link (4x4) plus 1x8 configuration for the M9021A.
  - The M9019A provides Gen 3 fixed fabric, with a two-link (x8, x16) system slot and x8 links to the hybrid/timing slots.
- High data bandwidth (maximum 24 GB/s system and 8 GB/s slot-to-slot).
- Multi-chassis power-sequencing using rear panel RJ-45 connectors.
- Front panel external trigger input/output ports.
- One common driver supports IVI-C and IVI.NET for all three chassis (and the M9018A PXle chassis).

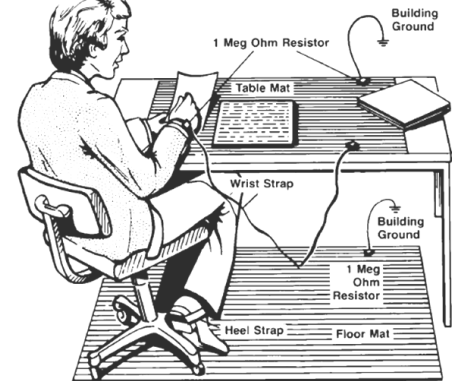
### NOTE

This Service Guide does not include service or repair information for the Keysight M9018A 18-slot PXle chassis. For more information on M9018A, refer to the user documentation available at [www.keysight.com/find/M9018A](http://www.keysight.com/find/M9018A).

## Static-safe Handling Procedures

Electrostatic discharge (ESD) can damage or destroy electronic components. Use a static-safe work station to perform at work on electronic assemblies. The figure shows a static-safe work station using two types of ESD protection:

- Conductive table-mat and wrist-strap combination
- Conductive floor-mat and heel-strap combination



Both types, when used together, provide a significant level of ESD protection. Of the two, only the table-mat and wrist-strap combination provides adequate ESD protection when used alone. To ensure user safety, the static-safe accessories must provide at least 1 M $\Omega$  of isolation from ground.

### WARNING

**DO NOT** use these techniques for a static-safe work station when working on circuitry with a voltage potential greater than 500 volts.

### CAUTION

Do not touch exposed connectors or components on any printed circuit board.

## Replacing the Chassis Core Assembly

If the Keysight M9010A, M9018B, or M9019A PXle chassis fails and must be replaced, follow the instructions given below.

### Order a Replacement Core Assembly

- 1** Contact Keysight (see [www.keysight.com/find/assist](http://www.keysight.com/find/assist)).
- 2** Order a replacement core assembly.

The following list shows Keysight part numbers for replacement assemblies.

#### **M9010A**

M9010-6610: 10-slot PXle Chassis Assembly

M9010-6910: Refurbished 10-slot PXle Chassis Assembly, Exch.

#### **M9018B**

M9018-66201: 18-slot PXle Chassis Assembly

M9018-69201: Refurbished 18-slot PXle Chassis Assembly, Exch.

#### **M9019A**

M9019-47901: PXle Chassis (M9019A) Foot Kit

M9019-66101: 18-slot PXle Chassis Assembly

M9019-69101: Refurbished 18-slot PXle Chassis Assembly, Exch.

M9019-85001: PXle Chassis (M9019A) Handle Kit

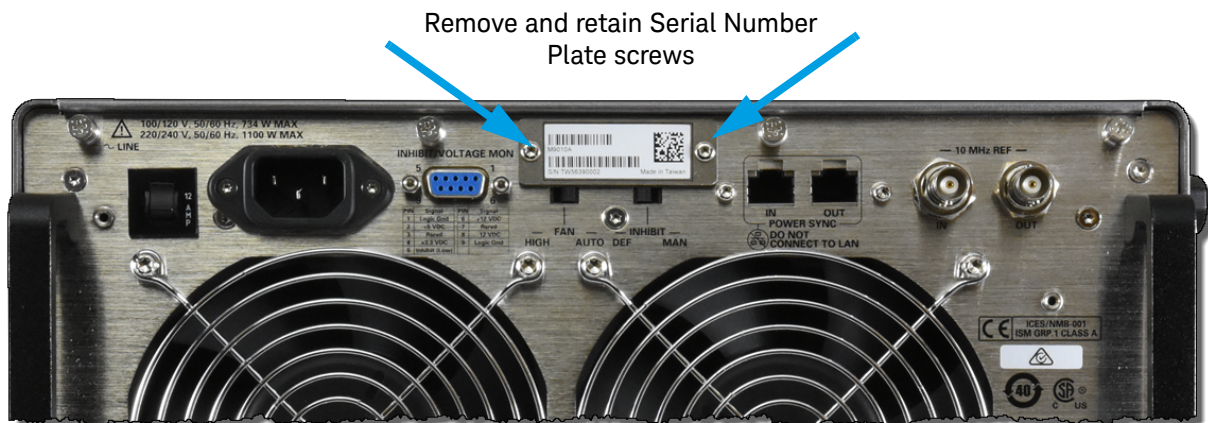
- 3** When the replacement assembly arrives, the package includes:
  - Serial Number Update Entitlement Certificate
  - Replacement core assembly
  - Return Material Authorization (RMA) number
  - Instructions for returning the defective core assembly.

## Replacing the Defective Core Assembly

**CAUTION**

Before opening a packaged core assembly, ensure that all ESD (electrostatic discharge) precautions are observed. Refer to “Static-safe Handling Procedures” on page 11 for details.

- 1 Power down the chassis.
- 2 Write down the serial number shown on the rear panel of the defective chassis (e.g., TW12345678). You will assign this serial number to the replacement core assembly using the Keysight PXle Chassis Hardware Service Wizard (part of the PXle Chassis Soft Front Panel software).



**Figure 1** PXle Chassis Family Serial Number Plate (M9010A Rear Panel shown)

- 3 Remove the Serial Number plate from the defective chassis.
  - a Using a Torx T8 screwdriver, remove the two screws that secure the plate to the chassis. **NOTE:** Keep the screws; extra screws are not included with the replacement core assembly.
- 4 Remove the replacement core assembly from the box and shipping material.
- 5 Attach the original Serial Number plate from the defective assembly to the replacement assembly and tighten the two screws.
- 6 If you are using a remote PC controller, power up the power up the chassis then power up the computer.

If you are using an embedded controller, power up the chassis.

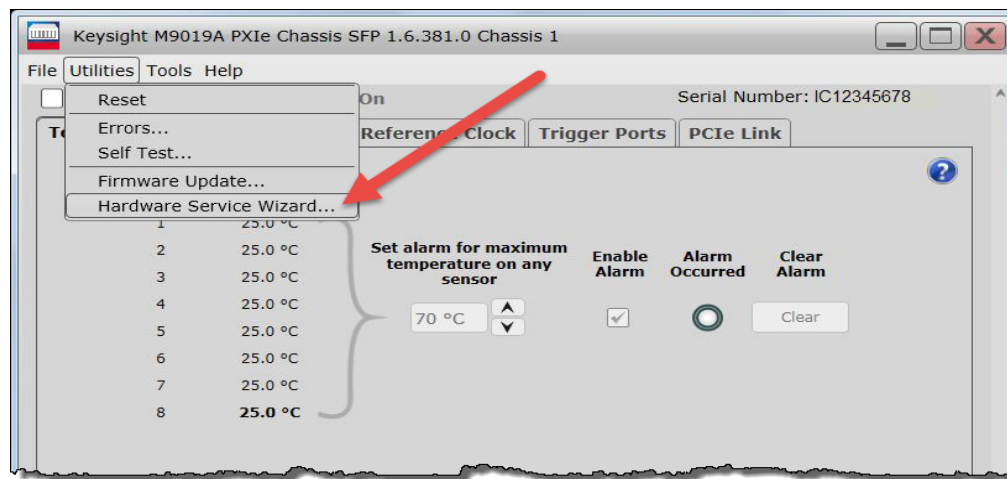
## Serial Number Update

The following steps describe how to update the chassis serial number. Note that Keysight does not require the serial number to be updated for your replacement hardware to work. This capability is provided if you need to maintain the same serial number to meet regulatory, governmental, track Keysight warranty on the unit, or other requirements.

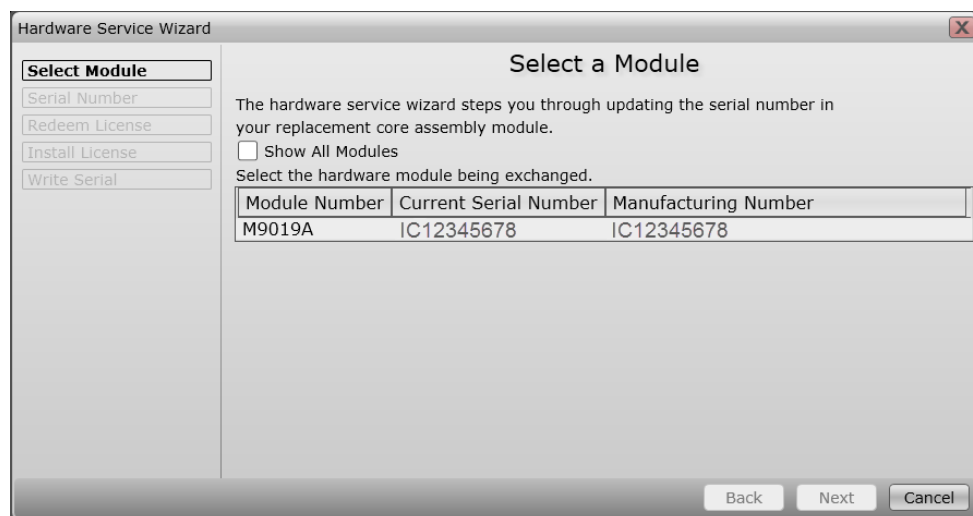
### NOTE

The replacement chassis comes with a Serial Number Entitlement Certificate. Internet access is required on the computer that is connected to the chassis. The license is specific to a particular computer, you must use the same computer to obtain a license and update the chassis serial number.

- 7 Launch the chassis Soft Front Panel from the Windows Start button:  
**Start > All Programs > Keysight > PXle Chassis SFP**
- 8 To transfer the original serial number to the new chassis, select **Utilities > Hardware Service Wizard....** This Hardware Service Wizard guides you through the steps to transfer the Serial Number from the defective chassis to the replacement chassis. The SFP Help contains detailed instructions on updating the serial number.



**Figure 2** Open the Hardware Service Wizard



**Figure 3** Hardware Service Wizard, 1st Screen

- 9 Return the defective core assembly to Keysight according to the following procedure:
  - a Review the warranty information shipped with your product.
  - b Write the following information on a tag and attach it to the defective equipment:
    - Name and address of owner. A P.O. box is not acceptable as a return address.
    - Product model number (for example, M9010A).
    - Product serial number. The serial number plate is located on the rear panel of the chassis.
    - The serial number can also be read from the SFP interface, but only after it is updated.
    - Description of failure or service required.
    - Return Material Authorization (RMA) number.
  - c Pack the chassis in an ESD bag and packing carton. If the original carton is not available, use bubble wrap or packing peanuts and place the instrument in a sealed container and mark the container "FRAGILE".

On the shipping label, write ATTENTION REPAIR DEPARTMENT and the RMA number.

**NOTE**

Reprogramming the chassis serial number causes the host name to change. Keysight Connection Expert will no longer find the old host name. You will need to re-find the chassis in Connection Expert.

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**NOTE**

If any correspondence is required, refer to the product by serial number and model number.

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