



Aeroflex PXI Modules

Common Installation Guide

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Introduction

This installation guide covers all Aeroflex 3000 Series and other PXI modules.

It explains how to install driver software, and how to fit the module into the chassis.

PXI Studio 2 is a supplied application that helps you to configure two or more modules to create test instruments and run measurement utilities. Modules are formatted automatically to provide the chosen measurement capabilities, and soft front panels create virtual instruments with familiar and intuitive controls.

The PXI concept

VXI and GPIB systems meet the specific needs of instrumentation users but are often too large and expensive for mainstream applications. PC-based instrumentation may cost less but cannot meet the environmental and operational requirements of many systems.

PXI (PCI Extensions for Instrumentation) is based on CompactPCI, itself based on the PCI standard. PCI was designed for desktop machines but CompactPCI was designed for industrial applications, and features a rugged Eurocard format with easy insertion and removal. PXI adds to the CompactPCI specification by defining system-level specifications for timing, synchronization, cooling, environmental testing, and software. While PXI extends CompactPCI, it also maintains complete interoperability so that you can use any CompactPCI-compliant product in a PXI system and vice versa. PXI also makes use of Windows software, VXI timing and triggering, and VXIplug&play instrument drivers to provide powerful and affordable systems.

PXI Express now integrates PCI Express into PXI, providing up to 6 Gbyte/s backplane bandwidth and up to 2 Gbyte/s slot bandwidth. PXI Express maintains backwards compatibility with PXI, providing software compatibility and hardware compatibility with hybrid slots and hybrid systems.

User manuals

There is a separate user manual for each of the Aeroflex module families. Each manual contains information about connecting and operating the modules, an explanation of the soft front panel (where applicable), driver functions, and a simple technical description. All the user manuals are included on the PXI Modules CD-ROM, part no. 46886/028.

Declaration of Conformity

Copies of the EC Declarations of Conformity for the PXI modules are included on the supplied PXI Modules CD-ROM, part no. 46886/028, and are also available from Aeroflex Ltd.

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PXI™ is a trademark of the PXI Systems Alliance

Windows®, Windows XP®, Windows® 7 and Windows NT® are registered trademarks of

Microsoft Corporation

Associated documentation

If you want to...	Refer to...
Find information about soft front panels, drivers, application software, data sheets, installation, getting started and user manuals for Aeroflex PXI modules	PXI Modules CD-ROM, part no. 46886/028 Supplied with the module
Find test results and calibration certificates for all Aeroflex PXI modules	Test results data CD-ROM, part no. 46886/054 Supplied with the module
View EC Declarations of Conformity for all Aeroflex PXI modules	Files included on the PXI Modules CD-ROM, and available from Aeroflex Ltd.
Learn about Aeroflex RF synthesizer PXI modules	3010 Series RF Synthesizer User Manual Part no. 46890/637 On the PXI Modules CD-ROM and at www.aeroflex.com/pxi
Learn about Aeroflex digital RF signal generator PXI modules	3020 Series Digital RF Signal Generator User Manual Part no. 46890/834 On the PXI Modules CD-ROM and at www.aeroflex.com/pxi 3050A PXI Low Noise RF Signal Generator User Manual Part no. 47090/197 On the PXI Modules CD-ROM and at www.aeroflex.com/pxi
Learn about Aeroflex digitizer PXI modules	3030 Series Wideband RF Digitizer User Manual Part no. 46890/836 On the PXI Modules CD-ROM and at www.aeroflex.com/pxi 3070A PXI High Performance Wideband RF Digitizer User Manual Part no. 47090/198 On the PXI Modules CD-ROM and at www.aeroflex.com/pxi
Learn about Aeroflex combiner PXI modules	3060 Series RF Combiner User Manual Part no. 46890/762 On the PXI Modules CD-ROM and at www.aeroflex.com/pxi 3066 PXI Multi-way Active RF Combiner User Manual Part no. 46890/762 On the PXI Modules CD-ROM and at www.aeroflex.com/pxi
Learn about Aeroflex AWG PXI modules	3320 PXI Dual Channel Arbitrary Waveform Generator User Manual Part no. 47090/129 On the PXI Modules CD-ROM and at www.aeroflex.com/pxi
Set up a populated chassis ready for use	Aeroflex PXI Modules Installation Guide for Chassis Part no. 46892/667 On the PXI Modules CD-ROM and at www.aeroflex.com/pxi
Set up and use the universal PXI application for system configuration and operation	PXI Studio 2 User Guide Part no. 46892/809 On the PXI Modules CD-ROM and at www.aeroflex.com/pxi
Overview, installation, pin assignments and maintenance information for the Aeroflex 3000 Series chassis and system controller.	3000 Chassis and 3001B/3001C System Controller User Guide Part no. 46892/837 On the PXI Modules CD-ROM and at www.aeroflex.com/pxi
Overview, installation, pin assignments and maintenance information for the Aeroflex PXI 3005 chassis and system controller.	PXI 3005 Chassis User Manual Part no. 47090/174 On the PXI Modules CD-ROM and at www.aeroflex.com/pxi

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Precautions

WARNING

CAUTION

Note

These terms have specific meanings in this manual:

WARNING information to prevent personal injury.

CAUTION information to prevent damage to the equipment.

Note important general information.

Hazard symbols

The meaning of hazard symbols appearing on the equipment and in the documentation is as follows:

Symbol	Description
--------	-------------



Refer to the operating manual when this symbol is marked on the instrument. Familiarize yourself with the nature of the hazard and the actions that may have to be taken.



Dangerous voltage



Toxic hazard



Hot surface

WARNING

Suitability for use

This equipment has been designed and manufactured by Aeroflex to generate low-power RF signals for testing radio communications apparatus and to digitize and provide spectrum analysis of RF signals.

If the equipment is not used in a manner specified by Aeroflex, or if it is damaged, the protection provided by the equipment may be impaired.

Aeroflex has no control over the use of this equipment and cannot be held responsible for events arising from its use other than for its intended purpose.

General conditions of use

This product is designed and tested to comply with the requirements of BS EN 61010-1 'Safety requirements for electrical equipment for measurement, control and laboratory use', for Class III equipment and is for use in a pollution degree 2 environment. The equipment is designed to operate from an installation category I supply.

Equipment should be protected from the ingress of liquids and precipitation such as rain, snow, etc. When moving the equipment from a cold to a hot environment, it is important to allow the temperature of the equipment to stabilize before it is connected to the supply to avoid condensation forming. The equipment must only be operated within the environmental conditions specified in the data sheet, otherwise the protection provided by the equipment may be impaired.

This product is not approved for use in hazardous atmospheres or safety-critical applications.

The enclosure of the host PXI chassis should meet the enclosure requirements of BS EN 61010-1, in order to provide an appropriate fire enclosure for the product.

WARNING

Electrical hazards (DC supply voltage)

This equipment conforms with IEC safety Class III, meaning that for continued safety it must only be connected to supplies and signal sources which conform to 'Separated Extra-Low Voltage' (SELV and SELV-E) voltage and insulation requirements. No hazardous voltages are generated internally. See the data sheet for the maximum permitted voltage levels that can be applied.

Do not remove instrument covers as this may result in personal injury. There are no user-serviceable parts inside.

Refer all servicing to qualified personnel.

WARNING

Toxic hazards

Some of the components used in this equipment may include resins and other materials which give off toxic fumes if incinerated. Take appropriate precautions, therefore, in the disposal of these items.

WARNING

Beryllium copper

It is possible that some mechanical components within this instrument may be manufactured from beryllium copper. This is an alloy with a beryllium content of approximately 5%. It represents no risk in normal use.

The material should not be machined, welded or subjected to any process where heat is involved.

It must be disposed of as 'special waste'.

It must NOT be disposed of by incineration.

WARNING **Short circuited/bent pins**

Before installing the module into the chassis, check inside the chassis that no debris is present between pins on the backplane connectors, and that no pins on the backplane connectors are bent or damaged. Check the module's connectors in the same way. Short-circuits can damage the module and chassis, and may cause fire.

If debris is present, ensure that no power is applied to the chassis, and carefully remove the debris with an antistatic brush.

The module should slide smoothly and easily into the slot. If you feel resistance, remove the module and check for obstructions or damage, and that the module is compatible with the chosen slot.

Keep PXI modules in their shipping containers when they are not installed in a chassis.

WARNING **Hot surfaces**

Take care when touching a module which has run for a prolonged period; the surface temperature can become high.

CAUTION **Airflow**

Fit slot blockers to all unused slots. Modules can overheat if the correct airflow is not maintained.

CAUTION **Static-sensitive components**

This equipment contains static-sensitive components which may be damaged by handling.

Installing an Aeroflex PXI module

Introduction

This guide explains how to install and configure your Aeroflex PXI module.

More detailed information about the module, how to operate it and how it works, is given in the relevant User Manual. This is a PDF document on the PXI Modules CD-ROM packaged with your module (see 'Associated documentation' for details), which is installed by default to the same location as the VISA software when you carry out the software installation.

Please read the cautions and instructions below before installing the module into the PXI chassis.

Naming conventions

'3000 Series' is the generic name for any Aeroflex 3000 Series PXI module.

'3010 Series' includes all RF synthesizer modules.

'3020 or 3050 Series' includes all RF signal generator modules.

'3030 or 3070 Series' includes all RF digitizer modules.

'3060 Series' includes all RF combiner modules.

'3320 Series' includes all AWG (arbitrary waveform generator) modules.

Unpacking the module

Contents of packing

- Aeroflex PXI module
- PXI Modules CD-ROM, part number 46886/028, containing:
 - software installer
 - drivers and soft front panels, including FFT spectrum analysis library
 - Common Installation Guide (this document)
 - Installation Guide for Chassis
 - User Manuals for all Aeroflex PXI modules
 - application software
 - PXI version information software
 - product specifications.
- Module test results CD-ROM, part number 46886/054
- Link cable(s).

Handling precautions

Do not remove the module from its protective packaging until you are ready to insert it into the chassis.

Avoid static damage by wearing a wrist strap or by touching a good ground frequently whilst handling the module.

Be especially careful not to touch connectors.

CAUTION

DO NOT insert or remove a module while the chassis is powered up — the module will probably be damaged.

WARNING**Initial visual check**

After unpacking the module, inspect the packaging for any signs of damage. If there is damage, keep the packaging so that the carrier may examine it in the event that a claim is made. Examine the module for signs of damage, especially at the points shown in Fig. 1. Do not install a suspect module, as internal electrical damage could result in a fire.

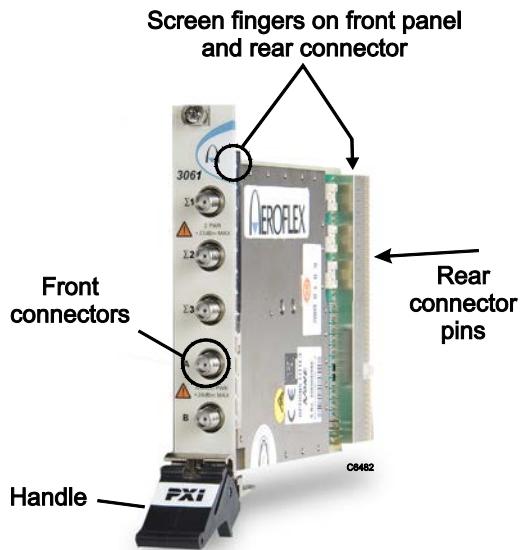


Fig. 1 Points to check for damage

Option(s)

A label shows which options (if any) are fitted to the module.

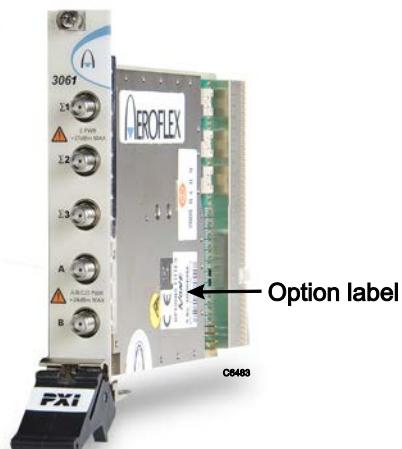


Fig. 2 Location of options label

Typical system

- PXI chassis, for example Aeroflex 3000 3U chassis
- PCI/PCIe-to-PXI interface kit and a PC running Windows® XP or Windows® 7
or
PXI embedded controller, for example Aeroflex 3001B/3001C running Windows® XP
- Aeroflex PXI module(s): 3010 Series RF synthesizer, 3020/3050 Series RF signal generator, 3030/3070 Series RF digitizer, 3060 Series RF combiner, 3320 Series arbitrary waveform generator.

System requirements

The following is the recommended minimum PC specification that should be used with Aeroflex PXI hardware and software products:

Intel Pentium III — 1.5 GHz or better

Vacant PCI expansion slot, supporting bus mastering when using PCI-PXI interface kit
or
vacant PCIe expansion slot

512 MB RAM for 8-slot chassis: 1024 MB RAM recommended for larger PXI chassis
(Windows® XP)

1024 MB RAM (Windows® 7)

200 MB free disk space

800 x 600 display resolution; 1024 x 768 when using Aeroflex soft front panels

USB CD-ROM drive or network access for software installation

Microsoft Windows® XP Professional with Service Pack 1 or Microsoft Windows® 7

National Instruments NI-VISA — V3.1.0 or later.

Tools required

Flat-bladed screwdriver 3 mm

Posidriv screwdriver size 0

Torque wrench — see torque settings.

Software architecture

Fig. 3 shows the relationship between user applications and their relevant dlls, and below this level, the relationship between the PXI modules, their driver software, DLLs, COM and .NET interfaces.

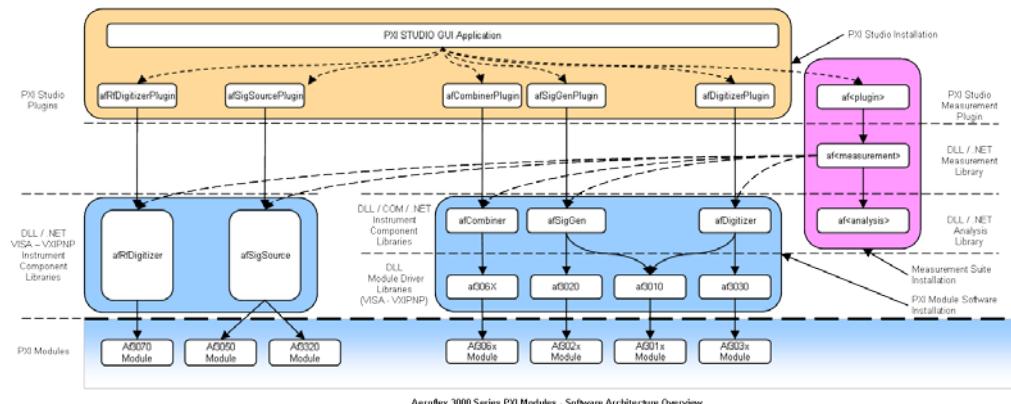


Fig. 3 Software architecture

Which interface to use?

The .NET and DLL interfaces (for example, afSigGen.NET and afSigGenDLL) provide common functionality and a consistent application programming interface (API).

Use whichever interface is most appropriate to your application.

This guide explains how to install modules, drivers and components.

Installation process

General

In its default mode, the supplied PXI module software installer automatically installs the following software drivers and instrument components:

PXI module drivers	
3010 Series PXI RF Synthesizer Driver	
3020/3050 Series PXI RF Signal Generator Driver	
3030/3070 Series PXI RF Digitizer Driver	
3060 Series PXI RF Combiner Driver (legacy 3060, 3065 instruments)	
306x Series PXI RF Combiner Driver (current 3060, 3061, 3065(A) instruments)	
PXI module documentation	
3010 Series Documentation	
3020 Series Documentation	
3030 Series Documentation	
3050 Series Documentation	
3060 Series Documentation	
3070 Series Documentation	
3320 Series Documentation	
PXI instrument software components	
Combiner	
Digitizer	
Signal Generator	
Spectrum Analysis Components	

Note: earlier versions of the installer installed these drivers and components individually.

Module drivers

Module drivers provide an interface between the low-level instructions understood by the instrument and higher-level instructions that are easier for a programmer to use and understand. The drivers conform to the VXIplug&play and LabWindows/CVI standards and are contained in a DLL (dynamic link library). The drivers are also provided as source code.

Instrument software components

The instrument components that are installed by the PXI module software installer are structured as follows:

RF digitizer comprises:	afDigitizer Component Library (afDigitizerDLL (C library interface), afComDigitizer (Microsoft COM component), afDigitizerCPP (C++ Class interface)) afDigitizerDotNet afRfDigitizerDLL afRfDigitizerDotNet.
RF signal generator comprises:	afSigGen Component Library (afSigGenDLL (C library interface), afComSigGen (Microsoft COM component), afSigGenCPP (C++ Class interface)) afSigGenDotNet afSigSourceDLL afSigSourceDotNet.
RF combiner comprises:	afCombiner Component Library (afCombinerDLL (C library interface), afComCombiner (Microsoft COM component), afCombinerCPP (C++ Class interface)) afCombinerDotNet.
Spectrum analysis component comprises:	afSpectrum DLL.

PXI Studio 2 and measurement suites

PXI Studio 2, and instrument components for measurement suites (for example, afGsm) that are purchased and supplied additionally, need to be installed separately.

Order of installation

- 1 Uninstall old PXI module software: see Uninstalling PXI module software.
- 2 Install PXI module software: see Installing PXI module software.
- 3 Then install any additionally purchased application software: see
Installing application software packages.
- 4 Follow this with Hardware installation.

Uninstalling PXI module software

If your system has Aeroflex PXI module software installed from an older style installer kit (prior to version 5.0.0 of the installer), we strongly recommend that you remove any of the existing components from the installation using Add/Remove Programs from the Control Panel.

You can determine if such software installations exist by checking to see if Add/Remove Programs lists any of the following:

Af3010
Af3020
Af3030
Af3060
Aeroflex RF Combiner Components
Aeroflex RF Combiner Control
Aeroflex RF Digitizer Components
Aeroflex RF Digitizer Control
Aeroflex RF Digitizer Soft Front Panel
Aeroflex RF SigGen Components
Aeroflex RF SigGen Control
Aeroflex RF SigGen Soft Front Panel
Aeroflex Spectrum Analysis
Aeroflex RF Investigator

In this case, use Add/Remove Programs from the Control Panel to uninstall the particular item (see below).

Removing previous versions of application software

- Open the Control Panel (Start\Settings\Control Panel)
- Select Add/Remove Programs
- Select the previous version of the component or complete module software being installed (for example, Aeroflex RF SigGen Control (Vx.x.x)), and click the 'Change/Remove' button next to it.

Driver version

To maintain optimum performance, all Aeroflex PXI modules should be used either with the software driver version with which they were supplied (on the Aeroflex PXI Modules CD-ROM part no. 46886/028), or the latest driver, which you can download from the Aeroflex website.

Aeroflex endeavors to ensure modules remain backwards compatible with earlier driver version releases.

However, continual improvement means that from software version **6.2.0** onwards there are exceptions, which are explained below.

Checking the software compatibility of a PXI module

- Modules that are compatible with all driver versions display on their front panel a serial number label consisting of black lettering on a **white** background.
- Modules that are only compatible with software driver installation version 6.2.0 and higher have a serial number label consisting of black lettering on a **yellow** background.

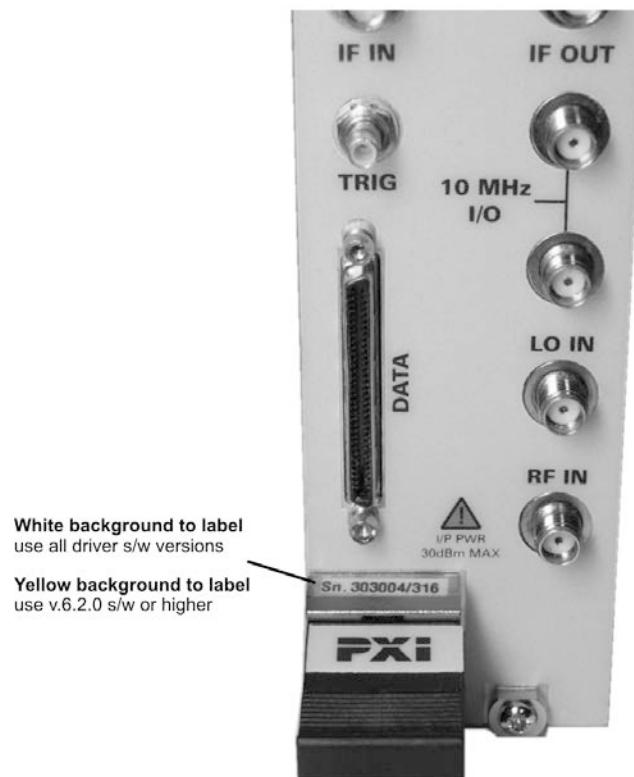


Fig. 4 Location of serial no. label (example)

Please ensure that you install the correct version of software for your module.

Installing PXI module software

These instructions for installing software apply both to PXI embedded controllers and PCs with PCI/PCIe-to-PXI interface kits.

Installation locations

Driver files, soft front panels and help files are installed by default to the same location as the VISA software on your computer.

By default, VISA software **version 4.2 and later** installs to *C:\Program Files\VI Foundation\VISA*. So PXI module software installs to a WinNT folder under this path.

VISA software **prior to version 4.2** installs by default to *C:\vxi1npn*, and PXI module software installs to a WinNT folder under this path.

Be aware however, that before installing a 4.2 or higher version of VISA, you should uninstall all instances of PXI module software already installed. Install the new VISA, followed by the PXI module software, to avoid multiple versions of PXI software existing on the system.

Be aware also that other suppliers' VISA-dependent software may be installed to locations different to the Aeroflex PXI module software, which can lead to conflicts.

Also, if you have chosen to install software to a different location to the default, again you need to ensure that multiple copies do not exist.

Installation procedure

- Insert the PXI Module Software CD-ROM.

The *PXIModuleSoftware vX_Y_Z_setup.exe* installer executable should auto-run.

If it does not auto-run, open the CD-ROM in an Explorer window and double-click on *PXIModuleSoftware vX_Y_Z_setup.exe*.

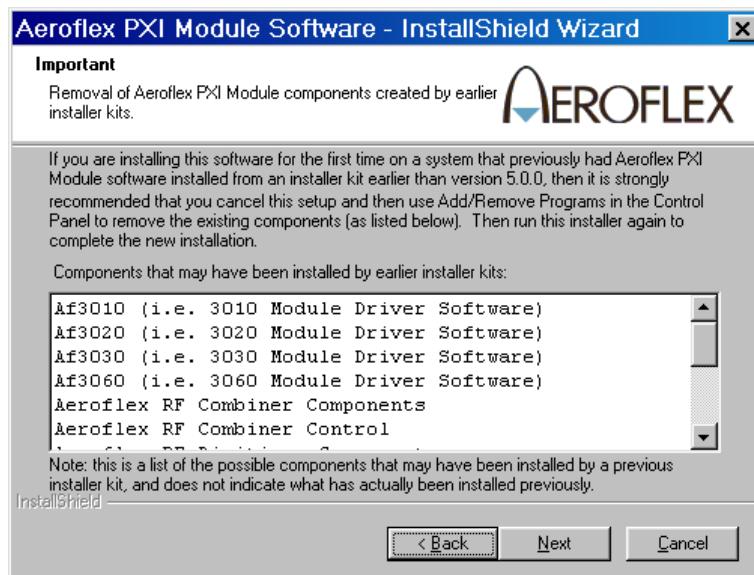
The following Welcome panel appears.



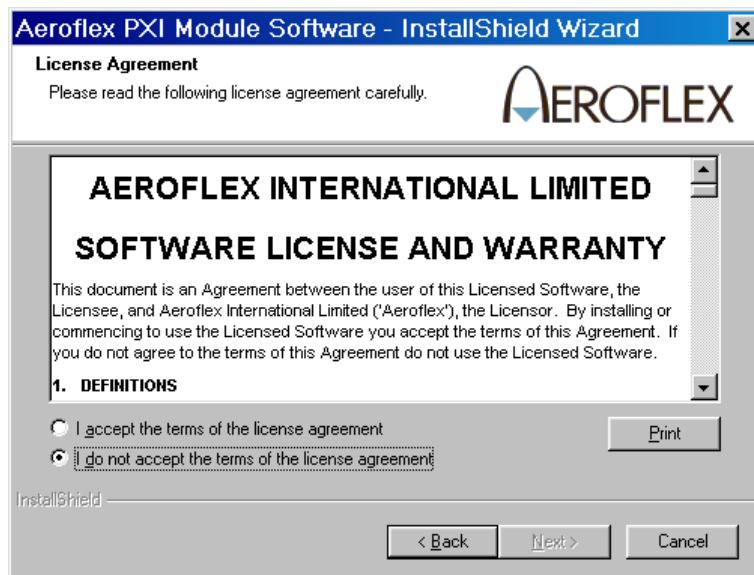
- Click **Next>** to continue the installation.

The next panel asks you to ensure that you uninstall all Aeroflex PXI Module software that has been installed by an installer earlier than version 5.0.0.

- If earlier versions do exist, use Add/Remove Programs from the Control Panel to uninstall these particular items.

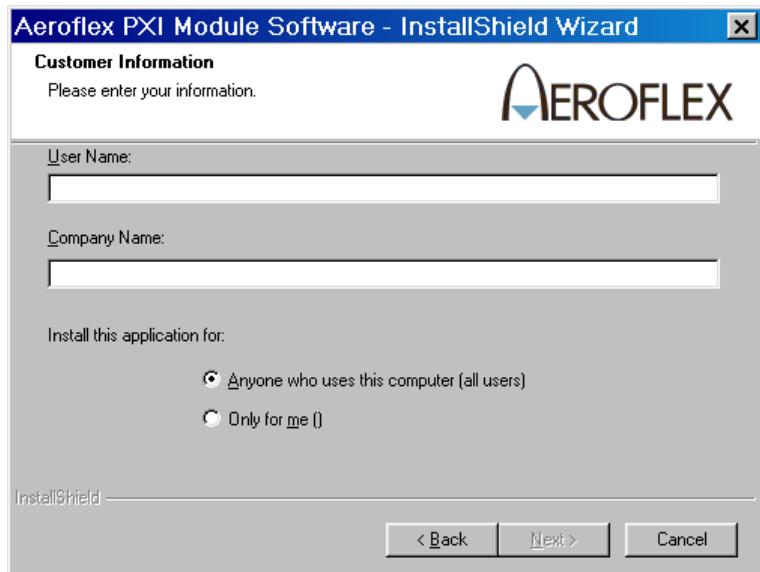


- The next panel presents the license agreement. In order to proceed with the installation, you must accept the agreement.



- Click **Next>** to continue with the installation.

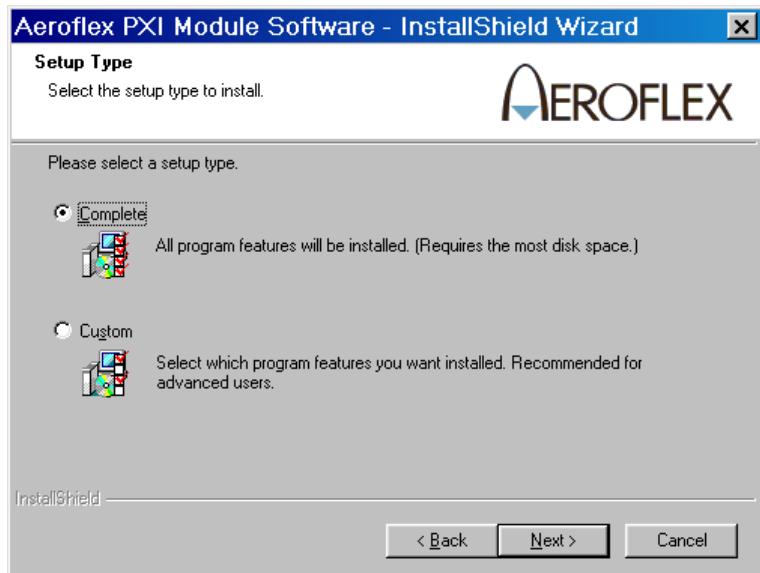
You are now asked to enter your user and company names, and choose for whom the application is installed.



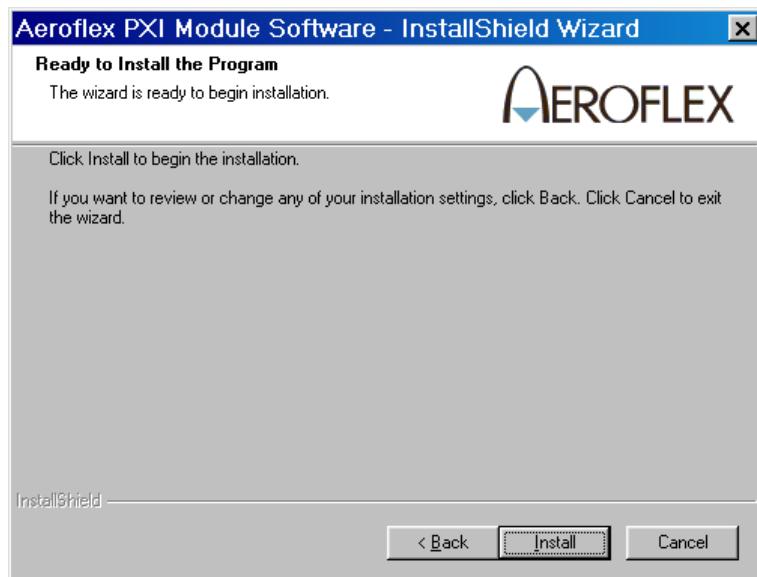
You are now presented with a choice of Complete or Custom setup. The Complete setup ensures that all Aeroflex PXI Module software components are installed; the Custom setup allows you to install a subset.

If you are an advanced user, you may choose to select the Custom setup to do a partial install, but you need to be aware of the dependencies between the different components that may be installed. For this reason, we recommend that most users select the Complete setup.

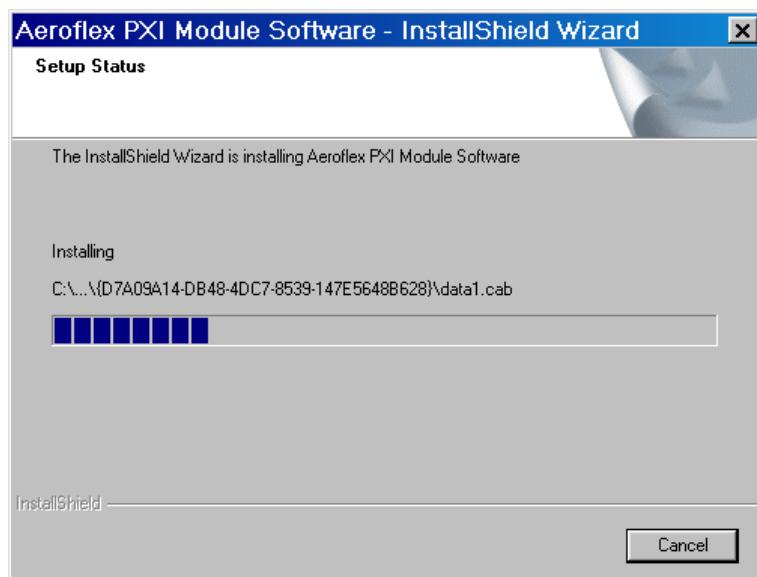
- Click on the appropriate radio button.



- Click **Next>** to continue with the installation.

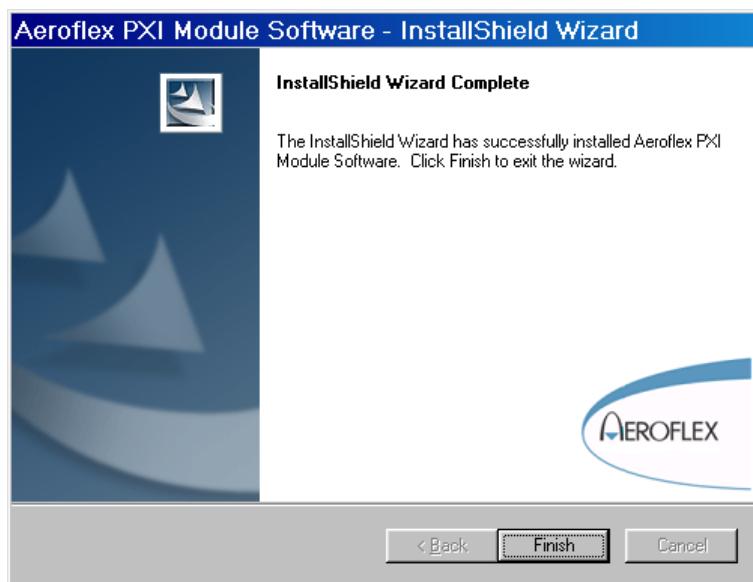


- Click **Install** to begin the installation...



- ...and wait for the software to install.

Upon completion of the installation, the following panel is displayed.



- Click **Finish** to complete the installation.

The Aeroflex PXI Module Software is now fully installed and ready to use. See Using the installed software.

- If you have purchased additional application software, install it now.
- You are then ready to perform the hardware installation.

Installing PXI Studio 2 application software

A separate installer is provided on the CD-ROM module that installs the application. Refer to the PXI Studio 2 User Guide 46892/809 (on the CD-ROM) for details of this application.

Installing additional application software packages

If you have purchased a separate measurement suite (for example, afGsm), install it from its own CD-ROM.

If it is an upgrade to a previous version, use Add/Remove Programs on the Control Panel to remove the previous version first.

Installing chassis and controller software

Refer to the documentation supplied with the chassis.

For an Aeroflex 3000 chassis, this is the User Guide, part no. 46892/837, provided on the PXI Modules CD-ROM part no. 46886/028.

For Aeroflex PXI 3005 19-slot chassis, a User Guide is provided in <cdrom>\PXI\Chassis on the CD-ROM part no. 46886/028.

Hardware installation

Check the safety documentation

Read the safety and installation instructions that accompany the chassis and embedded controller or PCI-to-PXI interface.

WARNING

Before installing the module into the chassis, check that:

- (a) no foreign conductive bodies are present between pins on the backplane or module connectors
- (b) no pins on the backplane or module connectors are bent or damaged.
- (c) the PXI backplane slot arrangement is compatible with the module.

Read the full warning in 'Short-circuited/bent pins'.

CAUTION

Always power down the chassis before inserting or removing any Aeroflex PXI module.

Installing the Aeroflex module into the chassis

Remind yourself of the Handling precautions.

- 1 Disconnect the power cord.
- 2 Touch an earthed metal object to discharge any static electricity on your body or clothes.
Remove the module from its packaging.
Remove rubber sleeves from the captive screws on the module.
- 3 Turn the ejector handle on the module to point downwards
- 4 Slide the module carefully into its slot by pressing on the ejector handle.
You can install the module in any slot in the chassis except slot 1.
Check that EMC gasket fingers (behind the front panel) are in contact with adjoining units.

CAUTION

If the module does not slide in all the way with light pressure, do not force it: remove the module, check its connectors and inspect the chassis connectors to make sure that nothing is obstructed or damaged.

- 5 When you feel the handle engage with the chassis, rotate it upwards. This seats the module onto its connectors and locks it into the chassis.
- 6 Tighten the captive screws on the module to attach it to the chassis.

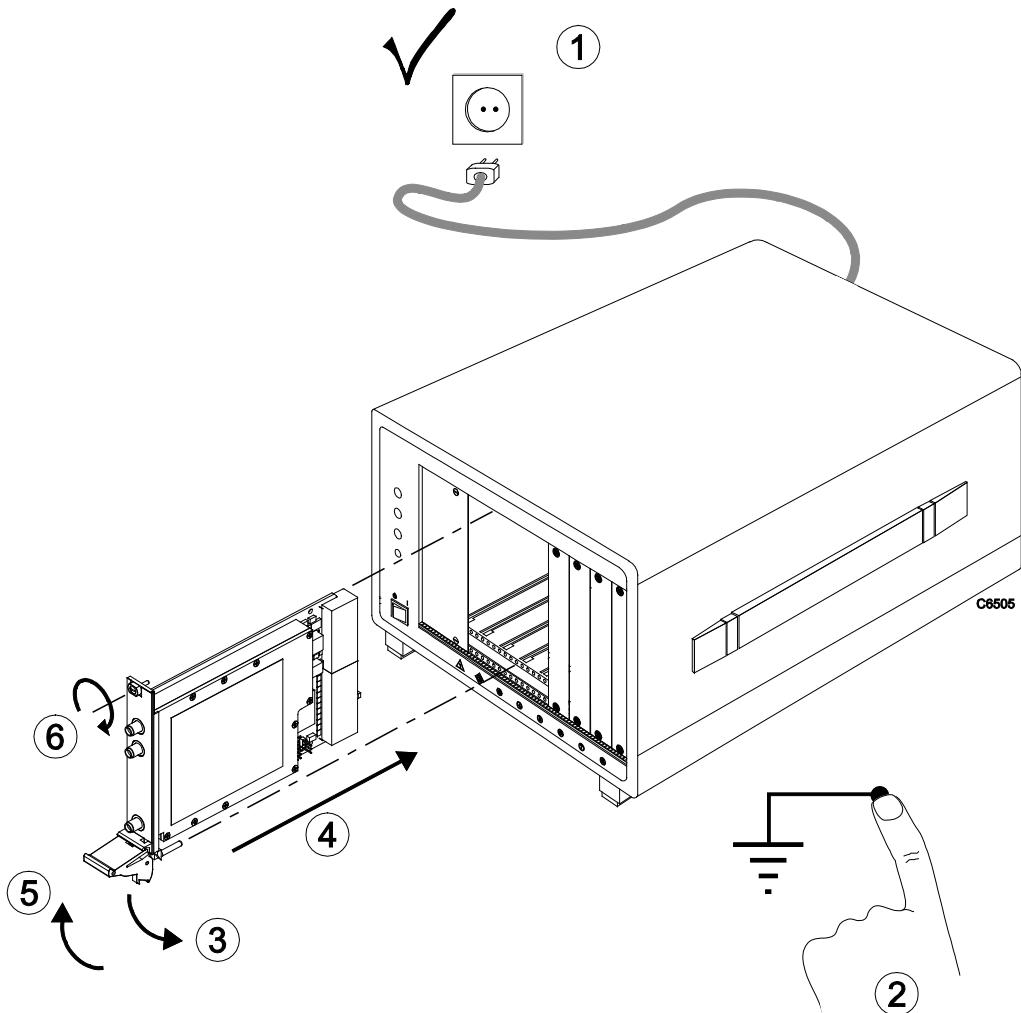


Fig. 5 Installing module into chassis (this procedure applies to any module)

Connecting and torqueing SMA connectors

- 1 First, ensure that the mating halves of the connector are correctly aligned.
- 2 Next, engage the threads of the nut and tighten it by hand, ensuring that the mating halves do not move relative to each other.
- 3 Then use a torque spanner to tighten the connector, in order to ensure consistent matching and to avoid mechanical stress.

Torque settings for connectors are:

0.56 Nm test torque (development use, semi-permanent installations)

1 Nm final torque (permanent installations)

Never use pliers to tighten connectors.

CAUTION

Overtightening will cause damage!

Do not allow center pins to rotate!

Do not allow the center pins of connectors to rotate when you connect and remove cables.

Use a connector saver!

Use a connector saver (part no. 46885/224):

- (a) on any SMA connector where the cable is routinely connected and disconnected
- (b) when the connector on the cable, or the cable end of the connector saver, has not been gaged.

Torque to 1 Nm the end of the connector saver that connects to the module, and torque to 0.56 Nm the end that connects to the cable.

SSMB connectors

Be very careful when connecting and disconnecting SSMB connectors — their small size means that they are easily damaged by careless handling.

Always connect and disconnect with a straight push or pull along the axis of the connector.

Do not pull on the cable.

Do not rotate or lever the connector.

Do not use any tools other than those specially designed for connector handling.

For PCI/PCIe-to-PXI interface kit users

- 1 Ensure the interface is installed according to the manufacturer's instructions. You need a vacant PCI or PCIe expansion slot that supports bus mastering when using a PCI/PCIe-PXI interface kit.
- 2 Ensure that the module's driver software (and instrument component software, if required) is installed.
- 3 Connect the PXI chassis to the PC using the PCI/PCIe-to-PXI interconnection cable supplied.
- 4 You are now ready to power up the PXI chassis. Power up the PXI chassis before the PC.
- 5 Follow the hardware driver installation procedure.

For PXI embedded controller users

- 1 Ensure that the module's driver software is installed.
- 2 Once you have installed the module you are ready to power up the PXI chassis.
- 3 Follow the hardware driver installation procedure.

LO connection

A 3010 Series module is usually used to supply the LO signal for 3020 or 3030 Series modules in the chassis.

- Ideally, locate the 3010 Series module in the slot immediately to the left of the 3020 or 3030 Series module with which it is associated, as shown in the example (Fig. 6). This is not a necessity, but it facilitates short cable connections. It also makes accessible the PXI local bus between the 3010 Series and 3020/3030 Series modules, provided that the PXI chassis supports this for the slots being used.
- Link LO OUT of the 3010 Series module to LO IN of the 3020 or 3030 Series module.

10 MHz frequency standard connection

The 10 MHz frequency standard for the 3020 or 3030 Series modules can be set to external or internal reference. The internal reference uses the 10 MHz signal present on the PXI backplane.

- If the VCO source of the 3020 or 3030 Series module is set to external reference, link the 10 MHz I/O connectors on the two modules, as shown in the example (Fig. 6).
- If the 3010 Series module's clock reference is set to external, link the 10 MHz external clock reference to the 10 MHz I/O connector of the 3010 Series module.
- Connect the 10 MHz reference to further modules and/or external test equipment.
- Connect a 50 R termination pad at the end of the chain, unless a 3010 Series module is the last connection in the chain, in which case set the 3010 Series module's clock reference to 'External - Terminated'.

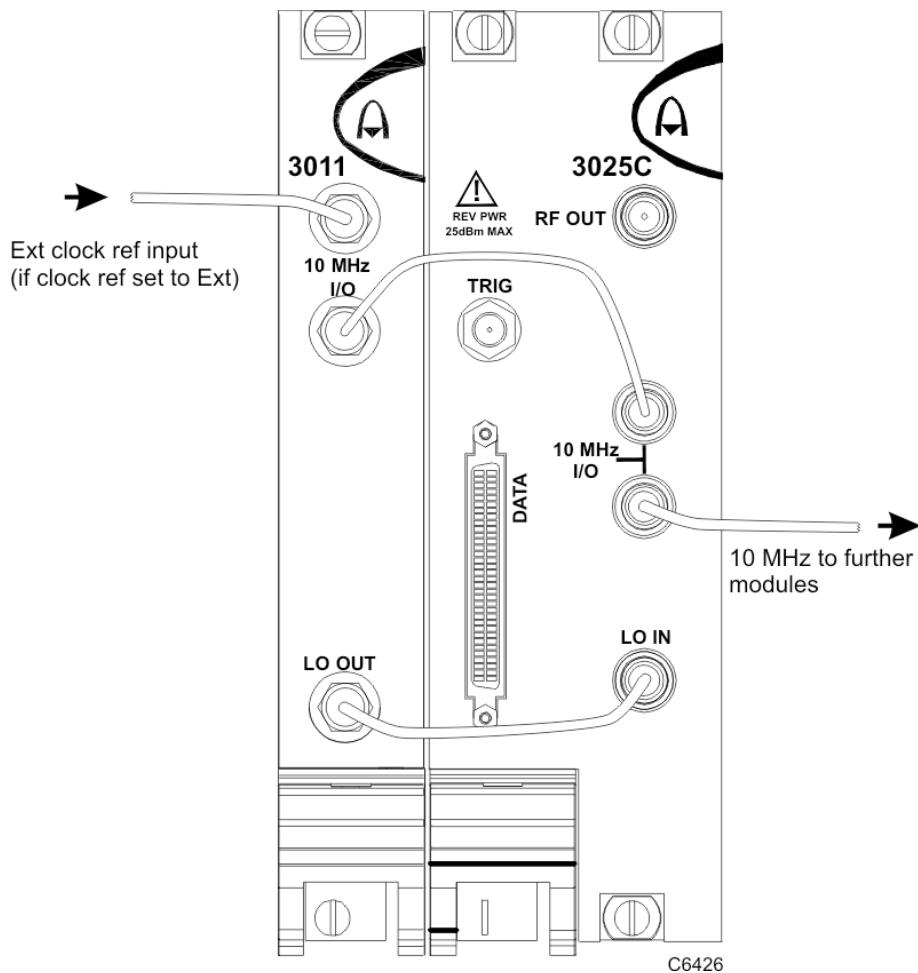


Fig. 6 Example of LO and 10 MHz connections

Hardware driver installation

Windows indicates that it has found new hardware after powering up the PXI chassis and PC. Please note that the exact window that appears during this process may differ depending upon the Windows operating system you are using. These examples are for the 3030 RF Digitizer; they are similar for all Aeroflex modules.



- When the following window appears, press **Next>** to continue with the hardware installation.



- The following window appears. Select 'Search for a suitable driver for my device (recommended)', and then press **Next>**.



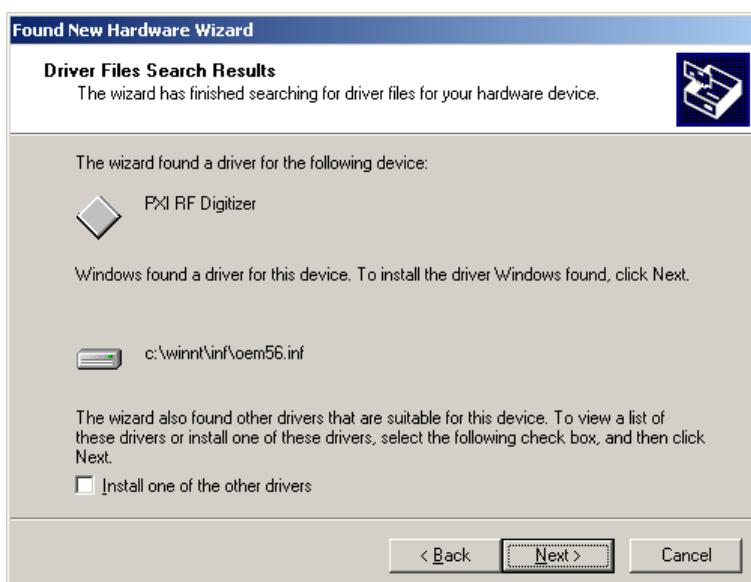
- When the next window appears, select ‘Specify a location’ and then press **Next>**.



- At the next window, select the appropriate location from which to copy the device driver files. This will be the location to which the INF file was installed during the software installation — for example, C:\VXIPNP\WINNT\AF3030.



- The next window indicates that the device driver has been found. To accept this driver, press **Next>**.



- The following window indicates that the hardware installation has completed, at which point you should press **Finish**.



The installation of your PXI module is now complete. Now go to Using the Installed Software.

Removing the module

- 1 Disconnect the power cord.
- 2 Loosen off the captive screws on the module.
- 3 Turn the ejector handle downwards. If you meet resistance, check that the captive screws are free of the tappings in the chassis. Do not force the handle.
- 4 Slide the module carefully from the chassis. If possible, put it back into its protective packaging.

Connector maintenance

Clean connectors regularly, using a cotton bud dipped in isopropyl alcohol. Wipe all accessible surfaces, then use a dry cotton bud to finish off. Check for any deposits.

Do not use other cleaners, as they can cause damage to the plastic insulators within the connectors.

Gage connectors that are frequently connected and disconnected.

Protect unused connectors.

See 'Connecting and torqueing SMA connectors' for important information on correct connector handling.

SMB and SSMB connectors

Use a cotton bud and isopropyl alcohol for the exterior, but due to the reduced size of these connectors, use a compressed-air duster aerosol to clean the interiors of both male and female parts before reconnection.

WARNING

Wear safety glasses for this procedure.

Using the installed software

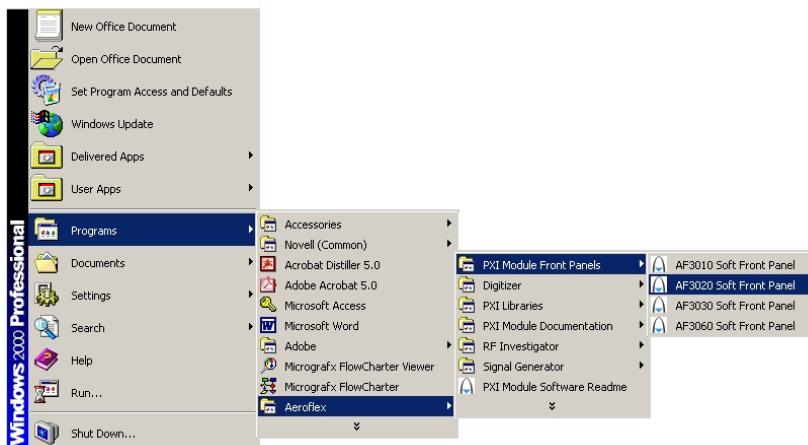
Following installation, and after rebooting the PC, you are ready to access the PXI drivers, soft front panel and documentation.

Running the soft front panel

- With National Instruments Measurement and Automation Explorer (MAX) installed on your PC, you can access the PXI module's soft front panel from there, by selecting Tools\Soft Front Panels from that program's menu bar.

The soft front panel appears in the menu as (for example) *AF3010_SFP - AF3010 Soft Panel*.

- You can also access the soft front panel from the Windows Start menu under *Programs\Aeroflex\PXI Module Front Panels\AF30x0 Front Panel*.



- You can also run the soft front panel from Windows Explorer, by creating a shortcut on the Windows desktop.

Locate the soft front panel executable in the driver installation folder as specified earlier in the driver installation procedure (for example, the 3010 Series soft front panel executable might be in *C:\VXIPNPI\WinNT\laf3010* or similar, named *af3010_sfp.exe*).

Now create a shortcut of this executable on the desktop or run it directly from this folder location.

User manuals

There is a separate user manual for each Aeroflex module. Each manual contains information about installing, connecting and operating the module, an explanation of the soft front panel, and a technical description. All the user manuals are included on the PXI Modules CD-ROM, part no. 46886/028, and are installed by the installer to:

Start\Programs\Aeroflex\PXI Module Documentation

and to the appropriate module folder

C:\vxpnp\winnt\laf3010, ... \laf3020, ... \laf3030, ... \laf3060

or

C:\Program Files\VI Foundation\VISA\winnt\laf3010, ... \laf3020, ... \laf3030, ... \laf3060

Contents of installation folder

In addition to the soft front panel executable program, the installation folder contains other files. The key files are:

<i>af30xx.inf</i>	30xx INF file
<i>af30xx_sfp.exe</i>	30xx soft front panel program
<i>af30xx.c</i>	30xx driver LabWindows/CVI source code
<i>af30xx.fp</i>	30xx LabWindows/CVI function panel file
<i>af30xx.doc</i>	30xx function documentation
<i>af30xx.hlp</i>	30xx Visual BASIC function reference
<i>af30xx_C.hlp</i>	30xx C language function reference
<i>af30xx.h</i>	30xx driver LabWindows/CVI header file
<i>af30xx_const.h</i>	30xx driver constant definitions header file
	Text file
	Windows Help file format
	Installed into C:\IVX\IPnP\WinNT\include (or similar, depending on where VISA is installed on your system — see <i>Installation locations</i>)
	Typically (for example, on a Windows XP system) the installation would be to: C:\Program files\VI Foundation\VISA

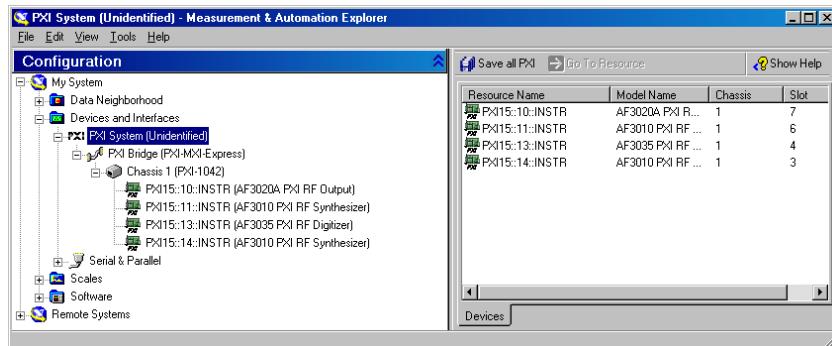
Other installed items

Other items that are installed by the PXI module software installer include RF Digitizer and RF Signal Generator soft front panels, **IQCreator**® waveform creation software and PXI Libraries. Documentation and/or help for these items is included in the installation.

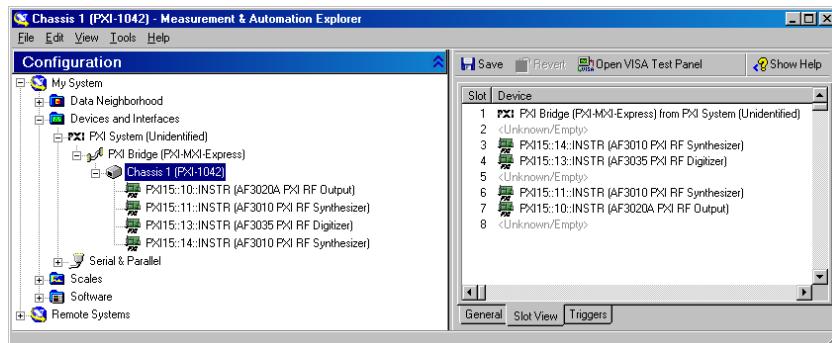
Identifying modules installed in a chassis

National Instruments Measurement and Automation Explorer (MAX) is installed automatically when you install National Instruments hardware drivers or development environments.

MAX allows you to identify modules by their resource string:



or by their slot number in the chassis:



Further information and options are available by right-clicking on individual instruments. Drop-down lists allow you to identify the chassis and other components that you are using.

Further information

Refer to National Instruments MAX documentation for further information on this useful tool. Go to the Help menu in MAX and open the *Measurement & Automation Explorer Help for PXI* by navigating to Help Topics\PXI. Find setup information under the entry *PXI System Configuration*.

The Aeroflex *Installation Guide for Chassis* (document no. 46892/667) is supplied with each chassis on the PXI Modules CD-ROM, part no. 46886/028. It provides an overview of a typical configured PXI system (comprising Aeroflex modules installed in a PXI chassis, together with a PXI controller, drivers and application software) and explains how to set up a populated chassis ready for use.

Cleaning

Before commencing any cleaning, switch off the chassis and disconnect it from the supply. Wipe the front panel of the module using a soft cloth moistened in water, taking care not to wet the connectors. Do not use aerosol or liquid solvent cleaners.

Putting into storage

If you put the module into storage, ensure that the following conditions are not exceeded:

Temperature range: -20 to +70°C (-4 to +158°F)
Humidity: 5 to 93%, non-condensing

Calibration and servicing

The recommended calibration interval for modules is 24 months.

There are no user-serviceable parts in any module; if any attention is needed, return it to your Aeroflex agent.

Rewrapping

If you need to return a module or chassis to us, please observe the following:

Tagging

Tag the returned item(s) with:

- your name and address
- the nature of the repair needed
- the type, model number and serial number.

Shipping containers

Repackage the items in their original container and packing material. If the original shipping containers and materials are not available, contact Customer Service/Support for shipping instructions.

Freight costs

See 'Warranty Packet' for our freight charge policy on warranty claims. Freight costs on shipments out of warranty are borne by the customer.

Rewrapping procedure

If the original container or materials are not available, use a strong double-walled carton packed with a 7 to 10 cm (3 to 4 inch) layer of shock-absorbing material around all sides of the module or chassis to hold it firmly. Protect the front panel with a plywood or cardboard load-spreader. A rear load-spreader is also advisable.

Your labels

It may be necessary for us to cut or remove labels that you have attached to the module if they impede access to its interior.

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PXI Executable Applications	All executable applications supplied with each 3000 Series PXI module including:-
	PXI Studio
	Soft Front Panels (manual operation graphical user interfaces)
	Utilities including: RF Investigator, PXI Version Information and Self Test
PXI Spectrum Analysis Library	The spectrum analysis measurement suite library .dll software supplied with each 3000 Series PXI module
PXI Optional Application Library	Individual measurement suite available from a range of optional .dll application libraries

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