Agilent Technologies AXIe Digitizer

8 Channel, 12-bit, 1 GS/s - 3.2 GS/s, DC - 1 GHz

M9703A

Startup Guide

Agilent Technologies

Notices

Manual Part Number

M9703-90001

Edition

Edition 1.0, December 2011
Agilent Technologies, Inc.

Sales and Technical Support

To contact Agilent for sales and technical support, refer to the "support" links on the following Agilent web resources:

- www.agilent.com/find/M9703A (product-specific information and support, software and documentation updates)
- www.agilent.com/find/Modular
- www.agilent.com/find/assist (worldwide contact information for repair and service)

Information on preventing damage to your Agilent equipment can be found at www.agilent.com/find/tips.

Regulatory Compliance

This product has been designed and tested in accordance with accepted industry standards, and has been supplied in a safe condition. To review the Declaration of Conformity, go to http:/regulations.corporate.agilent.com/DoC/search.htm.

Warranty

The material contained in this document is provided "as is," and is subject to being changed, without notice, in future editions. Further, to the maximum extent permitted by applicable law, Agilent disclaims all warranties, either express or implied, with regard to this manual and any information contained herein, including but not limited to the implied warranties of merchantability and fitness for a particular purpose. Agilent shall not be liable for errors or for incidental or consequential damages in connection with the furnishing, use, or performance of this document or of any information contained herein. Should Agilent and the user have a separate written agreement with warranty terms covering the material in this document that conflict with these terms, the warranty terms in the separate agreement shall control.

Technology Licenses

The hardware and/or software described in this document are furnished under a license and may be used or copied only in accordance with the terms of such license.

Restricted Rights Legend

If software is for use in the performance of a U.S. Government prime contract or subcontract, Software is delivered and licensed as "Commercial computer software" as defined in DFAR 252.227-7014 (June 1995), or as a "commercial item" as defined in FAR 2.101(a) or as "Restricted computer software" as defined in FAR 52.227-19 (June 1987) or any equivalent agency regulation or contract clause. Use, duplication or disclosure of Software is subject to Agilent Technologies' standard commercial license terms, and non-DOD Departments and Agencies of the U.S. Government will receive no greater than Restricted Rights as defined in FAR 52.227-19(c)(1-2) (June 1987). U.S. Government users will receive no greater than Limited Rights as defined in FAR 52.227-14 (June 1987) or DFAR 252.227-7015 (b)(2) (November 1995), as applicable in any technical data.

Safety Notices

The following safety precautions should be observed before using this product and any associated instrumentation.

This product is intended for use by qualified personnel who recognize shock hazards and are familiar with the safety precautions required to avoid possible injury. Read and follow all installation, operation, and maintenance information carefully before using the product.

WARNING

If this product is not used as specified, the protection provided by the equipment could be impaired. This product must be used in a normal condition (in which all means for protection are intact) only.

The types of product users are:

- **Responsible body** is the individual or group responsible for the use and maintenance of equipment, for ensuring that the equipment is operated within its specifications and operating limits, and for ensuring operators are adequately trained.
- **Operators** use the product for its intended function. They must be trained in electrical safety procedures and proper use of the instrument. They must be protected from electric shock and contact with hazardous live circuits.
- **Maintenance personnel** perform routine procedures on the product to keep it operating properly (for example, setting the line voltage or replacing consumable materials). Maintenance procedures are described in the user documentation. The procedures explicitly state if the operator may perform them. Otherwise, they should be performed only by service personnel.
- **Service personnel** are trained to work on live circuits, perform safe installations, and repair products. Only properly trained service personnel may perform installation and service procedures.

Agilent products are designed for use with electrical signals that are rated Measurement Category I and Measurement Category II, as described in the International Electrotechnical Commission (IEC) Standard IEC 60664. Most measurement, control, and data I/O signals are Measurement Category I and must not be directly connected to mains voltage or to voltage sources with high transient over-voltages. Measurement Category II connections require protection for high transient over-voltages often associated with local AC mains connections. Assume all measurement, control, and data I/O connections are for connection to Category I sources unless otherwise marked or described in the user documentation.

Exercise extreme caution when a shock hazard is present. Lethal voltage may be present on cable connector jacks or test fixtures. The American National Standards Institute (ANSI) states that a shock hazard exists when voltage levels greater than 30V RMS, 42.4V peak, or 60VDC are present. A good safety practice is to expect that hazardous voltage is present in any unknown circuit before measuring.

Operators of this product must be protected from electric shock at all times. The responsible body must ensure that operators are prevented access and/or insulated from every connection point. In some cases, connections must be exposed to potential human contact. Product operators in these circumstances must be trained to protect themselves from the risk of electric shock. If the circuit is capable of operating at or above 1000V, no conductive part of the circuit may be exposed.

Do not connect switching cards directly to unlimited power circuits. They are intended to be used with impedance-limited sources. NEVER connect switching cards directly to AC mains. When connecting sources to switching cards, install protective devices to limit fault current and voltage to the card.

Before operating an instrument, ensure that the line cord is connected to a properly-grounded power receptacle. Inspect the connecting cables, test leads, and jumpers for possible wear, cracks, or breaks before each use.

When installing equipment where access to the main power cord is restricted, such as rack mounting, a separate main input power disconnect device must be provided in close proximity to the equipment and within easy reach of the operator.

For maximum safety, do not touch the product, test cables, or any other instruments while power is applied to the circuit under test. ALWAYS remove power from the entire test system and discharge any capacitors before: connecting or disconnecting cables or jumpers, installing or removing switching cards, or making internal changes, such as installing or removing jumpers.

Do not touch any object that could provide a current path to the common side of the circuit under test or power line (earth) ground. Always make measurements with dry hands while standing on a dry, insulated surface capable of withstanding the voltage being measured.

The instrument and accessories must be used in accordance with its specifications and operating instructions, or the safety of the equipment may be impaired.

Do not exceed the maximum signal levels of the instruments and accessories, as defined in the specifications and operating information, and as shown on the instrument or test fixture panels, or switching card.

When fuses are used in a product, replace with the same type and rating for continued protection against fire hazard.

Chassis connections must only be used as shield connections for measuring circuits, NOT as safety earth ground connections.

If you are using a test fixture, keep the lid closed while power is applied to the device under test. Safe operation requires the use of a lid interlock.

CAUTION

A **CAUTION** 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 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 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.

Instrumentation and accessories shall not be connected to humans.

Before performing any maintenance, disconnect the line cord and all test cables.

To maintain protection from electric shock and fire, replacement components in mains circuits – including the power transformer, test leads, and input jacks – must be purchased from Agilent. Standard fuses with applicable national safety approvals may be used if the rating and type are the same. Other components that are not safety-related may be purchased from other suppliers as long as they are equivalent to the original component (note that selected parts should be purchased only through Agilent to maintain accuracy and functionality of the product). If you are unsure about the applicability of a replacement component, call an Agilent office for information.

WARNING

No operator serviceable parts inside. Refer servicing to qualified personnel. To prevent electrical shock do not remove covers. For continued protection against fire hazard, replace fuse with same type and rating.

Front and Rear Panel Symbols:

The CE mark is a registered trademark of the European Community.

N10149 The C-Tick mark is a registered trademark of the Australian Spectrum Management Agency.

ICES/NMB-001
ISM GRP.1 CLASS A
This symbol indicates product compliance with the Canadian Interference-Causing Equipment Standard (ICES-001). It also identifies the product is an Industrial Scientific and Medical Group 1 Class A product (CISPR 11, Clause 4).

This symbol indicates separate collection for electrical and electronic equipment, mandated under EU law as of August 13, 2005. All electric and electronic equipment are required to be separated from normal waste for disposal (Reference WEEE Directive, 2002/96/EC).

This symbol on an instrument means caution, risk of danger. You should refer to the operating instructions located in the user documentation in all cases where the symbol is marked on the instrument.

This symbol indicates 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 the product.

This symbol indicates the instrument is sensitive to electrostatic discharge (ESD). ESD can damage the highly sensitive components in your instrument. ESD damage is most likely to occur as the module is being installed or when cables are connected or disconnected. Protect the circuits from ESD damage by wearing a grounding strap that provides a high resistance path to ground. Alternatively, ground yourself to discharge any built-up static charge by touching the outer shell of any grounded instrument chassis before touching the port connectors.

This symbol denotes a hot surface. The side cover of the module will be hot after use and should be allowed to cool for several minutes.

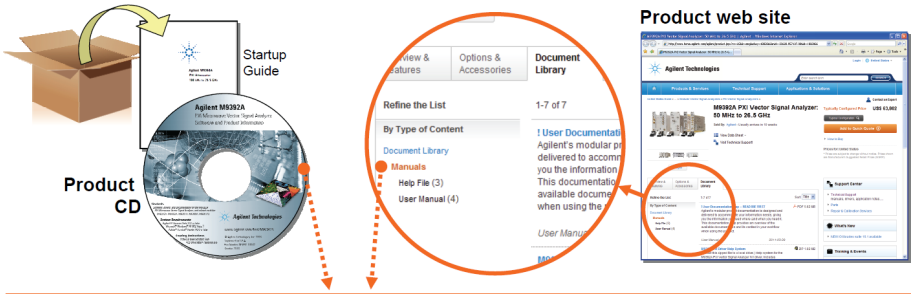
CLEANING PRECAUTIONS:

WARNING

To prevent electrical shock, disconnect the Agilent Technologies instrument from mains before cleaning. Use a dry cloth or one slightly dampened with water to clean the external case parts. Do not attempt to clean internally. To clean the connectors, use alcohol in a well-ventilated area. Allow all residual alcohol moisture to evaporate, and the fumes to dissipate prior to energizing the instrument.

Table of Contents

Documentation Map



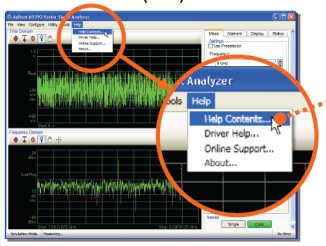
Startup Guide

- Unpack product
- Verify shipment
- Install software
- Install hardware
- Verify operation
- Troubleshooting

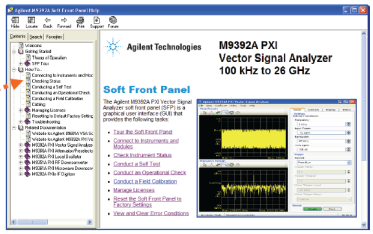
Data Sheet

- Product description
- Technical specifications

Soft Front Panel (SFP) user interface

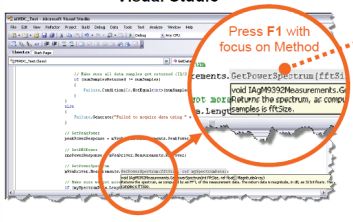


SFP help system



- Theory of operation
- Block diagram
- Configuration
- Self test
- Operational check
- Field calibration
- Troubleshooting

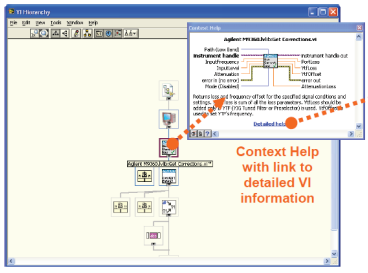
Visual Studio



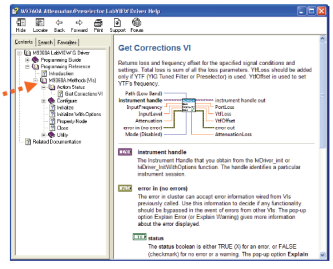
IVI Driver help system

- IVI-COM and IVI-C driver programmer's reference
- Sample programs

LabVIEW



LabVIEW Driver help system



- LabVIEW driver programmer's reference
- Sample programs

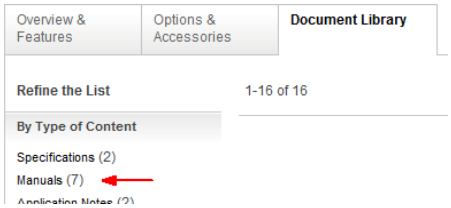
Agilent M9703A AXIe Digitizer Introduction

The scope of this Startup Guide is to detail the processes of receiving and installing the Agilent M9703A AXIe Digitizer, installing the required software, and verifying basic module operation. If you have any questions after reviewing this information, please contact your local Agilent representative or contact us through our website at www.agilent.com/find/assist

Related Documentation

This Startup Guide and the documentation listed below are on the CD and at www.agilent.com/find/M9703A. Select **Technical Support > Manuals**.

- Digitizer User Guide and Help system for the Soft Front Panel
- Help systems for the Agilent device drivers (IVI-C and IVI-COM, and LabVIEW G)
- Product specifications (Data Sheet)



Follow the Startup Sequence

This Start-Up Guide is intended to lead the user through the four steps of product installation as summarized in the diagram below. An optional fifth step shows how to perform a operational verification of the M9703A AXIe Digitizer .

Step 1: Unpack and Inspect

Step 2: Verify Shipment

Step 3: Install Drivers and Software

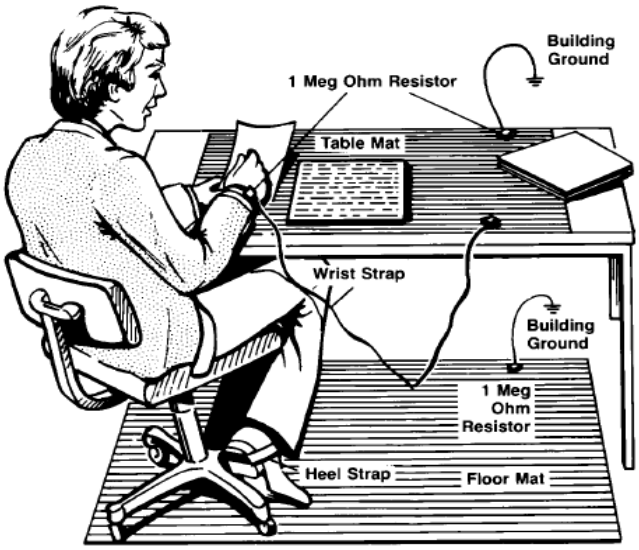
Step 4: Install Modules

WARNING **Closely follow the startup process flow in this document. Deviating from the sequence can cause unpredictable system behavior, damage your system, and may cause personal injury.**

Step 1: Unpack and Inspect the Module

CAUTION The module is shipped in materials which prevent damage from static. The module should only be removed from the packaging in an anti-static area ensuring that correct anti-static precautions are taken. Store all modules in anti-static envelopes when not in use.

ESD



Electrostatic discharge (ESD) can damage or destroy electronic components. Use a static-safe work station to perform all work on electronic assemblies. The figure (left) shows a static-safe work station using two types of ESD protection: conductive table-mat and wrist-strap combination, and 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 MΩ 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.**

Inspect for Damage

After unpacking a module, inspect it for any shipping damage. Report any damage to the shipping agent immediately, as such damage is not covered by the warranty (see warranty information at beginning of this document).

CAUTION To avoid damage when handling a module, do not touch exposed connector pins.

NOTE See www.agilent.com/find/tips for information on preventing damage to your Agilent equipment.

Return a Module for Service

Should it become necessary to return a module for repair or service, follow the steps below:

1. Review the warranty information shipped with your product.
2. Contact Agilent to obtain a Return Material Authorization (RMA) and return address. For assistance finding Agilent contact information, go to www.agilent.com/find/assist (worldwide contact information for repair and service) or refer to the "Support" information on the product web page at www.agilent.com/find/M9703A
3. Write the following information on a tag and attach it to the malfunctioning equipment:
    - Name and address of owner. A P.O. box is not acceptable as a return address.
    - Product model number (for example, M9703A).
    - Product serial number. The serial number label is located on the top cover of the module. The serial number can also be read from the Soft Front Panel interface, but only after the hardware is installed.
    - Description of failure or service required.
4. Pack the module in its original 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".
5. On the shipping label, write ATTENTION REPAIR DEPARTMENT and the RMA number.

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

Step 2: Verify M9703A Shipment Contents

The following items are also included with your M9703A AXIe Digitizer order:

Part Number	Quantity	Description
M9210-9007	1	Agilent MD1 High-Speed Digitizer Software and Product Information CD
E2904-60003	1	Agilent IO Libraries Suite CD.
M9703-90001	1	M9703A AXIe Digitizer Startup Guide in hard copy.
5962-0476	1	Certificate of Calibration.
5959-4660	1	Recommended Due Date for Adjustment/Calibration.
M9703A-UK6	1	Commercial calibration certificate with test data (if ordered).
9320-6741	1	ROHS (China addendum).
U1092-80001	1	Cable, BNC (male) to MMCX (male), 1 m.
U1092-80002	1	Cable, BNC (male) to MCX (male), 1 m.

NOTE All the files contained on the CDs are available for download at www.agilent.com/find/M9703A.

Step 3: Install the Software

System Requirements

Item	Requirements		
Operating system	**Windows XP SP3**	**Windows Vista®** SP1 and SP2, **Windows 7®** (32 or 64-bit), All versions.	**Linux** kernel 2.6 or higher (32 or 64-bit), Debian 6.0, CentOS 5
Processor speed	600 MHz or higher required 800 MHz recommended	1 GHz 32-bit (x86), 1 GHz 64-bit (x64), no support for Itanium64	As per the minimum requirements of the chosen distribution.
Available memory	256 MB minimum,(1 GB or greater recommended	1 GB minimum	As per the minimum requirements of the chosen distribution.
Available disk space [1]	1.5 GB available hard disk space, includes: • 1 GB available for Microsoft .NET Framework 3.5 SP1 [2] • 100 MB for Agilent IO Libraries Suite		100 MB
Video	Super VGA (800x600) 256 colors or more	Support for DirectX 9 graphics with 128 MB graphics memory recommended (Super VGA graphics is supported)	Does not require graphics (headless system). X Windows with 1280x1024 recommended for SFP
Browser	Microsoft Internet Explorer 6.0 or higher	Microsoft Internet Explorer 7.0 or higher	Distribution supplied browser.

[1] Note: Because of the installation procedure, less disk space may be required for operation than is required for installation. The amount of space listed above is required for installation.

[2] Note: .NET Framework Runtime Components are installed by default with Windows Vista. Therefore, you may not need this amount of available disk space.

Hardware Requirements

Item	Requirements
Chassis	AXIe chassis (Agilent M9502A 2-slot, or M9505A 5-slot chassis recommended).
Host Controller	Remote PC Host Controller, or Embedded AXIe controller:
• **Embedded Controller**	Agilent M9536A AXIe Embedded Controller.
• **Remote Controller**	• A PC running one of the above operating systems. (HP Z400 recommended) • For Laptop PC's: An Agilent M9045B ExpressCard Adaptor x1, with cable. • For Workstations: An Agilent M9047A Desktop Adaptor x8, with cable.

Power up the Controller

Remote Controller

If you are using a remote controller, install the cable interface and then power up the host PC. If you are using an Agilent M9045B or M9047A Interface, please refer to the included documentation for further details.

CAUTION If you are using a remote controller, Shut Down the PC BEFORE you power down the chassis. When you restore power, power up the chassis, and wait for the chassis & module status indicators to be green BEFORE you power up the PC.

Embedded Controller

If you are using an embedded controller, complete the following steps:

1. Install the embedded controller module into the compatible chassis. The Agilent M9502A 2-slot, or M9505A 5-slot chassis is recommended. Please refer to the chassis documentation for further details.
2. Connect peripherals (mouse, keyboard, monitor), then power up the chassis.

Install the Software

This installation includes the following:

- Agilent IO Libraries Suite (IOLS), which includes the Agilent Connection Expert. This software is included with your shipment (CD part number E2904-60003), and is also available at www.agilent.com/find/IOsuite. This software must be installed first.

  NOTE Version 16.1 update 1 (or newer) of the Agilent IO Libraries Suite is required.

- Instrument software, which includes Soft Front Panel (SFP), device drivers (IVI-C, IVI-COM, and LabVIEW G) and documentation for your module. This software is included with your shipment (CD part number M9210-90007), and is also available at www.agilent.com/find/M9703A.

Software Installation Procedure

1. From the Agilent IOLS CD (E2904-60003) browser launch the installer.
2. Follow the installer prompts to install the IO libraries.
3. From the Agilent MD1 High-Speed Digitizer Software and Product Information CD launch the installer.
4. Follow the installer prompts. Choose a "Complete" installation to install all software and documentation, or a "Custom" installation to select from a listing of components and other features.
5. After installation is complete, power down the host PC, and then the chassis if using a remote controller.

Step 4: Install the Module

CAUTION The M9703A hardware does not support "hot-swap" operations. Before installing the module into the chassis, power-off the chassis to prevent damage to the module.

1. Make sure that the power cord is plugged-in to establish earth ground but the chassis power is Off (Standby).
2. If the chassis has multiple fan speed settings, ensure that the fans are set to automatic.
3. Position the chassis so that there is ample space between the chassis fan intake and exhaust vents. Blockage by walls or obstructions will compromise the air flow needed for cooling.
4. If you are using an embedded controller, this must normally be installed in slot 1 of the chassis. In this case install the M9703A in slot 2 or higher.
5. To insert the module into a chassis:
    a. Align the module's board edges with the chassis guide rails and push it forward into the chassis. Note: that it is the circuit board, not the metal cover plate which must be inserted into the rails. The module should slide in easily, if it does not, withdraw it and re-check the alignment.
    b. Locate the extraction handles at either end of the module. Extend the ends of both handles by pulling them inwards towards each other; the plastic ends will slide out by about 1 cm. Then put the handles into the extracted position by pivoting them outwards until they are perpendicular to the front panel as shown in the diagram below.

    c. Slide the module completely into the chassis. When the module's connectors contact the chassis back-plane you will feel some resistance, and the extraction handles will begin to move inwards. Now you may press the handles inwards and towards the front panel until the module is completely inserted.
    c. Slide the plastic ends of the extraction handles outwards and tighten the captive retaining screws at both ends of the module.

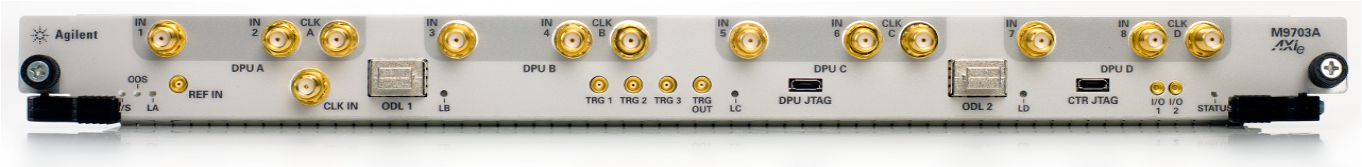
7. Verify that the chassis fans are operable and free of dust and other contaminants that may restrict airflow.

8. Install filler panels in any unused slots after installing the module. Missing filler panels may disrupt necessary air circulation in the chassis.
9. If you are using a remote controller, with an interface such as the M9045B or M9047A, connect the cable from the chassis to the PC host, as per the instructions that came with the Cable Interface.
10. Power up the chassis. It is often necessary to wait until the chassis and its modules have completed their start-up sequence before proceeding to power-up the host controller.

NOTE Refer to the instructions provided with your AXIe chassis for power-up / power-down procedure.

11. Reboot or power-up the PC host.
12. Check the module front panel indicators - after the boot process the STATUS LED should be green, and no other LEDs lit.

Agilent M9703A Front Panel Features



Front Panel Connectors

Connector	Type	Description
IN (1 - 8)	SMA female	The analog signal inputs, which are DC-coupled and 50 Ω terminated. The input full scale ranges are selectable, either 1 V or 2 V. Maximum signal level is ±5 V continuous. Frequency range is DC to 650 MHz (-F05) or DC to 1 GHz (-F10).
CLK A, B, C, D	SMA female	Not currently supported.
REF IN	MCX female	This external reference clock input is AC coupled and 50 Ω terminated. It can accept a 100 MHz signal up to 3 dBm (0.3 V rms / 50 Ω).
CLK IN	SMA female	This external clock source is AC-coupled, with 50 Ω termination, and can accept signals up to +15 dBm (1.26 V rms / 50 Ω). Frequency : 1 GS/s option (-SR1) = 2 GHz, and for 1.6 GS/s option (-SR2) = 2 to 3.2 GHz.
TRG 1, 2, 3	MCX female	These external trigger inputs are DC-coupled, 50 Ω terminated. The trigger level range is ±5 V.
TRG OUT	MCX female	Trigger Out signal. User selectable from several functions.
ODL 1, 2	LC/SFP cage	Not currently supported.
DPU JTAG	USB Mini	Not currently supported.
CTR JTAG	USB Mini	Not currently supported.
I/O 1, 2	MMCX female	User configurable Input / Output signal. 3.3 V CMOS and TTL compatible.

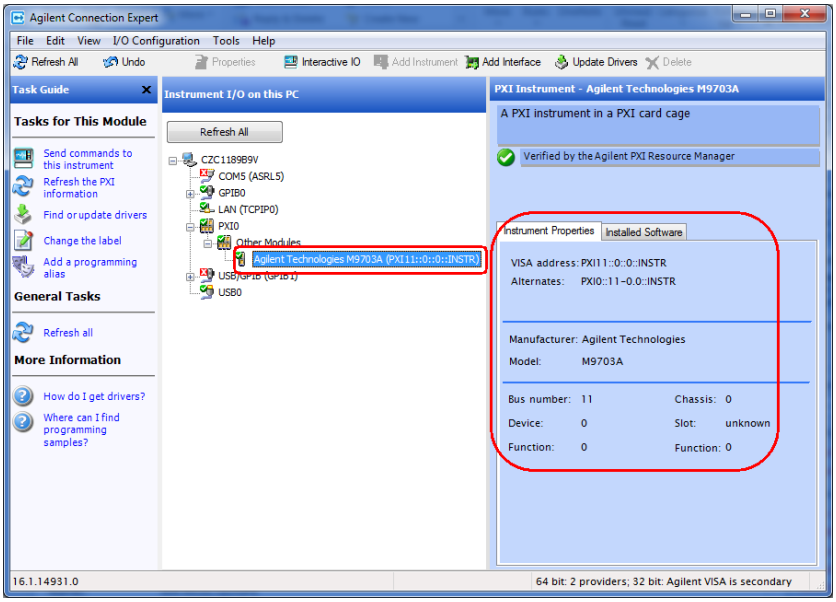
Front Panel LEDs

Indicator	Purpose	Color	State	State Description
H/S	Hot Swap		Off	Normal operating mode
			Blue, slow blink	Initializing
OOS	Out Of Service		Off	ATCA Bus is ready
			Red	ATCA Bus is not ready
LA, LB, LC, LD	DPU status indicator		Off	DPU FPGA is not configured
			White	Idle
			Green	Acquisition running
			Blue	Trigger detected
			Yellow	Software trigger received
STATUS	Instrument status indicator		White, fast blink	Control FPGA f/w initialization in progress
			Green, fast blink	Control FPGA s/w initialization in progress
			Yellow, slow blink	Warning
			Red, slow blink	Error
			Green	OK

Step 5: Verify Operation of the M9703A Module

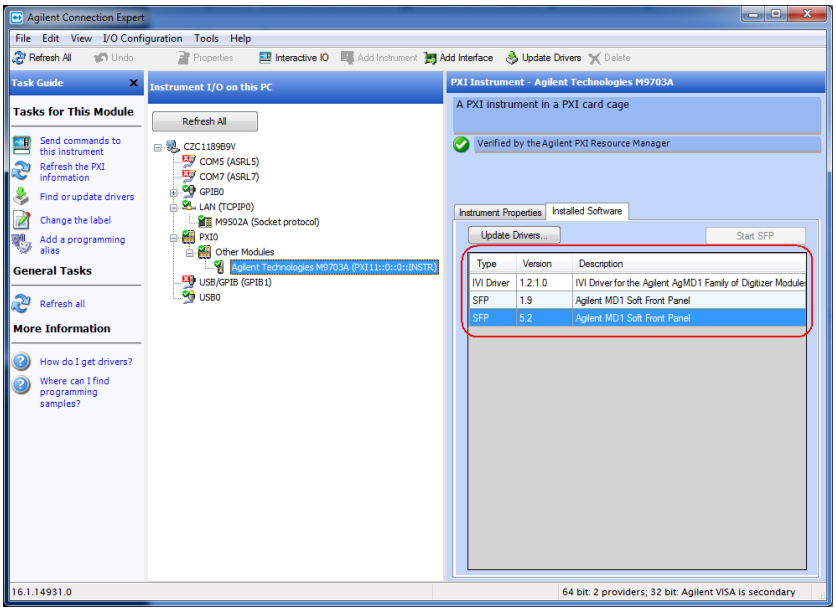
The intention of this step is to verify correct operation of the newly installed module. Run Agilent Connection Expert (from the task bar icon, or from **Start > Programs > Agilent IO Libraries Suite > Agilent Connection Expert**). It will display the modules that are installed. Review the configuration data and then launch the SFP. This will provide control of the module for self test and other operational verification procedures.

Agilent M9703A Instrument Properties



NOTE If the module does not appear in the Agilent Connection Expert, first try the 'Refresh All' button.
If that does not work, restart your PC or embedded controller and start Agilent Connection Expert again.

Agilent M9703A Installed Software



The SFP application may be launched from the list installed software, by right-clicking the Start SFP button.

Note that for the M9703A you should select the SFP 5.x version.

Conduct M9703A Operational check (optional)

Self-Test / Calibration

The M9703A is capable of performing both a self-test and calibration internally. This function is automatically carried out when the SFP application is started, and if no subsequent error message is displayed then the operation has been successful. These operations may also be carried out at any time by the user by pressing the Calibrate or SelfTest buttons on the control panel of the SFP.

NOTE It may take up to several minutes to complete a calibration operation.

Requirements for Verification

The M9703A is verified by using it to trigger on and visualize a signal from a Function Generator. The trigger must be stable and the signal frequency and amplitude must correspond to that set on the generator.

Required Hardware

To verify that the module works requires an external signal source. Almost any sine wave or function generator capable of generating a signal with a Peak-Peak Amplitude of 1 V into 50 Ω (10 dBm) at a frequency of 100 MHz may be used.

Hardware	Description
RF Analog Signal Generator	e.g. Agilent N5181A
1x BNC - SMA cable	50 Ω Coaxial BNC(m) to SMA(m) cable (100 cm)
1x Agilent 1250-1476 Adaptor	Type N(m) to BNC(f) adaptor

Operational Verification Procedure

CAUTION Do not exceed the maximum power level to the INPUT connector (0.5 W).

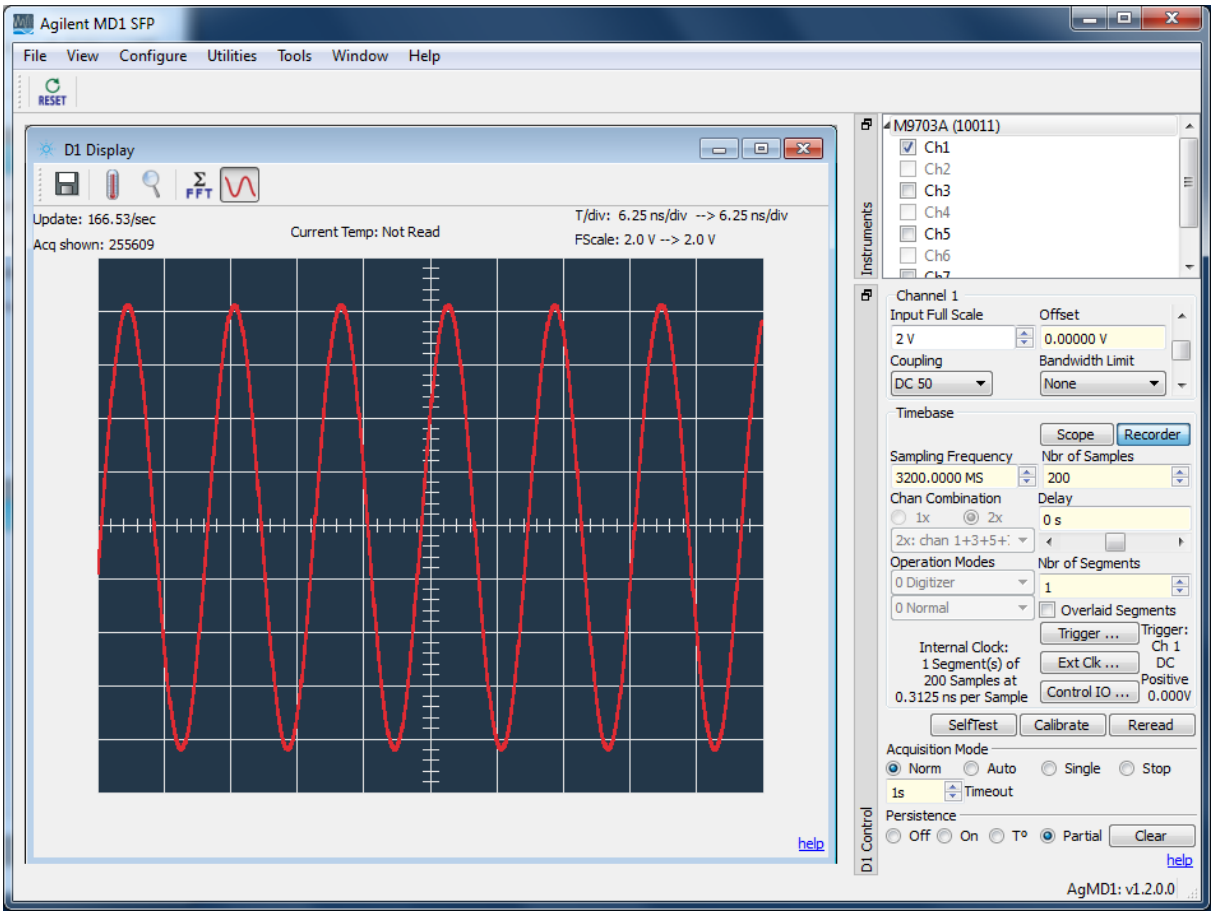
1. Launch the soft front panel (SFP). Confirm that there are no error messages displayed.
2. Configure the RF Generator to produce a Sine signal with a Frequency of 100 MHz, an Amplitude of +8.0 dBm, and an Offset of 0 V.
3. Connect the RF Generator output to the IN 1 connector, and turn on the output.
4. Select the waveform mode.
5. Select Recorder mode.
6. Select Partial persistence mode.
7. Ensure that Ch1 is enabled by clicking on the tick box under the instrument name.
8. Select 2x Channel Combination mode, and 2x: chan 1+3+5+7
9. Make the following configurations:

   Input Full Scale - **2 V**
   Coupling - **DC 50**
   Nbr of Samples - **200**
   Offset – **0.000000 V**
   Segments – **1**

10. Open the Trigger ... control window and make the following configuration :

    Module - **Module 1**
    Trigger Source – **Ch1 (INPUT 1)**
    Trigger Coupling – **DC**
    Trigger Class - **Edge**
    Trigger Level 1 – **0.0 V**
    Trigger Slope – **Positive**

11. Select the Norm Acquisition mode and the Waveform Display should be as shown below.



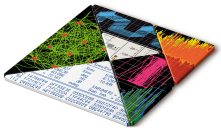
12. Verify that:
    - the waveform shown is stable from one acquisition to the next,
    - the period of the signal is 1.6 divisions (10 ns)
    - the pk-pk amplitude is 8 ± 0.6 divisions
    - the channel status LED is white (triggered)

If a Problem is Found

1. Verify that you have made all configuration settings as shown above.
2. Verify that the RF generator is ON and producing the desired signals at the end of the BNC cables. This can be done with an oscilloscope.
3. If the problem occurs during Operational Verification disconnect the input signal and note the status of the LED on the front panel; it should be GREEN. Reconnect the signal and select the AUTO acquisition mode; note the behavior for subsequent reference.
4. Verify that the problem is reproducible.
5. Refer to "Return the module for service" on page 9, concerning the details on sending the module to Agilent for service.

The Modular Tangram

The four-sided geometric symbol that appears in Agilent modular product literature is called a tangram. The goal of this seven-piece puzzle is to create shapes—from simple to complex. As with a tangram, the possibilities may seem infinite as you begin to create a new test system. With a set of clearly defined elements—hardware, software—Agilent can help you create the system you need, from simple to complex.



DISCOVER the Alternatives ...

... Agilent **MODULAR** Products

Agilent Advantage Services is committed to your success throughout your equipment's lifetime.
www.agilent.com/find/advantageservices

Agilent Email Updates keep you informed on the latest product, support and application information.
www.agilent.com/find/emailupdates

Agilent Channel Partners provide sales and solutions support. For details, see
www.agilent.com/find/channelpartners

Agilent Electronic Measurement Group KEMA Certified ISO 9001:2008 Quality Management System ISO 9001:2008 certified. For details, see **www.agilent.com/quality**

PXI **www.pxisa.org**

AXIe **www.axistandard.org**

www.agilent.com
www.agilent.com/find/modular
www.agilent.com/find/M9703A

For more information on Agilent Technologies' products, applications or services, please contact your local Agilent office. (For additional listings, go to **www.agilent.com/find/assist**.)

Americas

Canada	(877) 894 4414
Brazil	(11) 4197 3500
Mexico	01800 5064 800
United States	(800) 829 4444

Asia Pacific

Australia	1 800 629 485
China	800 810 0189
Hong Kong	800 938 693
India	1 800 112 929
Japan	0120 (421) 345
Korea	080 769 0800
Malaysia	1 800 888 848
Singapore	1 800 375 8100
Taiwan	0800 047 866
Thailand	1 800 226 008

Europe & Middle East

Austria	43 (0) 1 360 277 1571
Belgium	32 (0) 2 404 93 40
Denmark	45 70 13 15 15
Finland	358 (0) 10 855 2100
France	0825 010 700 (0.125 €/minute)
Germany	49 (0) 7031 464 6333
Ireland	1890 924 204
Israel	972 3 9288 504 / 544
Italy	39 02 92 60 8484
Netherlands	31 (0) 20 547 2111
Spain	34 (91) 631 3300
Sweden	0200 88 22 55
Switzerland	0800 80 53 53
United Kingdom	44 (0) 118 9276201

Agilent Technologies