Acqiris U5309A Acquisition Card

2 or 8 channels, 8-bit, 500 MS/s to 2 GS/s, DC to 500 GHz bandwidth, with real-time processing

Start-up Guide
Notices

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Manual Part Number

U5300-90016

Contact us

Feel free to contact Acqiris experts and send an email to support@acqiris.com - Worldwide contact for support or repair.

For any question of inquiry, you can also contact your local office:

Acqiris Americas
contact-americas@acqiris.com

Acqiris Europe
contact-emea@acqiris.com

Acqiris Asia-Pacific
contact-asia-pacific@acqiris.com

Acqiris Japan
contact-japan@acqiris.com
Conventions Used in this Document

The following conventions are used in this document:

**Warning** A WARNING Style 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 Style until the indicated conditions are fully understood and met.

**Caution** A Caution Style 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 Style until the indicated conditions are fully understood and met.

**Note** This is a note, drawing the reader's attention to important information, caveats, etc.

Safety Notes

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

Acqiris 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.

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.

Cards and accessories shall not be connected to humans.

Before performing any maintenance, disconnect the line cord and all test cables. Any part or component replacement must be done by Acqiris.

**Warning** No operator serviceable parts inside. Refer servicing to qualified personnel. To prevent electrical shock do not remove covers.

**Cleaning Precautions**

**Warning** To prevent electrical shock, disconnect the 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.
Product Markings

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

Australian Communication and Media Authority mark to indicate regulatory compliance as a registered supplier.

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).

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.

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 product complies with the WEEE Directive marketing requirement. The affixed product label (above) 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 “Monitoring and Control instrumentation” product. Do not dispose in domestic household waste. To return unwanted products, contact your local Acqiris office.

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.
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Introduction

The scope of this Startup Guide is to detail the processes of receiving and installing the Acqiris U5309A signal acquisition card, installing the required software, and verifying basic card operation.

If you have any questions after reviewing this information, please contact technical support support@acqiris.com.

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 Card

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

Electrostatic Discharge (ESD) Precautions

Electrostatic discharge (ESD) can damage or destroy electronic components. Use a static-safe work station to perform all work on electronic assemblies. A static-safe work station uses, for instance, 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 card, 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 in Acqiris Terms and Conditions available from www.acqiris.com).
Return a Card for Service

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

1. Review the warranty information from Acqiris Terms and Conditions.
2. To obtain a Return Material Authorization (RMA) and return address, contact Acqiris at support@acqiris.com, providing the following information:
   - Product model number (for example: U5309A).
   - Product serial number (for example: AQ00070xxx, US00075xxx or MY00090xxx). The serial number label is located on a sticker:
     - On the top edge of the card, for units shipped after July 2018.
     - On the side panel of the card, for units shipped before July 2018.
     - The serial number can also be read from the Soft Front Panel interface, but only after the hardware and software are installed.
   - Name and address of owner (a P.O. box is not acceptable as a return address).
   - A description of the failure or service requested.

4. Pack the card 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".

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

Step 2: Verify U5309A Shipment Contents

The shipment content and accessories depends on your order.

Please refer to the packing list for details.
Step 3: Install the Software

System Requirements

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Windows</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating system</td>
<td>Windows 10 (32 or 64-bit), all versions</td>
</tr>
<tr>
<td></td>
<td>Windows 7 SP1 (32 or 64-bit)</td>
</tr>
<tr>
<td>Processor speed</td>
<td>1 GHz 32-bit (x86), 1 GHz 64-bit (x64), no support for Itanium 64</td>
</tr>
<tr>
<td>Available memory</td>
<td>1 GB minimum(^1)</td>
</tr>
<tr>
<td>Available disk space</td>
<td>2.5 GB available hard disk space, includes(^2): 1 GB for AcqirisMD3</td>
</tr>
<tr>
<td>Display</td>
<td>Minimum of 1024 x 768, 96 or 120 DPI</td>
</tr>
<tr>
<td>Browser</td>
<td>Use a supported version of Internet Explorer; see <a href="http://support.microsoft.com/kb/969393">http://support.microsoft.com/kb/969393</a></td>
</tr>
</tbody>
</table>

\(^1\) On older PCs with minimum RAM, installation can take a long time when installing the IO Libraries Suite and the .NET Framework.

\(^2\) 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. The .NET Framework Runtime Components are installed by default with most Windows installations, so you may not need this amount of available disk space.

Hardware Requirements

A PC running one of the above operating systems.
Recommended models are: HP Z420, HP Z440, or Dell T5810.

Install the Software

**Keysight IO Libraries Suite (IOLS)**

The Keysight IO Libraries Suite (IOLS) contains the Keysight Connection Expert and is required in order to use the U5309A’s driver. This software must be installed first and is available at [www.keysight.com/find/IOsuite](http://www.keysight.com/find/IOsuite). Follow the installer prompts to install the IO libraries.

**Note** For Keysight IO Libraries Suite, the recommended version is indicated in MD3 release notes.

1. Click the download button
2. Select the executable and save to your computer
3. Run the downloaded installer and follow the installer prompts to install the IO libraries.
Important You should ensure that you have the administrator privileges during installation or that there is no security software preventing installing the software.

ADC Card Software

Important If the Acqiris MD3 Software for Signal Acquisition Cards or Keysight MD2 High-Speed Digitizer Software is installed on your computer, first uninstall it before installing the new software version.

Acqiris MD3 Software for Signal Acquisition Cards contains the new AqMD driver for your U5309A and replaces Keysight MD2 High-Speed Digitizer Software with AgMD2 driver.

- If you are a new user of the U5309AADC Card or if you are starting a new project, we recommend to install and use Acqiris MD3 software.
- If you already started your project with the previous AgMD2 driver, you can download and install Keysight MD2 High-Speed Digitizer Software from: https://www.keysight.com/main/software.jspx?ckey=2364464. In this case, please refer to the associated documentation available with MD2 installer (Startup guide, User's manual, etc...).

Acqiris MD3 Software for Signal Acquisition Cards includes device drivers (IVI-C, IVI.NET)\(^1\) and documentation:

1. Download Acqiris MD3 from Acqiris Extranet.
2. After downloading Acqiris MD3 Software for Signal Acquisition Cards, double click on the executable to launch the installer.
3. 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.
4. After installation is complete, please shut-down the PC.

Step 4: Install the Card

1. Ensure that the PC is switched off, and disconnect the power cord. Open the PC case.

Caution Follow ESD precautions when handling and installing the U5309A.

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\(^1\) The drivers IVI.COM AqMD2 and IVI-C AqMD2, based on previous AgMD2 driver, are available but are no recommended for new designs or new projects. (See C:\Program Files(Or your installation path)\IVI Foundation\IVI\Drivers\AqMD2).
Step 4: Install the Card

**Caution** Be careful there is no mechanical part of the PC that could damage the power adaptor cable.

2. The U5309A features a x8 PCIe bus interface, and should be installed in either a x8 or x16 PCIe slot.
3. When installing the U5309A, ensure that it has optimum cooling. Do not install it in a position where the integrated cooling fans may be obstructed.
4. The card requires an additional auxiliary 4-pin power connection to the white connector at top edge of the card. If your PC has a free 'floppy drive power' connector, simply attach this.
   
   If your PC does not have a free connector of this type you may use one of the two supplied adapters.
   - If your PC has spare 4-pin Molex power connectors, use the supplied adapter 8121-2531. Note that this 12V power cable if for use with U5309A only.
   - If your PC only has the newer SATA power connectors, use the supplied adapter 8121-2533.

5. Replace any covers and switch-on the PC. Check the card front panel indicators - a few seconds after the boot process, both the 'Status' and 'DPU' LEDs should be green.

**Caution** The SATA power adaptor (8121-2533) should be connected to a single card in order to guaranty the correct power supply and behavior of the ADC Card.

**Caution** When disconnecting the auxiliary power cable, it is important to push it away from the PCB side of the U5309A in order to disengage the friction lock. Failure to do this could cause the card side of the connector to be withdrawn at the same time thus damaging it.
The U5309A is optionally supplied with a card retainer (included if ordered as U5300A-001, or available separately by ordering stand alone extender). The card retainer is able to pick up on slots at the end the full-length PCIe slot and provide additional support for the card. Use of this card retainer is highly recommended, in particular when the PC motherboard is oriented vertically. However, if your PC hardware does not provide end slots, the card retainer may be removed from the card.

Fitting the card with the optional card retainer into your PC

1. Loosen (but do not remove) the screw (A) holding the rear card retainer, and slide it towards the fans. Note that there are screws only on one side: there is no screw on the bottom side.
2. Insert the card into the PCIe slot of the PC, ensuring that it is fully seated into the PCIe bus connector.
3. Fix the card to the PC either by fitting a screw, or by using a method compliant with your PC model.
4. Fully extend the card retainer and ensure that it is inside the PC chassis support slot.
5. Tighten the screw (A) (0.5 Nm torque).

If the PC is a T5810, the PCIe-card retention (support slots) has to be removed and adapted by removing two of the extension blocks before inserting the U5309A. For details, please contact technical support support@acqiris.com.
Step 4: Install the Card

Diagram showing fan/support assembly fixings (U53xxA shown as example).

Installing the card retainer (if you have order your product with a card retainer)

1. Slide the card retainer onto the fan card and fit screw (A) to the top of the retainer.

Removing the card retainer

1. Remove the screw (A in the figure).
2. Withdraw the card retainer.

Reversing the orientation of the fan assembly

It is also possible to reverse the orientation of the fan assembly, for instance in the case that two cards must be placed in adjacent slots, or other PC hardware obstructs the fitting. This procedure is detailed below.

1. Remove the two screws (B) from the cover maintaining the cables (see picture above).
2. Remove the cover and lift up the cables to access the screws (C) below (see pictures below).
3. Remove the four screws (B) nearest to the front of the fan unit.
4. Carefully, slide the fan unit approximately 15 mm to the rear until it clears the circuit board, disconnect the power cables, and rotate the fan unit by 180°.
5. Reconnect the power cables.
6. Slide the fan unit back towards the card until it is fully seated into the support slots.
7. Refit the four screws (B), push the fan unit upwards away from the circuit board and tighten the four screws (0.5 Nm torque).
8. Put back the cables and the cover.
9. Refit the four screws (C).
U5309A Front Panel Features

Front Panel Connectors

<table>
<thead>
<tr>
<th>Connector</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRG IN</td>
<td>MMCX female</td>
<td>External trigger signal input, 50 Ω terminated. Level range is ±5 V.</td>
</tr>
<tr>
<td>IN 1 to IN 2 ¹ 1 to 8 ²</td>
<td>SSMC male</td>
<td>Analog signal input. DC-coupled and 50 Ω terminated. Maximum input voltage ±3.4 V DC (or ±5 V DC)³.</td>
</tr>
<tr>
<td>JTAG</td>
<td>Micro USB</td>
<td>Provides connection to the DPU for use with the U5340A FPGA Development Kit.</td>
</tr>
<tr>
<td>TRG OUT</td>
<td>MMCX female</td>
<td>Trigger Out signal.</td>
</tr>
<tr>
<td>I/O 1, 2, 3</td>
<td>MMCX female</td>
<td>User configurable Input/Output signal. 3.3 V CMOS and TTL compatible.</td>
</tr>
<tr>
<td>CLK IN</td>
<td>MMCX female</td>
<td>External clock input. AC coupled and 50 Ω terminated. Signal level: +5 to +15 dBm. Please refer to datasheet for details.</td>
</tr>
<tr>
<td>REF IN</td>
<td>MMCX female</td>
<td>External reference clock input. AC coupled and 50 Ω terminated. It can accept a 100 MHz signal from -3 to +3 dBm.</td>
</tr>
</tbody>
</table>

Note: It is recommended to first connect the SSMC end of the input cable and tighten using the torque wrench (U1092A-WCK) before connecting the SMA end. This minimizes strain on the connector. A 1 m SSMC to SMA cable is available as an accessory (U1092A-CB3) A 1 m SSMC to BNC cable is also available (US300A-100).

¹For the 2 channels version (U5309A-CH2 option)  
²For the 8 channels version (U5309A-CH8 option)  
³For cards delivered after April 2015. The driver automatically adjusts offset accordingly.
**Front Panel LEDs**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Purpose</th>
<th>Color</th>
<th>State</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPU</td>
<td>DPU status</td>
<td>Off</td>
<td></td>
<td>DPU is not configured</td>
</tr>
<tr>
<td></td>
<td>Green, blinking</td>
<td></td>
<td></td>
<td>card initialization in progress</td>
</tr>
<tr>
<td></td>
<td>Green</td>
<td></td>
<td></td>
<td>card OK (firmware not yet loaded)</td>
</tr>
<tr>
<td></td>
<td>White</td>
<td></td>
<td>DPU firmware loaded (ready)</td>
<td></td>
</tr>
<tr>
<td>STATUS</td>
<td>card status</td>
<td>White, blinking</td>
<td>Firmware initialization in progress</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Green, blinking</td>
<td></td>
<td></td>
<td>card initialization in progress</td>
</tr>
<tr>
<td></td>
<td>Orange, blinking</td>
<td></td>
<td>Warning</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Red, blinking</td>
<td></td>
<td>Error</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Green</td>
<td></td>
<td>OK (ready)</td>
<td></td>
</tr>
</tbody>
</table>

**Note** If warning or error status is observed, please try the following steps:

- Power-cycle the PC (If using a PCIe expansion chassis, observe the power sequence requirements).
- If the error persists please contact technical support support@acqiris.com.

**Step 5: Verify Operation of the U5309A Card**

**Keysight Connection Expert**

The intention of this step is to verify correct operation of the newly installed card. Run **Keysight Connection Expert** by clicking the task bar icon 🕵️‍♂️, and select **Connection Expert**.

The list of installed cards is displayed. The instrument properties may be viewed by clicking on the desired instrument from the list on the left.

Review the configuration data and then click on **Start soft front panel** to launch the **MD3 Soft Front Panel**. This will provide control of the card for calibration, test and other operational verification procedures.
Step 5: Verify Operation of the U5309A Card

If the card does not appear in the Keysight Connection Expert, first try the Rescan button. If that does not work, restart your PC or embedded controller and restart Keysight Connection Expert again.

A verification utility may be launched by selecting **Start Soft Front Panel**, which starts the **AgMD3Verify** utility.

### Driver Graphical Interface: MD3 Soft Front Panel

The AqMD3 IVI driver provides access to the functionality of AqMD3 ADC cards through a .NET or ANSI C API which also complies with the IVI specifications.

The AcqirisMD3 SFP (Soft Front Panel) is a graphical interface for signal acquisition card drivers that enables the control of any supported ADC Cards.

The MD3 SFP can be launched from the **Windows Start Menu > Acqiris>MD3>AcqirisMD3 SFP**.

The **Connection window** opens with the selection of the ADC Card to monitor. After selecting your ADC Card, click **Connect**. For details, please refer to **MD3 SFP Help**.
Step 5: Verify Operation of the U5309A Card

Perform a Verification of the U5309A (optional)

Requirements for Verification

The correct operation of the U5309A may be verified by the use of a simple application which carries out several performance checks on a signal acquired from an external Function Generator.

Required Hardware

An external signal source is required. Almost any sine wave or function generator capable of generating a signal with an amplitude of 300 mV rms into 50 Ω at a frequency of 1 MHz may be used.

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF Analog Signal Generator</td>
<td>e.g. Keysight N5181B</td>
</tr>
<tr>
<td>SSMC cable</td>
<td>50 Ω Coaxial cable with SSMC(f). A 1 m SSMC to SMA cable is available as an accessory (U1092A-CB3)</td>
</tr>
</tbody>
</table>

Operational Verification Procedure

Caution: Do not exceed the maximum voltage level at the INPUT connector (±3.4V DC or ±5V DC for cards delivered after April 2015)
Step 5: Verify Operation of the U5309A Card

1. Configure the RF Generator to produce a Sine signal with a Frequency of 1.0 MHz, an Amplitude of 300 mV rms (+2.55 dBm).
2. Connect the Signal Generator output to the IN 1 connector, and turn on the output.
3. For Windows users, launch the AqMD3Verify utility from Windows Start Menu > Acqiris > MD3> AqMD3Verify.

A command shell window will open.

Select the instrument PXI address, then Press any key to start the test.

4. Check that all the test results are OK.

**Note** AqMD3Verify utility checks the version of the Control FPGA firmware. If the version is not up-to-date, the tool will automatically propose to update the firmware using the "Firmware Update Utility". Once the Control FPGA firmware has been updated successfully, please power off your computer and restart it again for the update to take effect. You may then proceed with the AqMD3Verify utility as described in this section.

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 cable. This can be done with an oscilloscope.
3. Verify that the problem is reproducible.
4. please contact technical support support@acqiris.com.
Related Documentation

If you have run the Acqiris MD3 software installer on your PC, this Startup Guide and the related product documentation listed below have been installed to your hard drive. The documents listed below are also available for download from Acqiris Extranet.

<table>
<thead>
<tr>
<th>Document</th>
<th>Description and location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Startup Guide</td>
<td>Includes procedures to help you to unpack, inspect, install (software and hardware), perform instrument connections, verify operation, and troubleshoot your product. C:\Program Files\Acqiris\MD3\Documentation\U5309A\U5309A_StartupGuide.pdf or from Startup Menu &gt; Acqiris &gt; MD3 &gt; Documentation &gt;U5309A &gt; U5309A_StartupGuide</td>
</tr>
<tr>
<td>User Manual</td>
<td>Provides in-depth information and reference material specific to your product. C:\Program Files\Acqiris\MD3\Documentation\U5309A\U5309A_UserManual.chm or from Startup Menu &gt; Acqiris &gt; MD3 &gt; Documentation &gt;U5309A &gt; U5309A_UserManual</td>
</tr>
<tr>
<td>Data Sheet</td>
<td>In addition to a detailed product introduction, the data sheet supplies full product specifications. C:\Program Files\Acqiris\MD3\Documentation\U5309A\U5309A_Datasheet.pdf or from Startup Menu &gt; Acqiris &gt; MD3 &gt; Documentation &gt;U5309A &gt; U5309A_Datasheet</td>
</tr>
<tr>
<td>Soft Front Panel (help system)</td>
<td>Provides information on the use of the driver Soft Front Panel. C:\Program Files\Acqiris\MD3\Documentation\MD3_SFP_Help.chm or from Startup Menu &gt; Acqiris &gt; MD3 &gt; Documentation &gt; MD3_SFP_Help</td>
</tr>
<tr>
<td>IVI Driver reference (help system)</td>
<td>Provides detailed documentation of the IVI-COM and IVI-C driver API functions, as well as information to help you get started with using the IVI drivers in your application development environment. IVI-C: C:\Program Files\IVI Foundation\IVI\Drivers\AqMD3\AqMD3.chm or from Startup Menu &gt; Acqiris &gt; MD3 &gt; Documentation &gt; AqMD3-C Driver &lt;version#&gt; Documentation IVI.NET: C:\Program Files\IVI Foundation\IVI\Drivers\AqMD3\Acqiris.AqMD3.Fx40.chm.lnk or from Startup Menu &gt; Acqiris &gt; MD3 &gt; Documentation &gt; AqMD3 IVI.NET Driver &lt;version#&gt; Documentation</td>
</tr>
</tbody>
</table>

Programming information

The AqMD3 IVI driver provides access to the functionality of AqMD3 ADC cards through a .NET or ANSI C API which also complies with the IVI specifications.

IVI-C Driver development environments

The AqMD3 IVI-C driver can be used in Visual C++ or MATLAB development environment.
IVI.NET Driver development environments

The AqMD3 IVI.NET driver can be used in Visual C#, Visual C++/CLI or Visual Basic.NET development environment.

Program examples

Once that Acqiris MD3 software is installed, program examples can be found in C:\Program Files\IVI Foundation\IVI\Drivers\AqMD3\Examples

\(^1\) (Or your installation path)