

# **Agilent U2781A USB Modular Instrument Chassis**

## **Quick Start Guide**



**Agilent Technologies**

## Safety Information

This data acquisition device is safety-certified in compliance with:

- IEC 61010-1:2001/EN 61010-1:2001
- USA: UL61010-1: 2004
- Canada: CSA C22.2 No. 61010-1:2004

### 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.**

### 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

- **Do not use the device if it is damaged. Before you use the device, inspect the case. Look for cracks or missing plastic. Do not operate the device around explosive gas, vapor or dust.**
- **Do not apply more than the rated voltage (as marked on the device) between terminals, or between terminal and external ground.**
- **Always use the device with the cables provided.**
- **Observe all markings on the device before connecting to the device.**
- **Turn off the device and application system power before connecting to the I/O terminals.**
- **When servicing the device, use only specified replacement parts.**
- **Do not operate the device with the removable cover removed or loosened.**
- **Do not connect any cables and terminal block prior to performing self-test process.**

### CAUTION

- Do not load the output terminals above the specified current limits. Applying excessive voltage or overloading the device will cause irreversible damage to the circuitry
- Applying excessive voltage or overloading the input terminal will damage the device permanently

## Safety Symbols



Direct current



Caution, risk of danger (Refer to U2781A User's Guide for more details)

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## Regulatory Markings



The CE mark shows that the product complies with all the relevant European legal Directives (if accompanied by a year, it signifies when the design was proven).



The CSA mark is a registered trademark of the Canadian Standards Association. A CSA mark with the indicators "C" and "US" means that the product is certified for both the U.S. and Canadian markets, to the applicable American and Canadian standards.



The UL Mark is a registered trademark of Underwriters Laboratories Inc. UL listing mark with the indicators "C" and "US" indicates the product compliance with both Canadian and U.S. requirements.



The C-tick mark is a registered trademark of the Spectrum Management Agency of Australia. This signifies compliance with the Australian EMC Framework regulations under the terms of the Radio Communications Act of 1992.



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

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**ICES/NMB-001**

This ISM device complies with the Canadian ICES-001.

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For further information on safety, refer to **Safety Information** in the *Agilent U2781A Modular Instrument Chassis User's Guide*.



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## Introduction

This quick start guide provides an overview of the product description and connections of the Agilent U2781A USB modular instrument chassis. This includes the product specifications and software installation.

The U2781A USB modular instrument chassis is a 4U height with six USB module slots. It is a portable chassis with high performance added value. It targets a wide range of applications in both industrial and scientific environments. It helps you lower your cost of test and accelerate your test system integration and development.

The Agilent U2781A comes with USB plug and play connectivity.

## Checking the Contents

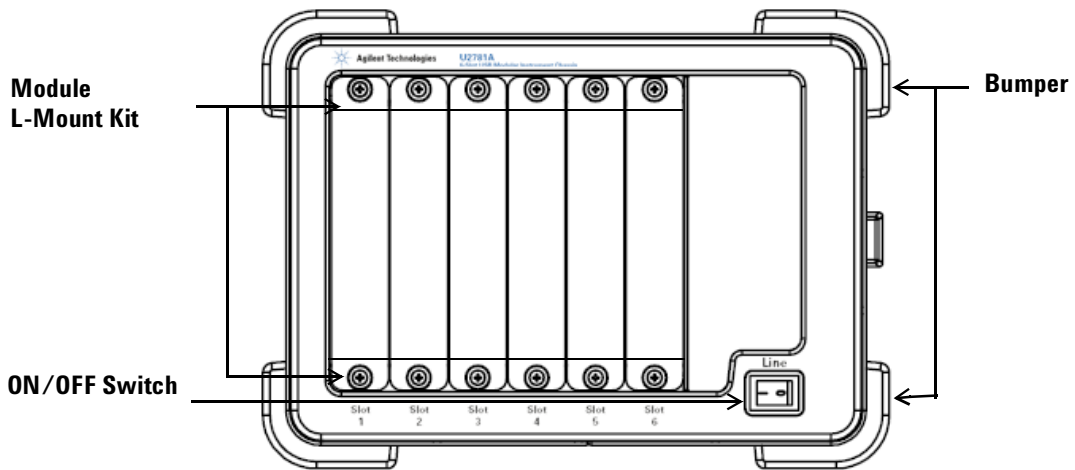
Inspect and verify the following items for the standard purchase of U2781A USB modular instrument chassis:

- Power cord
- USB extension cable
- Quick start guide
- Product Reference CD- ROM
- Agilent Automation- Ready CD
- Functional Test Certificate

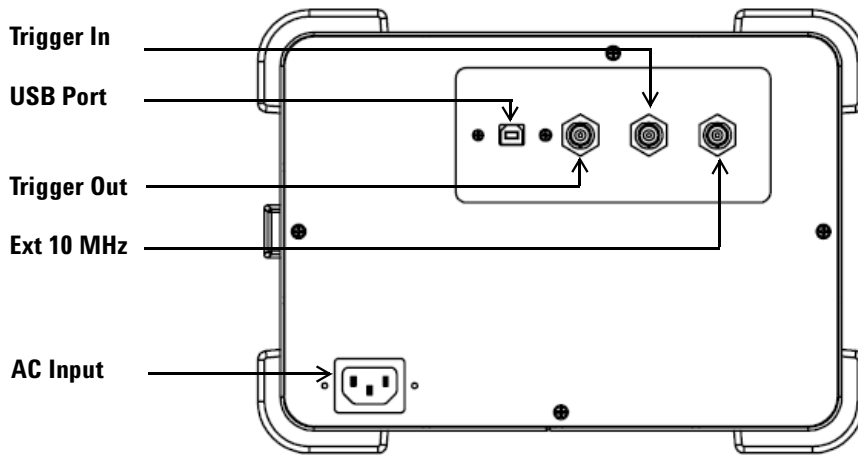
If there are missing items, contact the nearest Agilent Sales Office.

# Product Outlook

## FRONT VIEW



## REAR VIEW



## General Specifications

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### REMOTE INTERFACE

- USB 2.0 High speed
- USBTMC Class Device

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### POWER CONSUMPTION

- 400 VA maximum

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### OPERATING ENVIRONMENT

- Operating temperature from 0 °C to +55 °C
- Relative humidity at 15% to 85% RH (non-condensing)
- Altitude up to 2000 meters

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### STORAGE COMPLIANCE

- -20 °C to 70 °C

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### SAFETY COMPLIANCE

Certified with:

- IEC 61010-1:2001/EN 61010-1:2001 (2nd Edition)
- USA: UL61010-1: 2004
- Canada: CSA C22.2 No.61010-1:2004

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### EMC COMPLIANCE

- IEC/EN 61326-1 1998
- CISPR 11: 1990/EN55011:1991, Class A, Group 1
- CANADA: ICES-001: 1998
- Australia/New Zealand: AS/NZS 2064.1

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### ACOUSTIC EMISSION

- Sound pressure level: 45.5 dB(A)
- Sound power level: 56.6 dB(A)

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### SHOCK & VIBRATION

- Tested to IEC/EN 60068-2

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### DIMENSION (WxDxH)

- 270.00 mm x 271.20 mm x 197.00 mm

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### WEIGHT

- 3.7 kg

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### WARRANTY

- One year
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## Electrical Specifications

Power Supply AC Input	
Input voltage range	100 to 240 VAC
Input frequency range	50 to 60 Hz
Input current rating	3.5 A/115 VAC; 1.7 A/230 VAC
Efficiency	75%
Power Supply DC Output	
Output rated voltage	12 VDC
Max output rated current	16.7 A
Max output rated power	200 W
Over voltage protection	13.2 to 16.2 V

Internal 10 MHz Reference Clock	
Accuracy	25 ppm for operating range
Slot to slot skew	350 ps
External 10 MHz Reference Clock	
Auto detection level	Yes
Input frequency range	10 MHz
Input magnitude	100 mVpp to 5 Vpp (sine/square wave)
Input impedance	50 $\Omega$ $\pm$ 5 $\Omega$
Damage level	10 Vrms
External Trigger In	
Compatibility	TTL
V <sub>IH</sub> (Positive threshold voltage)	2.0 V
V <sub>IL</sub> (Negative threshold voltage)	0.8 V
Hold time	8 ns pulse width
Input voltage range	0 to 5.0 V
Slot to slot skew	350 ps
External Trigger Out	
V <sub>OH</sub>	2.9 V
V <sub>OL</sub>	0.1 V
Output voltage range	0 to 3.3 V

## Mechanical Specifications

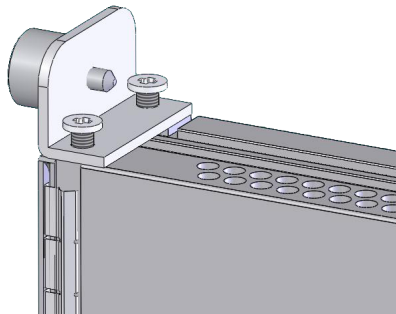
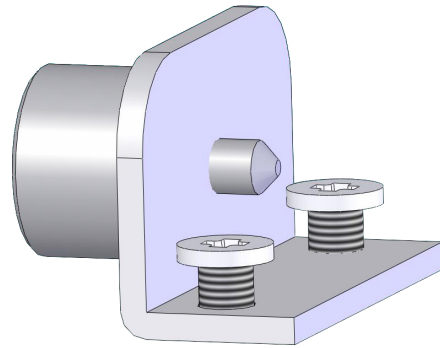
<b>Physical Layout</b>	
Number of USB module slots	6
Dimension of each module slot (WxDxH)	25.40 mm x 174.54 mm x 105.00 mm
Dimension of chassis (WxDxH)	270.00 mm x 271.20 mm x 197.00 mm
Weight	3.7 kg
Power LED	ON/OFF type
<b>USB Backplane</b>	
Connector	55 pins Ernet male type C
Input signals	External 10 MHz clock in (BNC connector) External trigger in (BNC connector)
Output signal	Trigger out (BNC connector)
<b>Cooling Fan</b>	
Number of fans	2 (at the bottom of the chassis)
Fan speed	3300 rpm $\pm$ 10 %
Noise	37 dB(A)
Power (each fan)	2.52 W

## L-Mount Kit Installation

In order to slot in the DAQ module into the U2781A USB modular instrument chassis, you need to fix the L-Mount kit on both sides of the U2300A series DAQ. The L-Mount kit is provided when you purchase the U2300A series DAQ.

Follow the two simple step by step instructions to install the L-Mount kit to the U2300A series DAQ. The instructions in page 11 shows how a DAQ module is slot into the USB modular chassis.

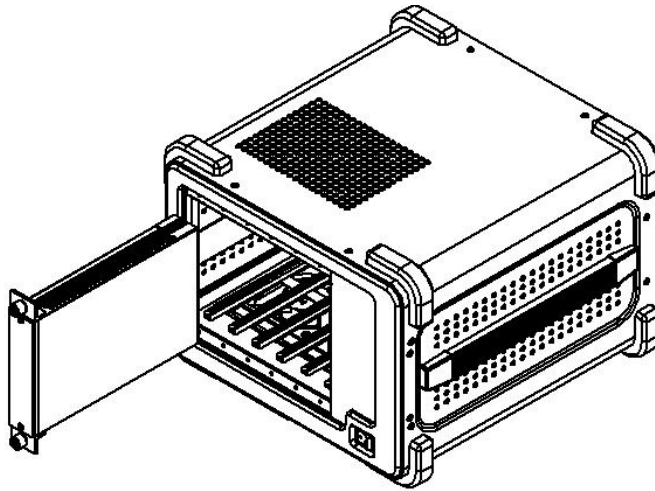
- Step 1**  
- Use both the L-Mount kit that are provided with the DAQ module.



- Step 2**  
- Tighten the L-Mount kit on both sides of the USB DAQ module.

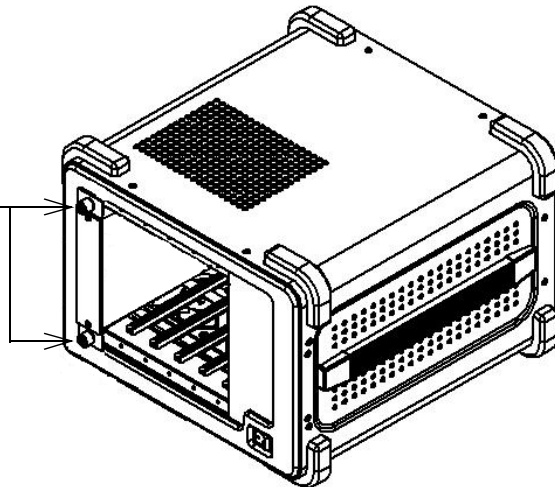
## Modular Chassis Installation

Figures below show the installation of the USB DAQ module into the U2781A modular instrument chassis. Follow the arrows shown below.



Slot in the module DAQ into the modular chassis. Make sure that the 55-pin backplane connector is at the bottom.

Secure both the thumb screws onto the modular chassis.



## Installation

### System Requirements

Prior to installing the Agilent Measurement Manager software and the USB DAQ driver, make sure your PC meets the following minimum system requirements:

**Processor** 500 MHz Pentium III or higher required (1 GHz is recommended)

**Operating system** Windows 2000/XP

**Browser** Microsoft Internet Explorer 5.01 or higher

**Available RAM** 256 MB or higher is recommended

**Hard disk space** 40 GB

**Pre-installation** The Agilent IO Libraries Suite version 14.2 or higher is recommended. If possible, always use the latest version of the Agilent IO Libraries Suite. Alternatively, you can install the Agilent IO Libraries Suite with the required version directly from the accompanying *Agilent Automation-Ready CD*.

#### NOTE

For more information, refer to the Agilent IO Libraries Suite Getting Started Guide at <http://www.agilent.com/find/iolib>.

## USB DAQ Driver

### NOTE

- The USB DAQ driver only compatible with Windows 2000 and Windows XP. You are required to install the DAQ driver at least once. If you have installed the DAQ driver when using the U2300A series USB DAQ, you do not need to install it again.
- Ensure that all devices are disconnected from PC before installing the driver.

Please ensure that Agilent IO Libraries Suite is installed before proceeding.

- 1** Unpack the U2781A USB modular instrument chassis.
- 2** Ensure that the U2781A USB modular instrument chassis is disconnected from your PC.
- 3** Insert the *Product Reference CD-ROM* into the CD-ROM drive.
- 4** Installer will automatically execute the Agilent U2300 Series Installation menu. Click **Hardware Driver** to begin the installation of USB DAQ driver.
- 5** If it does not auto execute, go to **Start > Run** and type <drive>:\Driver\Hardware\setup\_hw.exe, where <drive> is your CD-ROM drive. Click **OK** to begin installation.
- 6** Install the USB DAQ driver and click **Finish** when installation completed.
- 7** Connect the upstream USB port of the Agilent U2781A modular instrument chassis to any PC USB downstream ports (USB 2.0) with the bundled USB cable.
- 8** The Agilent U2781A USB modular instrument chassis is now ready for usage.

## Installation of Agilent Measurement Manager software

### NOTE

- Verify that your PC meets the minimum requirements as stated in [System Requirements](#).
- You do not need to install the Agilent Measurement Manager software again if you have previously purchased and installed the U2300A series USB DAQ.

- 1** Close all other applications on your PC. Insert the *Product Reference CD-ROM* into your CD-ROM drive.
- 2** Click **Measurement Manager** on the Agilent U2300 Series Installation menu to begin the installation of Agilent Measurement Manager software.
- 3** If the installation menu does not appear after a few seconds, select **Start > Run** (on the Windows Start menu) and type <drive>:\autorun.exe, where <drive> is your CD-ROM drive.
- 4** Click **OK** to begin installation.
- 5** A shortcut for this software will be created on your desktop after the Agilent Measurement Manager software is successfully installed.

### NOTE

USING THE LICENSED MATERIALS INDICATES YOUR ACCEPTANCE OF THE LICENSE TERMS. IF YOU DO NOT AGREE TO ALL OF THESE TERMS, YOU MAY RETURN ANY UNOPENED LICENSED MATERIALS FOR A FULL REFUND. IF THE LICENSED MATERIALS ARE BUNDLED OR PRE-LOADED WITH ANOTHER PRODUCT, YOU MAY RETURN THE ENTIRE UNUSED PRODUCT FOR A FULL REFUND.





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