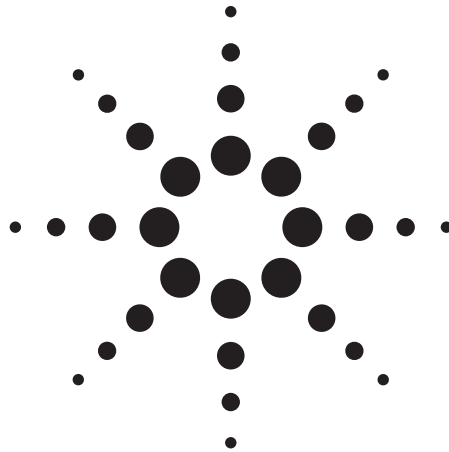


# Agilent Technologies 81200 Data Generator/Analyzer Platform

Configuration guide  
Release 3.5X



**Simplify your verification and characterization process**



**Agilent Technologies**

# Agilent 81200 The 81200 Data Generator/ Analyzer Platform Configuration Guide Release 3.5x

## Simplify your verification and characterization process

The Agilent Technologies 81200 Data generator/analyzer platform The Agilent 81200 is a modular platform consisting of front-ends, modules, mainframes and software, which can be tailored to your specific test needs. This guide aims to help you choose the right components. In this context, some fundamental possibilities in configuring the system must be considered. These depend on how you want to integrate the Agilent 81200 into your test environment.

The 81200 can be used as a "proprietary system" which means that the 81200 will not be combined with other VXI modules in a standard VXI system. It can however, be controlled by a LAN or a GPIB interface.

The Agilent 81200 modules are combined with other VXI modules then an "open VXI system" (the standard VXI system), is achieved.

## STEP 1: Selecting the number of channels required

Slide 1 & 2 show that three different generator front-ends and three different analyzer front-ends are available.

To select the correct front-end, the following should be checked:

- speed
- data format
- levels
- memory depth

Please note that the low speed front-ends have two outputs or two inputs and support a maximum memory depth of 512 Kb per channel. This is 256kb only, if on the analyzers mask (don't care) bits are used.

Any SMA cables are not included. For more details, consult the Agilent 81200 Data Generator /Analyzer Platform, data sheet, p/n 5965-3415E.

## STEP 2: Choosing the modules The generator and analyzer front-ends can be fitted together as follows (slide 3 and 4):

- Any mix into the Agilent E4841A Data Module can fit with Dual Generator front-ends E4846A and Dual Analyzer Front-ends E4847A. As these are dual channel front-ends each, the module can deliver up to 8 channels.
- Generator front-ends E4838A and Analyzer Front-ends E4835A can be fitted in the Agilent E4832A Data Module. As these are single channel front-ends each, the module can deliver up to 4 channels. The E4835A Analyzer comes as a pair, so two independent channels, see also slide 7.
- Generator front-ends E4862A and Analyzer Front-ends E4863A can be fitted in the Agilent E4861A Data Module. As these are single channel front-ends each, the module can deliver up to 2 channels.
- At least one Clock Module E4805B is necessary. This Clock Module can drive up to eleven data modules.

### Generators

Generator Front-Ends	Data Rate, Memory, Formats	Remarks
E4862A	2.7 Gb/s, 8 MBit DNRZ, Clock 50%	
E4838A	675 MHz, 2 MBit DNRZ,RZ,R1	
E4846A	200 Mb/s, .5 MBit DNRZ	Dual Channel

### Slide 1: Generators

### Analyzers

Analyzer Front-Ends	Data Rate, Memory	Remarks
E4863A	2.7 Gb/s, 8 MBit	
E4835A	675 Gb/s, 2 MBit	Pair of Channel
E4847A	333 Mb/s, .5 MBit*	Dual Channel

\*). 25MBit if mask bits are used

### Slide 2: Analyzers

### Modules

Modules	Data Rate, Front-ends	Channel Count, Front-end type
E4861A	2.7 GHz 2 Front-End Slots	2 Channels E4862A, E4863A
E4832A	675 MHz 4 Front-End Slots	4 Channels E4835A, E4838A
E4841A	667 MHz *) 4 Front-End Slots	8 Channels E4846A, E4847A

\*) 200/330Mb/s maximum with recommended Dual Front-ends

### Slide 3: Modules

### Modules

Modules	Equipped with	Channels
E4861A +	2x E4862A 2x E4863A 1x E4862A + 1x E4863A	2 Generators 2 Analyzers 1 Generator + 1 Analyzer
E4832A +	4x E4838A 2x E4835A 2x E4838A + 1x E4835A	4 Generators 4 Analyzers 2 Generators+2 Analyzers
E4841A +	4x E4846A 4x E4847A 2x E4846A + 2x E4847A	8 Generators 8 Analyzers 4 Generators+4 Analyzers

### Slide 4: Modules

**STEP 3: some additional considerations for Front-ends and Module count**

· Slide 5: the trigger output of the Clock Module E4805B can deliver a clock signal (up to 675MHz) or a Sequence Trigger signal (not both at same run-time).

Order info: For additional clock signal needs, add:

- another E4838A generator for clock signal up to 675MHz or
- another E4862A generator for clock signal up to 2.7GHz

### Considerations for Channel & Module Count (1)

- Clock module Trigger out:
  - Clock mode up to 675 MHz
  - OR
  - Sequence Trigger
- For additional Clock needs:
  - Up to 675 MHz: add E4838A
  - Up to 2.7 GHz: add E4862A

**Slide 5: Considerations for channel and module count 1.**

Slide 6

- The sequence of segments and the segment types (pattern, pause, PRBS/PRWS) is the same for all the channels within one module E4841A.

For example, if you need to set up PRBS and control channels, make sure you run PRBS from one module and the control signals from another module.

Order Info: add according E4841A

- The sequence of segments and the segment types (pattern, pause, PRBS/PRWS) is the same for the two upper and the two lower slots within one module E4832A.

So one module can generate PRBS/PRWS in the upper two slots and control signals in the lower two slots at one runtime.

Order info: -

- The sequence of segments and thesegment types (pattern, pause, PRBS/PRWS) is independent for the two channels within one module E4861A.

### Considerations for Channel & Module Count (2)

PRBS/PRWS and User defined (Memory based) Data Mix

**Slide 6: Considerations for channel and module count 2.**

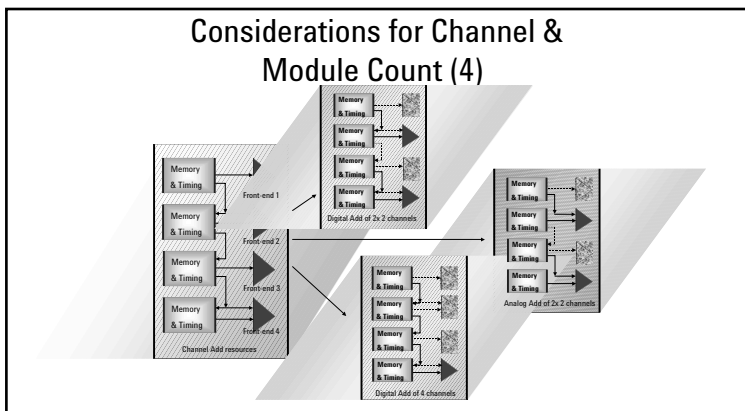
Slide 7: The E4835A analyzer comes as a pair and fills two slots of the E4832A module, providing two independent analyzer channels. The housing of the pair is possible either within the upper or lower two slots. It is neither possible to house within the middle two slots nor to house the pair in two independent E4832A modules.

### Considerations for Channel & Module Count (3)

The E4835A (675Mb/s Analyzer) comes as Pair  
How to house the pair:

**Slide 7: Considerations for channel and module count 3.**

Slide 8: The E4838A Generators can do Channel Add. There is a digital channel add and an analog channel add. Digital Channel add is possible for ch1+ ch2, ch3 + ch4, ch1 + ch2 + ch 3 + ch 4. So the added signal is available at slot 2 and/or 4. A generator channel installed in Slot 1/3 provides only the partly signal, so the front-end may be omitted:



Slide 8: Considerations for channel and module count 4.

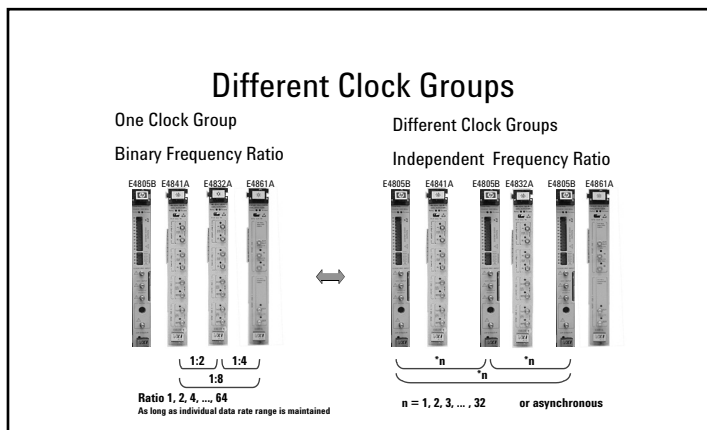
**STEP 4: One or more Clock Groups:**

Slide 9: Within one 81200 system it is possible to combine data modules of different speed classes. There are basically two choices to do so:

- all data modules are driven by the same Clock Module. This is called "One-Clock Group". In this configuration the individual front-ends can run on same frequency or any binary frequency ratio ( 1/64, 1/32, ..., 1/4, 1/2, 1, 2, 4, ..., 32, 64) in reference to the system frequency within the possible data rate range of each data module. A "One Clock Group" system will be operated from a set of software editors, called Graphical User Interface (GUI).

Order info: 1x E4805B

- Every speed class uses it's own Clock Module E4805B. This is called "Multi-Clock Group". In this configuration the individual clock groups can run on a multiplied ratio (using the multiplier within E4805B clock input) or asynchronously within the possible data rate range of each data module. A system containing more than one clock group ("N-clock Groups") will be operated by running the set of software editors N times. So the GUI will be started N times, each controlling one-clock group. Order info: Nx E4805B, N equals how many different data module types are desired.



Slide 9: Different Clock Groups

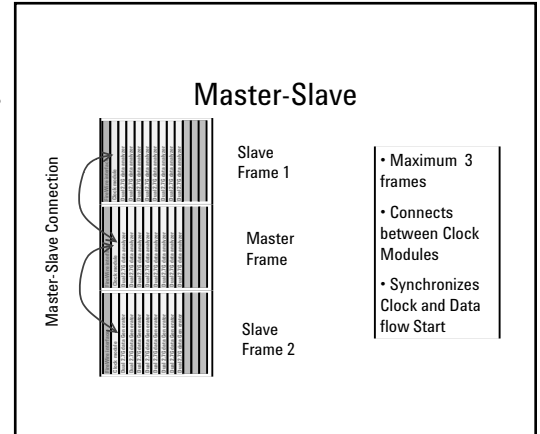
Slide 10 & 11: This shows an example for the use of two clock groups with a DUT running at different speeds on input and output. In this example a 1:7 data rate ratio is assumed. Common to this kind of DUT is the clock rate is half the data rate (double pumping). To test the serializer's output, the clock group with the analyzer channel must run same speed as the DUT output. This can be achieved with help of the frequency multiplier in the clock input of the clock module. If the DUT provides a high-speed clock, this would be preferred solution to use this directly. But often the high-speed data is without a clock. The de-serializer may need a clock reference at the low speed rate. So the stimulus clock group needs to generate the high-speed data as well as the low speed clock. As the trigger out cannot divide any integer, there is really the need for one more channel. The dividing has to be performed by a repetitive pattern loaded into the channels memory.

### STEP 5: Frame, Master-Slave and Multi-mainframe:

Slide 12: the VXI frame provides 13 slots. Depending on controller choice, there are 11 or 12 available for 81200 modules. The 81200 modules go side by side to the controller module, starting with the clock module. There must not be an empty slot between data modules. Order info: 1x E4849C Data Generator and Analyzer provides VXI frame and software licence.

If there are more data modules than one VXI chassis can house, it is possible to extend "One Clock Group" by two expander frames. The E4805B Clock Module can provide clock and data sequencing information to maximum two other E4805B Clock Modules, which operate then as slaves. When omitting the Master-Slave connections, the same system will behave as a "Three Clock Group" system. The master-slave connection must not be in place if different clock groups are desired.

Order info: E4805B Clock Module, expander frames depends on Controller choice, see next step. (Expander frames include the Master-Slave connections for operating the clock module as slave)

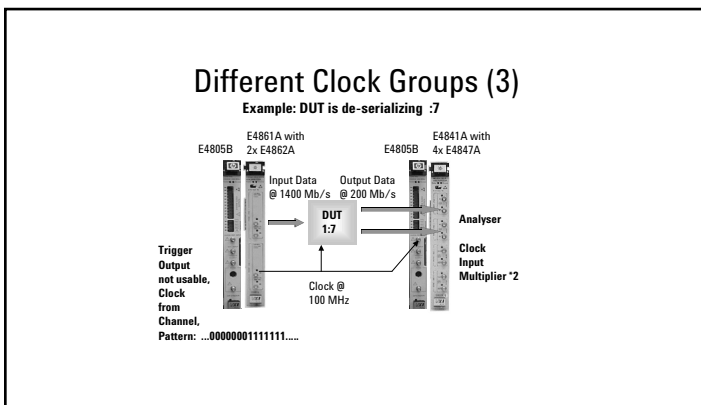
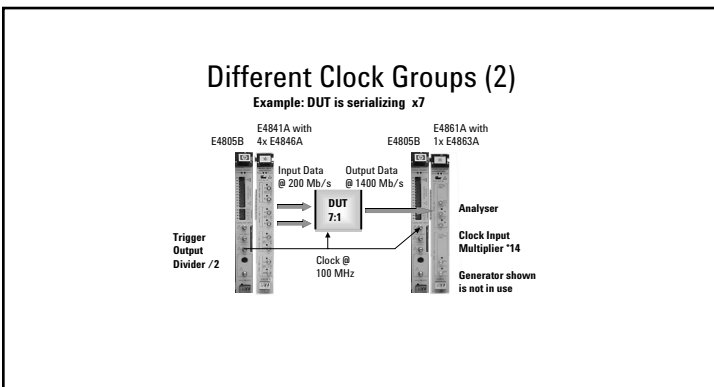


Slide 12: Master Slave

If the data modules go into several clock groups, these clock groups can be configured into one frame as long as there are sufficient slots in this frame. If the clock groups do not fit in one frame, the expander frames can be used, see next step with multi-mainframe solutions.

For configuring the different clock groups into frames, use the following rules of thumb:

- Start with the clock group with the largest module count, put it with clock module first aside the controller.
- Check if any other clock group will fit within the remaining slots. Put the next clock module aside the last data module without empty slot.
- If you can't fill the frame, leave the remaining slots open and start filling an expansion frame. Empty slots must occur on the right side of the frame only.
- Avoid Master-Slave connections, make use of it only in case one clock group does not fit in one frame at all.



Slides 10 and 11: Different clock groups 2 and 3

**STEP 6: Controller:**

Slide 13: For the controller there are two choices:

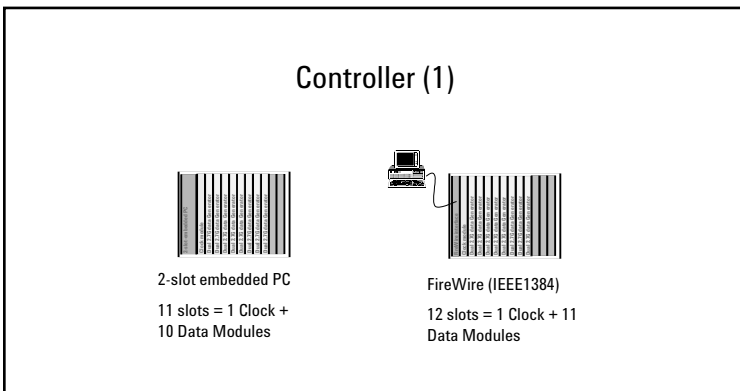
- the 2-slot-embedded PC, fitting into the VXI frame, occupying 2 slots. In this case there are 11 slots free for 81200 modules: 1 Clock Module with 10 data modules.

Order info: the E4803A 2-slot embedded PC comes with pre-installed software (check additionally for 15444A PC Accessories and 15445A ext. CD Rom)

- An external PC connecting through a FireWire Interface (IEEE 1394). The FireWire Controller occupies one slot in the VXI frame. In this case there are 12 slots free for 81200 modules: 1 Clock Module with 11 data modules.

Order info: 1x E4849C-013 adds the FireWire Controller to the VXI frame. An external PC with pre-installed software is available as E4860AS-014. (Check additionally for 15444A PC Accessories and 15445A ext. CD Rom).

If an existing PC is used, this has to be configured at customer site. Ordering the E4849C includes the necessary software on CD and E4849C-013 includes the FireWire Cable and the FireWire to PCI interface card which plugs into the PC. Recommendations for this ext. PC: WinNT 4.0 or Win2000 operating system, min. Pentium iii or equivalent, 128Meg memory, CD ROM drive. 2 PCI slots for GPIB and firewire Cards



**Slide 13: Controller (1)**

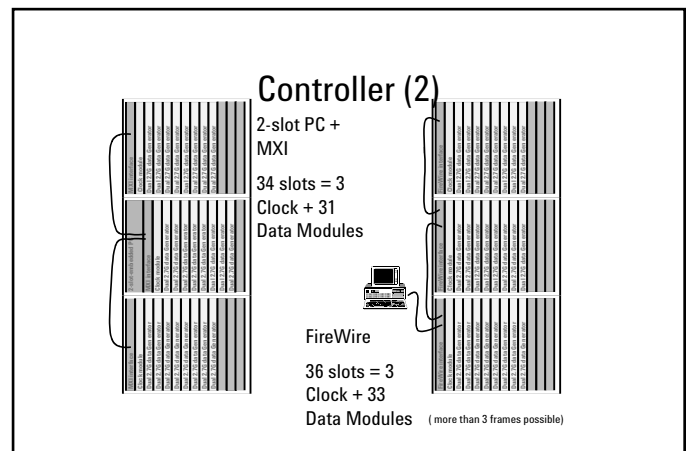
Slide 14: The controller within Multi-mainframe solution:

- To configure a multi-mainframe system with the embedded PC, there is the need for an MXI module in each frame. The MXI module takes care for the controller interface to the expander frames. The MXI connection is limited to 2 expander frames. Within a 3-frame configuration, the controller and the MXI extenders occupy 5 slots, so there are 34 slots free for 81200 modules.

Order information: the E4849C frame needs the E4849C-002 MXI expander interface. The E4848B expander frames come already with MXI interface. The E4848B does not include any Clock Module E4805B.

- To configure a multi-mainframe system with the FireWire interface requires a FireWire Controller Interface in each mainframe. The connection to the PC is daisy-chained. Within a 3-frame configuration, the FireWire modules occupy 3 slots, so there are 36 slots free for 81200 modules. The Firewire configuration is not limited to 3 frames; a fourth frame can be added (but only as a multi-clock-group system, one clock group is limited to 3 frames maximum).

Order information: the E4849C frame needs the E4849C-013 PC link to VXI (FireWire). The E4860AS-152 expander frames come already with FireWire interface. The E4860AS-153 does not include any Clock Module E4805B. An external PC equipped with Firewire Interface and pre-installed software is available as E4860AS-014.



**Slide 14: controller (2)**

## STEP 7: Power Check

Please consider the power requirements of the modules and front-ends when you configure your test system. Some possible configurations of modules may overload power and cooling budget of the VXI mainframe. In this case of insufficient power, the modules must be placed in different mainframes using of the master-slave connection. For details about power requirements, consult the Agilent 81200 Data Generator / Analyzer Platform technical specifications, P/N 5965-3415E

There is a MS Excel based spreadsheet which can be downloaded from:

[http://www.agilent.com/find/81200\\_configinfo](http://www.agilent.com/find/81200_configinfo)

This allows an online power check and configuration editing.

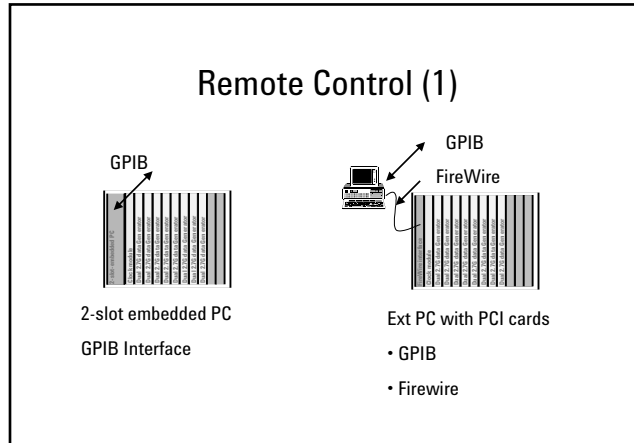
Slide 15:

Both Controller choices offer the Capability of GPIB and LAN. The GPIB can be used as GPIB Master and GPIB slave. The choice is possible by software configuration. GPIB master would allow to control other GPIB instruments from a remote program running on the same PC controlling the 81200. GPIB Slave would allow controlling the 81200 via GPIB like any other GPIB instrument. Using SCPI commands can use any GPIB controller to communicate with the 81200.

The 81200 software includes 'Plug and Play' drivers. These are part of the software and not available separately. These drivers can be used for remote programs using C/C++, Visual Basic, Agilent Vee or National Labview. These programs are not included within the 81200 software license nor they are included in the pre-installed software on the 81200 PC. It is possible to install the according software packages on the 81200 PC and perform program development and execution. When Using National's Labview, it is recommended to exchange Agilent

FireWire and GPIB interfaces into the National equivalent to avoid compatibility issues.

The 81200 PC provides a LAN



Slide 15: Remote Control (1)

interface. This allows integrating the 81200 within a network. This allows:

- Automated data back-ups
- Vector Data transfer
- Remote program development and execution
- Remote operation of a multi-clock system as shown on slide 16, each clock group can be controlled from a separate test station.

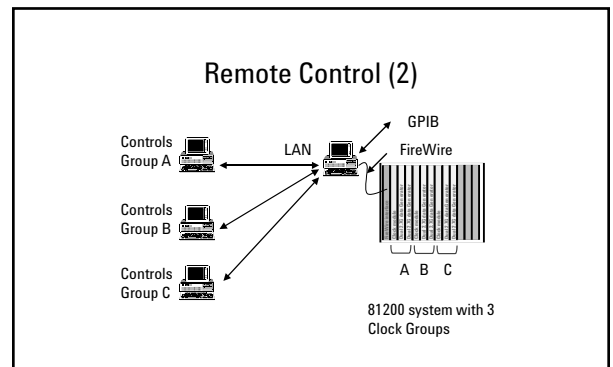
It is possible to combine the Agilent 81200 modules with other VXI modules to achieve an "open VXI system". Both controller solutions together with the 81200 software are based on the standardized I/O library. So it is simple to add the drivers for other instruments and include this with remote program development and execution.

Order info: Agilent Vee is available as E2120G, Cable GPIB: 10833B

There are two older controller products:

- E4840A 3-slot mainframe with embedded PC
- E4806A 3-slot (81200 controller) PC

These controllers cannot be used to configure an "open VXI system", only a proprietary 81200 system can be operated.



Slide 16: Remote Control (2)

## Step 9: Accessories

### • General Accessories (slide 17)

Cable Kit: 4\*SMA(m) to SMA(m)  
Agilent 15442A  
Cable Kit: 10\*SMA(m) to SCI  
Connector Agilent 15441A  
Cable Kit: pair of matched cables  
SMA to SMA Agilent 15443A  
SMA coax. cable, 1 m. Agilent  
8120-4948  
Torque wrench, SMA. Agilent  
8710-1582  
Adapter Kit: 4\* SMA(m) I/O  
Adapter Agilent 15440A  
Adapter SMA (m)/BNC (f). Agilent  
1250-1200  
Adapter right-angle SMA (m-f).  
Agilent 1250-1249  
Adapter right-angle SMA (m-m).  
Agilent 1250-1397  
Adapter tee SMA. Agilent 1250-  
1698  
Pulse adder/splitter, SMA. Agilent  
11667B  
500 ps transition converter. Agilent  
15433B  
1 ns transition converter. Agilent  
15434B  
2 ns transition converter. Agilent  
15438B

### DUT Fixturing (slide 18)

For convenient and reliable DUT  
fixturing for DUT's with up to 192  
pins, there is the Agilent E4839A  
Test Fixture available. For details,  
please consult Agilent E4839A Test  
Fixture, data sheet, p/n 5968-  
3580E.

### Dedicated Accessories

Pogo cable kit: 4\*SMA(m) & 2  
Pogo Agilent E4839A adapter:  
15448A Universal DUT Test Board  
50 Ohm: 15449A

## Step 10: Support, documentation and rackmount

Please consult the table at the  
end.

For operation we recommend to  
use the 15444A PC accessories  
including English keyboard, mouse  
and 17' monitor.

We recommend that a CD-ROM  
drive is ordered as 15445A, so  
that user software upgrades can  
be installed.

### Documentation:

All documentation is included  
within the 81200 software as pdf  
files. If a printed hardcopy is  
desired, order E4849-0B1, if no  
printed documentation is desired  
order E4849-0B0.

The Japanese localization is avail-  
able as E4849-ABJ

### Rackmount option:

Rack flange kit (part number  
E8400-80923) for the E4849B and  
Agilent E4848B is E4849-AX4

### Warranty & Services

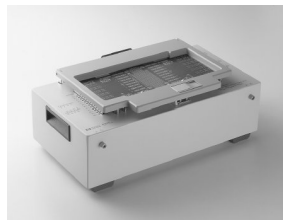
All modules automatically have 1  
year return to Agilent warranty, if  
bought as separate pieces. All sys-  
tems have 1 year on-site warranty.

Start up assistance for first time  
users is included.

## Accessories: Cables

Cable Kit: 4*SMA(m) to SMA(m)	Agilent 15442A
Cable Kit: 10*SMA(m) to SCI Connector	Agilent 15441A
Cable Kit: matched pair SMA(m) to SMA(m)	Agilent 15443A
SMA coax. cable, 1 m	Agilent 8120-4948
Torque wrench, SMA	Agilent 8710-1582
Adapter Kit: 4* SMA(m) I/O Adapter	Agilent 15440A
Adapter SMA (m)/BNC (f)	Agilent 1250-1200
Adapter right-angle SMA (m-f)	Agilent 1250-1249
Adapter right-angle SMA (m-m)	Agilent 1250-1397
Adapter tee SMA	Agilent 1250-1698
Pulse adder/splitter, SMA	Agilent 11667B
500 ps transition converter	Agilent 15433B
1 ns transition converter	Agilent 15434B
2 ns transition converter	Agilent 15438B

## Accessories: Fixture



E4839A: Test Fixture

15448A: Set of 4 Cables  
Pogo to SMA

15449A: add. DUT Board  
50 Ohm





## Frequently Asked Questions:

### What do I need to run generator channels up to 1.32 Gb/s?

There are three choices:

- two Agilent E4838A generator front-ends, which are EXOR-ed internally added.
- For better signal performance, for signals above 1 Gbit/s, please also consider an external addition, by using an Agilent 11667B (APC-3.5 power splitter, DC to 26.5 GHz) or an Agilent 11636B (DC to 26.5 GHz power divider, APC-3.5). For operation in EXOR addition mode you only need two Agilent E4838A front-ends per module.
- One Agilent E4862A generator front-end, which can run up to 2.7Gb/s

### I need generator channels that operate up to 200 Mbit/s and with more than 512 Kbit memory depth per channel. Can I use the Agilent E4846A dual generator front-ends?

No. If you need more than 512 Kbit, you should use the Agilent E4838A (max. 675 Mb/s) front-end. The Agilent E4846A dual generator front-ends share the channel's memory depth of 1024 Kbit, this is why they only support 512 Kbit. This is also true for dual analyzer front-ends.

For more details please consult Agilent 81200 Data Generator/Analyzer Platform, data sheet, p/n 5965-3415E.

### I want to run a PRBS pattern on one channel and data from another channel at the same time. Is that possible?

Yes, but you have to consider:

- Using 2.7 Gb/s channels with the E4861A data module, this is possible unrestricted
- Using the 675Mb/s channels with the E4832A data modules, it is necessary that the PRBS channel is located within the upper two slots and the control channel is within the lower two slots.

- Using the 200/330Mb/s channels with the E4841A module, it is necessary to use two E4841A modules, one for the PRBS and one for the control signals.

### I want to use just the Agilent 81200 analyzer channels. Is this configuration possible?

Yes, but we recommend that one generator channel as a timing reference for the system is used, otherwise the trigger output of the clock module is used as a timing reference. There are no trigger capabilities like on an logic analyzer. So in the application you must make sure to provide a signal indicating the start for analyzing.

Mainframe/system control and accessories: I'd like to fit a VXI DVM into a spare slot in the Agilent 81200 frame. Will that work? Yes, the recommended controller solutions and software provide the necessary capabilities. There have been some older controller solutions (check earlier in this document) which did not allow this.

### I test my designs in a remote environment so I won't need monitors and so on connected to the Agilent 81200. Will it boot without a monitor and keyboard?

Yes, but you will need a mouse. However, you will need a monitor to perform tasks such as shut down and to install user software upgrades.

### Can I fit Agilent 81200 modules into an existing VXI system?

Yes, Plug and play drivers for the Agilent 81200 are an integral part of the Agilent 81200 Software.

### Can I combine rack & stack instruments with the Agilent 81200?

Yes. You can use an external controller or you can use the Agilent 81200's built-in PC as a controller. A GPIB (IEEE 488.2) interface is already installed on the Agilent 81200 system controller.

You will however, need to install controller software such as VEE, VisualBASIC or C/C++.

### I want to integrate the Agilent 81200 into a system. How can I control it and transfer test vectors?

These requirements can be fulfilled via LAN or GPIB. Interfaces for both are installed on the Agilent 81200 Controller. The vector file format is a STIL subset (Standard Test Interface Language; ASCII file with header and footer).

### How can I Upgrade an existing Agilent 81200 data generator/analyzer system?

Hardware Upgrades:

The Agilent 81200 Data Generator/Analyzer Platform can be extended or adapted as needed. Front-ends, modules and expander frames can be added at any time. Orders for individual units are supplied with the installation instructions.

User software upgrades Revisions and enhancements to the user software will be available from time-to-time on CD-ROM, for which an external CD drive is recommended.

The operating system should not be upgraded because the user software is specified for operation on Windows NT Rev 4.0 or Win2000.

# Example configurations

## Example 1: DAC Test (Slide 19):

DACs need a bunch of digital data channels for getting data into, here a 16 bit interface is assumed, any other bus size is possible just by more or less data channels. Then there is a need for a clock. It is recommended to use a signal generator as clock source: the internal clock generation of the 81200 is designed for low jitter, but it can't compete with the low phase noise available from a signal generator like the Agilent 8662A.

Order info for a 16 bit wide solution up to 675MB/s : 1x E4849C , 1x E4849-013, 1x E4805B, 4x E4832A, 16x E4838A, 1x 8662A

## Example 2: Multi-Level Signals (Slide 20):

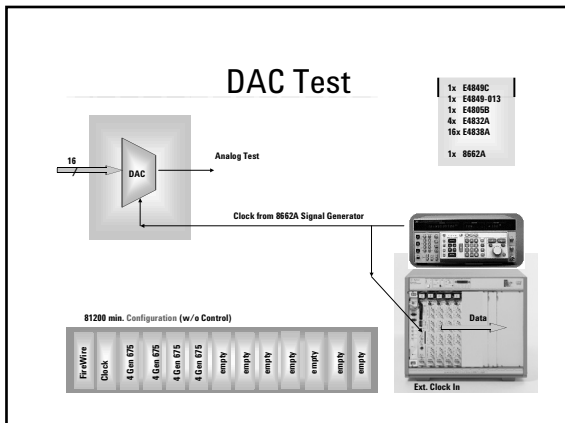
Such kind of signals occur e.g. with Gigabit Ethernet Category 5/6. This can be established for up to 4 levels with the Channel Add feature from one E4838A generator. The 8-level signal in this example is obtained from the combination of two channels. This is possible by the back matching of the channels.

Order info: 1x E4849C , 1x E4849-013, 1x E4805B, 1x E4832A, 2x E4838A

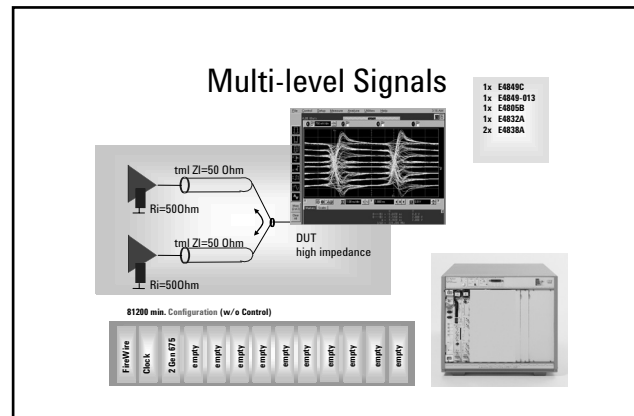
## Example 3: Back plane Test (Slide 21):

The test requirement is to stimulate at any position and analyze at any other position. So there is a variable delay from input to output depending on input and output position. Adjusting the analyzer sampling delay can compensate the variable delay. With the recommended system configuration here, there I no more need to do this: as the clock and the data run through the back plane, data and clock keep always same timing relation. So using the analyzer within a second clock group, getting the clock to it's ext. Clock input, there is no more need to adjust the timing for a new position on the back plane again.

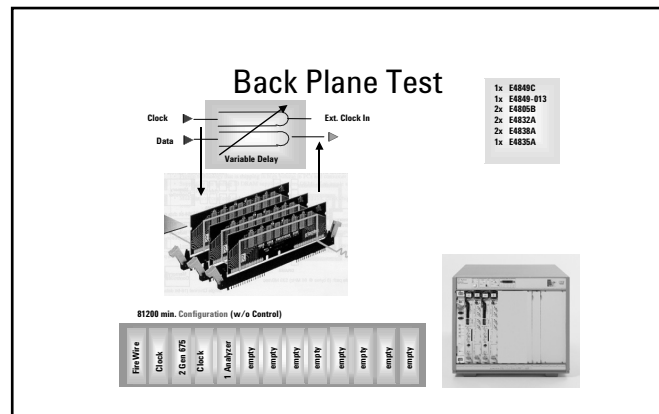
Order info: 1x E4849C , 1x E4849-013, 2x E4805B, 2x E4832A, 2x E4838A, 1x E4835A



Slide 19: DAC Test



Slide 20: Multi level signals

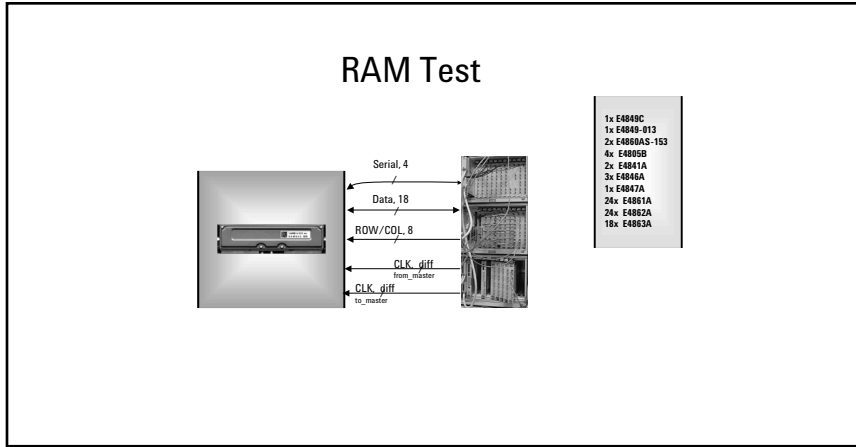


Slide 21: Back Plane Test

**Example 4: Digital Video Interface, 1:7 Serializer/De-serializer (slide 22)**

For transferring Data between CPU and Display, a digital video interface was created. The picture shown here is a simple example as there are several implementations created with more or less serial interconnections (up to 8). It is very common to all these video interfaces that the MUX/DEMUX ratio is 1:7. The DUT consists of two chips, one TX one RX. Beside 3x serial, there is also the clock at speed of parallel side transferred. So this is another example for a two-clock group system, check also slides 10 & 11.

Order info: 1x E4849C, 1x E4849-013, 2x E4805B, 4x E4832A, 8x E4838A, 4x E4835A, 2x E4861A, 2x E4862A, 1x E4863A



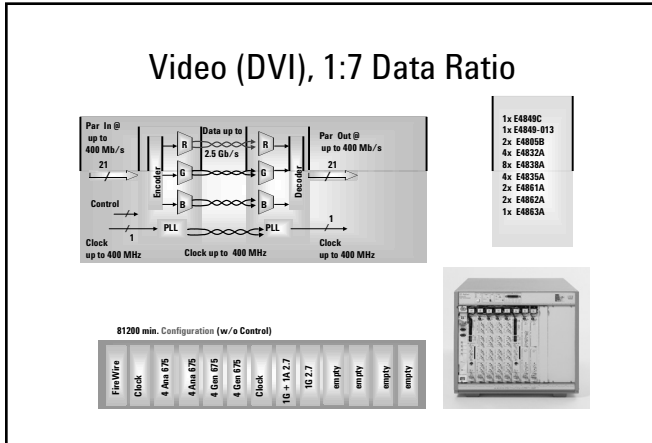
Slide 23: RAM Test

**Hints for using the Config Sheets:**

In the Appendix of this document you'll find two prepared Config Sheets - one for the 2-slot embedded PC, -one for the FireWire Controller, which can be used for specifying the complete desired configuration.

Fill out the Fax Cover Sheet on the next page, and fax it together with the completed configuration sheets to the Fax number on the cover sheet.

Please make sure that you specify your Agilent order number on the fax cover sheet, otherwise your personal configuration requirement can not be processed.



Slide 22: Video (DV1), 1:7 Data Ratio

**Example 5: Memory Test (Slide 23):**

This example of RAM is equipped with a serial interface at low speed basically for initialisation and monitoring, and second with a high-speed interface for data read and writes. The serial interface consists of 4 low speed channels configured into one clock group. The high-speed interface needs up to 23 modules at Gigabit speed. So this second clock group need master-slave connection over 3 frames. Order info: 1x E4849C, 1x E4849-013, 2x E4860AS-153, 4x E4805B, 2x E4841A, 3x E4846A, 1x E4847A, 24x E4861A, 24x E4862A, 18x E4863A

Slide 24: Here is an example of how to fill out the config sheets. This is totally virtual and the purpose is just to summarize what to consider for placing the front-ends into modules and modules into the mainframe.

This example uses the FireWire interface in slot 0

- Slot 1 is equipped with the Clock module

- Slot 2 is filled with 8 Generator channels running up to 200Mb/s: E4841A + 4x E4846A

- Slot 3 is filled with 8 Analyzer Channels running up to 330Mb/s: E4841A + 4x E4847A  
Using the 15440A I/O Adapter, which combines a Generator and an Analyzer always, this combination would allow the setup of 8 I/O channels. The 15440A includes 4 adapters, so in this case the 15440A needs to be ordered twice. The I/O adapter is only recommended for this speed class.

- Slot 4 is filled with 2 Generators running up to 200MB/s and 2 Analyzers running up to 330Mb/s: E4841A + 1x E4846A + 1x E4847A. A partly loading is possible at any slots. Empty front-end slots will be covered with a blanc panel

- Slot 5 is filled with 4 Generators running up to 675MHz: E4832A + 4x E4838A

- Slot 6 is filled with 4 Analyzers running up to 675Mb/s: E4832A + 2x E4835A, E4835A is a pair of analyzers, E4835A = 2x E4835AZ.

- Slot 7 is filled with 2 Generators and 2 Analyzers running up to 675Mb/s: E4832A + 2x E4838A + 1x E4835A. The pair of analyzer channels has to be put either to the upper or lower two front-end slots.

### Configuration Example

Front-end			E4846A	E4847A	E4846A	E4838A	E4835AZ	E4838A	empty	n.a.	n.a.	n.a.	Front-end	
Front-end	FireWire	Clock	E4846A	E4847A	E4847A	E4838A	E4835AZ	E4838A	E4838A	E4862A	E4862A	E4863A	Front-end	
Front-end			E4846A	E4847A	empty	E4838A	E4835AZ	E4835AZ	empty	n.a.	n.a.	n.a.	Front-end	
Front-end			E4846A	E4847A	empty	E4838A	E4835AZ	E4835AZ	E4838A	E4862A	E4863A	empty	Front-end	
Module	E4841B	E4845B	E4861A	E4841A	E4841A	E4832A	E4832A	E4832A	E4832A	E4861A	E4861A	E4861A	empty	Module
	slot 0	slot 1	slot 2	slot 3	slot 4	slot 5	slot 6	slot 7	slot 8	slot 9	slot 10	slot 11	slot 12	

**Slide 24: Configuration example**

- Slot 8 is filled with 2 Generators running up to 675MHz: E4832A + 2x E4838A. The partly loading of the Generator channels reflects the Channel Add capabilities; this is possible only in slot 2 & 4. Empty slots will be covered with a blanc panel.

- Slot 9 is equipped with 2 Generators running up to 2.7Gb/s: E4861A + 2x E4862A. The 2.7Gb/s module has only two front-end slots.

- Slot 10 is equipped with 2 Analyzers running up to 2.7Gb/s: E4861A + 2x E4863A.

- Slot 11 is equipped with 1 Analyzer running up to 2.7Gb/s: E4861A + 1x E4863A. A partly loading is possible in any combination. An empty front-end slot will be covered with a Blanc panel.

- Slot 12 is empty, no data module installed. An empty slot is covered with a blanc panel. Empty slot must not occur between data modules, only at the right side within the VXI frame.

Item	Description	Remarks		
<b>E4849C</b>	<b>81200 Data Generator and Analyzer</b>	13-slot mainframe and E4873A Software included, includes no Clock module		
E4848B	MXI Expander Frame	includes no Clock module		
E4849C-002	MXI expander interface			
E4860AS-153	FireWire Expansion Frame	includes no Clock module		
	<b>Controller</b>			
E4849C-013	IEEE 1394 PC link to VXI (Firewire)			
E4860AS-014	ext. PC			
E4803A	2-slot embedded PC			
15444A	PC Accessories	Keyboard, Mouse, 17"-Monitor		
15445A	External CD-ROM			
E4873A	81200 User Software and License	included in E4849C		
	<b>Clock module</b>			
E4805B	2.7 GHz Clock Module			
	<b>Data Generator-/Analyzer-Channels 1 kHz - 200/330 Mbit/s</b>			
E4841A	330 Mbit/s Module for 4 Dual Front Ends			
E4846A	1 kHz - 200 Mbit/s Dual Data Generator Front End			
E4847A	1 kHz - 330 Mbit/s Dual Data Analyzer Front End			
	<b>Data Generator-/Analyzer-Channels 1 kHz - 675 MHz</b>			
E4832A	675 MHz Module for 4*E4838A, 2*E4835 or 2*E4838+1*E4835			
E4838A	1 kHz - 675 MHz Data Generator Front End			
E4835A	Two 1 kHz - 675 MHz Data Analyzer Front Ends			
	<b>Data Generator-/Analyzer-Channels 334 MHz - 2.7 Gbit/s</b>			
E4861A	2.7Gb/s Module for 2 front ends			
E4862A	334MHz - 2.7 Gbit/s Data Generator Front End			
E4863A	334MHz - 2.7 Gbit/s Data Analyzer Front End			
	<b>Accessories</b>			
15433B	500 ps transition converter			
15434B	1 ns transition converter			
15438A	2 ns transition converter			
15440A	Adapter kit 4*SMA(m) I/O adapters			
15441A	Cable kit 10*SMA(m) to SCI Connector			
15442A	Cable kit 4*SMA(m) to SMA(m)			
15443A	Matched cable pair			
15446A	8-line trigger input for TTL signals			
15447A	Deskew probe			
E4849C-AX4	Rack Flange Kit for one frame			
	<b>Test Fixture</b>			
E4839A	Test Fixture			

# Fax Cover Sheet

## Agilent 81200 Configuration Guide

**To:** OFC/BVS Agilent Technologies GmbH,

Herrenberger Straße 130,  
71034 Böblingen, Germany

**Fax Number: +49 (7031) 464-6532**

**If you have problems with this fax, please contact:**

**+49 (7031) 464-7674**

**From:**

**Name:**

**Company:**

**Telephone:**

**Email:**

**Sales representative:**

**Agilent order no. (mandatory):**

-----  
Comments:

Front-end	FireWire	Clock												Front-end	
Front-end															Front-end
Front-end															Front-end
Front-end															Front-end
Module		E4805B												Module	
	slot 0	slot 1	slot 2	slot 3	slot 4	slot 5	slot 6	slot 7	slot 8	slot 9	slot 10	slot 11	slot 12		

**Main frame**

Front-end	2-slot Controller	MXI	Clock											Front-end		
Front-end																Front-end
Front-end																Front-end
Front-end																Front-end
Module			E4805B											Module		
	slot 0	slot 1	slot 2	slot 3	slot 4	slot 5	slot 6	slot 7	slot 8	slot 9	slot 10	slot 11	slot 12			

**Main frame**

					Expander Frame 1:										
Front-end	FireWire	Clock												Front-end	
Front-end															Front-end
Front-end															Front-end
Front-end															Front-end
Module		E4805B												Module	
	slot 0	slot 1	slot 2	slot 3	slot 4	slot 5	slot 6	slot 7	slot 8	slot 9	slot 10	slot 11	slot 12		
					Mainframe:										
Front-end	FireWire	Clock												Front-end	
Front-end															Front-end
Front-end															Front-end
Front-end															Front-end
Module		E4805B												Module	
	slot 0	slot 1	slot 2	slot 3	slot 4	slot 5	slot 6	slot 7	slot 8	slot 9	slot 10	slot 11	slot 12		
					Expander Frame 2:										
Front-end	FireWire	Clock												Front-end	
Front-end															Front-end
Front-end															Front-end
Front-end															Front-end
Module		E4805B												Module	
	slot 0	slot 1	slot 2	slot 3	slot 4	slot 5	slot 6	slot 7	slot 8	slot 9	slot 10	slot 11	slot 12		

**Multi-Main-frame**

					Expander Frame 1:												
Front-end	MXI	Clock												Front-end			
Front-end															Front-end		
Front-end															Front-end		
Front-end															Front-end		
Front-end															Front-end		
Module		E4805B												Module			
	slot 0	slot 1	slot 2	slot 3	slot 4	slot 5	slot 6	slot 7	slot 8	slot 9	slot 10	slot 11	slot 12				
					Mainframe:												
Front-end		2-slot Controller	MXI	Clock										Front-end			
Front-end																Front-end	
Front-end																	Front-end
Front-end																	Front-end
Front-end																	Front-end
Module				E4805B										Module			
	slot 0	slot 1	slot 2	slot 3	slot 4	slot 5	slot 6	slot 7	slot 8	slot 9	slot 10	slot 11	slot 12				
					Expander Frame 2:												
Front-end	MXI	Clock												Front-end			
Front-end															Front-end		
Front-end															Front-end		
Front-end															Front-end		
Front-end															Front-end		
Module		E4805B												Module			
	slot 0	slot 1	slot 2	slot 3	slot 4	slot 5	slot 6	slot 7	slot 8	slot 9	slot 10	slot 11	slot 12				



## Related Agilent Literature

## Pub. Number

Agilent 81200 Data Generator/ Analyzer Platform, Brochure	5980-0488E
Agilent 81200 Data Generator/ Analyzer Platform, Data Sheet	5965-3415E
Agilent 81200 Data Generator/ Analyzer Platform, Configuration Guide	5965-3417E
Panel Link Chip Set Test, Product Note	5968-3024E
Agilent E4839A Test Fixture, Convenient and Reliable DUT Fixture for the 81200 Family, Data Sheet	5968-3580E

By internet, phone, or fax, get assistance with all your test & measurement needs

**Online assistance:**  
[www.agilent.com/find/assist](http://www.agilent.com/find/assist)

### Phone or Fax

United States:  
(tel) 800 829 4444

Canada:  
(tel) 877 894 4414  
(fax) 905 282 6495

China:  
(tel) 800 810 0189  
(fax) 800 820 2816

Europe:  
(tel) (31 20) 547 2323  
(fax) (31 20) 547 2390

Japan:  
(tel) (81) 426 56 7832  
(fax) (81) 426 56 7840

Korea:  
(tel) (82 2) 2004 5004  
(fax) (82 2) 2004 5115

Latin America:  
(tel) (650) 752 5000

Taiwan:  
(tel) 0800 047 866  
(fax) 0800 286 331

Other Asia Pacific Countries:  
(tel) (65) 6375 8100  
(fax) (65) 6836 0252  
Email: [tm\\_asia@agilent.com](mailto:tm_asia@agilent.com)

Product specifications and descriptions in this document subject to change without notice.

© Agilent Technologies, Inc. 2004  
Printed in The Netherlands, 26th April 2004  
**5965-3417E**

### Agilent Technologies' Test and Measurement Support, Services, and Assistance

Agilent Technologies aims to maximize the value you receive, while minimizing your risk and problems. We strive to ensure that you get the test and measurement capabilities you paid for and obtain the support you need. Our extensive support resources and services can help you choose the right Agilent products for your applications and apply them successfully. Every instrument and system we sell has a global warranty. Support is available for at least five years beyond the production life of the product. Two concepts underlie Agilent's overall support policy: "Our Promise" and "Your Advantage."

#### Our Promise

Our Promise means your Agilent test and measurement equipment will meet its advertised performance and functionality. When you are choosing new equipment, we will help you with product information, including realistic performance specifications and practical recommendations from experienced test engineers. When you use Agilent equipment, we can verify that it works properly, help with product operation, and provide basic measurement assistance for the use of specified capabilities, at no extra cost upon request. Many self-help tools are available.

#### Your Advantage

Your Advantage means that Agilent offers a wide range of additional expert test and measurement services, which you can purchase according to your unique technical and business needs. Solve problems efficiently and gain a competitive edge by contracting with us for calibration, extra-cost upgrades, out-of-warranty repairs, and onsite education and training, as well as design, system integration, project management, and other professional engineering services. Experienced Agilent engineers and technicians worldwide can help you maximize your productivity, optimize the return on investment of your Agilent instruments and systems, and obtain dependable measurement accuracy for the life of those products.

For more information please visit us at:  
[www.agilent.com/find/81200\\_verification](http://www.agilent.com/find/81200_verification)



## Agilent Email Updates

[www.agilent.com/find/emailupdates](http://www.agilent.com/find/emailupdates)

Get the latest information on the products and applications you select.



**Agilent Technologies**