

U2781A USB Modular Product Chassis

Introduction

The Keysight U2781A USB modular product chassis is a high-performance 4U chassis that comes with a 200 W universal AC power supply and a built-in protection circuit. This portable chassis can house up to six Keysight USB modular products. The U2781A targets a wide range of applications in both industrial and scientific environments in the research and development (R&D), design-validation, and manufacturing fields. The primary advantage of this chassis is its synchronization capability between modules. This can help you to lower your cost of testing and accelerate your test system integration and development.

The U2781A is equipped with an internal 10 MHz reference clock for each module slot. There are two temperature sensors to monitor the internal temperature and a built-in fan to maintain the internal temperature. The trigger bus enables the USB modular products to trigger signals to each other.



Features

- Internal and external 10 MHz reference clock
- Simultaneous Synchronization Interface (SSI)
- Star trigger
- External trigger-in and trigger-out signals
- Temperature and fan speed monitoring
- Compatible with Hi-Speed
- USB 2.0 and USBTMC-USB488 standard
- Rackmount kit available as an option

Supported Product

The chassis supports the following USB modular products:

- USB modular data acquisition (DAQ) including:
 - U2300 Series USB modular multifunction DAQ devices
 - U2500 Series USB modular simultaneous sampling multifunction DAQ devices
 - U2600 Series USB modular isolated digital I/O devices
- USB modular instruments including:
 - U2701A/U2702A USB modular oscilloscope
 - U2722A/U2723A USB modular source measure unit
 - U2741A USB modular digital multimeter
 - U2751A USB modular switch matrix
 - U2761A USB modular function/arbitrary generator

High-density data acquisition

The U2781A chassis increases the number of available channels when any U2300 Series, U2500 Series, or U2600 Series products are slotted into the chassis. For example, when you slot six U2331A Series products in the chassis, it allows for an expansion of up to 384 channels, providing a high-density data acquisition solution.

Internal and external 10 MHz reference clock

The U2781A is equipped with a 10 MHz reference clock. It is used to synchronize the timebase of the USB modular products slot into the chassis for more precise measurements.

Simultaneous Synchronization Interface (SSI)

SSI provides synchronization between the modular products in the chassis by allowing the modules to be configured as Primary or Secondary. Please refer to the Keysight U2781A USB Modular Product Chassis User's Guide for more information.

Triggering using Star trigger bus

The U2781A comes with a Star trigger bus, which offers precise synchronization between USB modular products and the external trigger signal. The star trigger bus provides dedicated trigger lines between the external trigger input and slotted USB modules. You can also achieve precise triggering between each USB modular product via the synchronized routing of the star trigger.

System option

The U2781A USB modular product chassis has a mountable rackmount kit, which can be ordered separately (see "Optional Accessories" on page 8). This allows for a better setup when the U2781A is integrated into a test system.

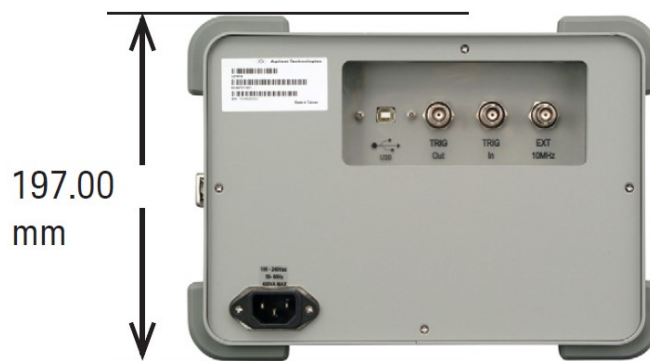


Product outlook and dimensions

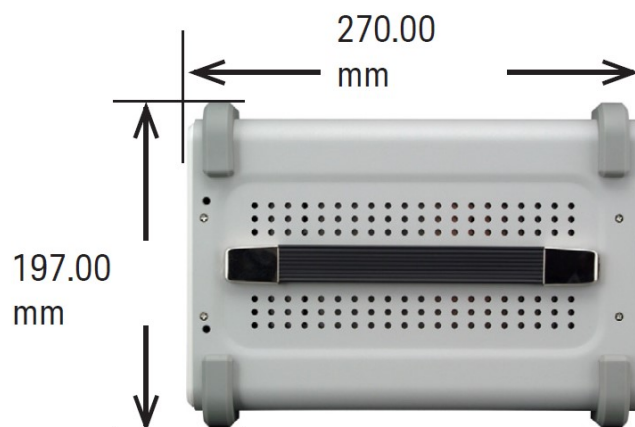
Front View



Rear View



Top View



Product Characteristics and General Specifications

General Specifications	
Remote Interface	<ul style="list-style-type: none"> • Hi-Speed USB 2.0* • USBTMC-USB488¹
Power Consumption	<ul style="list-style-type: none"> • 400 VA maximum • Installation Category II
Operating Environment	<ul style="list-style-type: none"> • Operating temperature from 0 °C to +55 °C • Operating humidity at 15% to 85% RH (non-condensing) • Altitude up to 2000 meters • Pollution Degree 2 • For indoor use only
Storage Compliance	-20 °C to 70 °C
Safety and EMC Compliance	Refer to Declaration of Conformity for the latest revisions of regulatory compliance
Acoustic Emission	<ul style="list-style-type: none"> • Sound pressure level: 45.5 dB(A) • Sound power level: 56.6 dB(A)
Shock and Vibration	Tested to IEC/EN 60068-2
Dimension (W ×D × H)	270.00 mm × 271.20 mm × 197.00 mm (with bumpers)
Weight	3.7 kg (without any modules slotted in)

¹ Compatible with Microsoft Windows operating systems only.

Note: If remote connections are necessary, a E5813A USB/LAN hub can be used. Please go to the product's user guide for more information.

Electrical & Mechanical Specifications

Electrical Specifications	
Power supply AC input	
Input voltage range	100 to 240 VAC
Input frequency range	50 to 60 Hz
Power consumption	400 VA maximum
Efficiency	75%
Power supply DC input	
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	Slot to slot skew
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 Ω \pm 5 Ω
Damage level	10 Vrms
External trigger in	
Compatibility	TTL
VIH (Positive threshold voltage)	2.0 V
VIL (Negative threshold voltage)	0.8 V
Hold time	8 ns pulse width
Input voltage range	0 V to 5.0 V
Slot to slot skew	350 ps
External trigger out	
VOH	2.9 V
VOL	0.1 V
Output voltage range	0 V to 3.3 V

Mechanical Specifications	
Physical layout	
Number of USB module slots	6
Dimension of each module slot	25.40 mm (W) x 174.54 mm (D) x 105.00 mm (H)
Dimension of chassis	270.00 mm (W) x 271.20 mm (D) x 197.00 mm (H)
Weight	3.7 kg
Power LED	ON/OFF type
USB backplane	
Connector	55-pin Ethernet male type C
Input signals	External 10 MHz clock in (BNC connector) External trigger in (BNC connector)
Output signal	Trigger out (BNC connector)
Cooling fan	
Number of fans	2
Fan speed	3300 rpm \pm 10%
Noise	37 dB(A)
Power (each fan)	2.52 W