

Instructions



AWG5000 Series Arbitrary Waveform Generators Declassification and Security

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Revision A

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Preface

This document helps customers with data security concerns to sanitize or remove memory devices from the AWG5000 Series Arbitrary Waveform Generators.

These products have data storage (memory) devices and data output devices (USB ports). These instructions tell how to clear or sanitize the memory devices and disable the data output devices, (if possible). The instructions also tell how to declassify an instrument that is not functioning.

Products

The following Tektronix products are covered by this document:

- **AWG5102** and all options
- **AWG5104** and all options
- **AWG5002** and all options
- **AWG5004** and all options

Related Documents

- *AWG5000 Series Arbitrary Waveform Generators Service Manual*, Tektronix part number 071-2083-XX, available on the Tektronix Web site at www.tektronix.com/manuals
- *AWG5000 Series Arbitrary Waveform Generators Hard Disk Drive Assembly Installation Instructions*, Tektronix part number 075-0927-XX, available on the Tektronix Web site at www.tektronix.com/manuals

Terms The following terms may be used in this document:

Clear. This removes data on media/memory before reusing it in a secured area. All reusable memory is cleared to deny access to previously stored information by standard means of access.

Erase. This is equivalent to clear.

Media storage/data export device. Any of several devices that can be used to store or export data from the instrument, such as a USB port.

Nonvolatile memory. Data is retained when the instrument is powered off.

Power off. Some instruments have a “Standby” mode, in which power is still supplied to the instrument. For the purpose of clearing data, putting the instrument in Standby mode does not qualify as powering off. For these products, you will need to either press a rear-panel OFF switch or remove the power source from the instrument.

Remove. A physical means to clear the data by removing the memory device from the instrument. Instructions are available in the product service manual.

Sanitize. This eradicates the data from media/memory so that the data cannot be recovered by other means or technology. This is typically used when the device will be moved (temporarily or permanently) from a secured area to a non-secured area.

Scrub. This is equivalent to sanitize.

User-modifiable. The memory device can be written to by the user during normal instrument operation, using the instrument’s user interface or remote control.

Volatile memory. Data is lost when the instrument is powered off.

Clear and Sanitize Procedures

Memory Devices

The following tables list the volatile and nonvolatile memory devices.

Table 1: Volatile memory devices

Type and minimum size	Function	User modifiable	Data input method	Location	Process to clear
DDR2 SRAM 64 M x 64 bits	Microprocessor system memory	Yes	Written by processor system	Micro-ATX board	Remove the power source from the instrument for at least 20 seconds.
Pipelined SRAM 2 M x 36 bits	Waveform memory for holding waveforms to generate	Yes	Written by processor system	AWG1G board	Remove the power source from the instrument for at least 20 seconds.

Table 2: Nonvolatile memory devices

Type and minimum size	Function	User modifiable ¹	Data input method	Location	Process to sanitize
Removable hard drive	Holds user-storable data such as waveforms and instrument settings.	Yes	Firmware operations	Removable hard drive slot on rear panel	Remove the hard drive and store it in a secure area or destroy it. When it is removed, no user data remains in the instrument. (See page 4, <i>Removable Hard Drive</i> .)
EEPROM 64 K	Contains model configurations and calibration data.	No	Not accessible	MIO board	Not applicable
Flash, 128 K x 8 bits	Contains Video BIOS for the LCD display.	No	Not accessible	MIO board	Not applicable
EEPROM 4 K	Contains MAC address for TekLink.	No	Not accessible	MIO board	Not applicable (See page 3, <i>To Disable TekLink Using the Windows Device Manager</i> .)
EEPROM 4 K	Contains PCI Bus configurations.	No	Not accessible	MIO board	Not applicable
EEPROM 64 K	Contains count for actuation of relays.	No	Not writable	OUT1G board	Not applicable

1. During normal instrument operation.

Disabling USB and CD-RW Capability

The following instructions give a method to disable the built-in USB and CD-RW capability. Using the BIOS disables the devices for DOS programs, while the Windows Device Manager disables the devices for Windows programs. These procedures disable both USB and the CD-RW to prevent their use.

NOTE. *If you disable the USB, CD-RW, and LAN in the following procedures, you cannot write new firmware to the hard drive. To do so, you will need to enable one of these items.*

To Disable USB and CD-RW for Windows Using the Windows Device Manager.

1. Connect a PS2 mouse and a PS2 keyboard to the instrument before powering on (because USB will be disabled).
2. Log on to the instrument as an administrator.
3. From the Windows Start menu, select Control Panel, and then select System.
4. Select the Hardware tab.
5. Click Device Manager.
6. Expand the Universal Serial Bus controllers entry by clicking the + next to it.
7. Double-click the first USB Root Hub entry.
8. Select the Power tab.
9. If the Device Description is anything other than Generic USB Hub (4 ports), click the General tab, and select Do not use this device (disable) in the Device Usage drop-down list.

NOTE. *It is critical to leave the USB Root Hub operating, otherwise, the front panel will not function. If the front panel does not function, the AWG application will not run.*

10. Click OK.
11. Repeat steps 7 through 9 for each USB Root Hub shown in the Device Manager window.
12. Expand DVD/CD-ROM drives in the Device Manager window.
13. Right-click TEAC DW-224E-C, and select Disable.
14. Reboot the instrument to make the changes effective.
15. We suggest that you password-protect the Windows Administrator account and set up Guest accounts for end users so that these changes cannot be easily reversed.

To Disable LAN Ethernet Connectivity Using the BIOS

1. Press F2 during instrument Boot Up to go to the BIOS configuration menu.
2. Go to Advanced > Peripheral Configuration.
3. Set Onboard LAN to Disabled.
4. Press Esc one time to return to the main BIOS configuration menu.
5. Press F10, and select OK to save changes and exit. The LAN system will be disabled and no longer allow data traffic in or out.

To Disable TekLink Using the Windows Device Manager

1. Connect a PS2 mouse and a PS2 keyboard to the instrument before powering on (because USB will be disabled).
2. Log on to the instrument as an administrator.
3. From the Windows Start menu, select Control Panel, and then select System.
4. Select the Hardware tab.
5. Click Device Manager.
6. Expand the device category Network Adapters.
7. Double click on the Intel(R) PRO/100 M Network Connection. This will be the Network Adapter located on the interface board in PCI slot 2.
8. Click the General tab, and select Do not use this device (disable) in the Device Usage drop-down list.

To Disable GPIB Using the Windows Device Manager

1. Connect a PS2 mouse and a PS2 keyboard to the instrument before powering on (because USB will be disabled).
2. Log on to the instrument as an administrator.
3. From the Windows Start menu, select Control Panel, and then select System.
4. Select the Hardware tab.
5. Click Device Manager.
6. Expand the device category National Instruments GPIB Interfaces.
7. Right click on PCI-GPIB.
8. Select Disable from the list.

Removable Hard Drive

To Remove the Hard Drive. To remove the hard disk drive assembly, see the instrument user online help (AWG Reference > Removable Hard Disk). You can also refer to the *AWG5000 Series HDD Installation Instructions*, Tektronix part number 075-0927-XX.

All user-storable data is stored on the rear-panel removable hard drive. There are DOD-approved scrubbing software packages available for the hard drive. Tektronix has no recommendations regarding the available packages.

After the hard drive has been scrubbed, the operating system and instrument software can be reinstalled using the Operating System Restore DVD and Product Software CD that ship with the instrument.

Scrubbing the hard drive will not affect calibration of the instrument, since the factory calibration constants are stored on the MIO board, entirely separate from any waveform data or setup files. You can completely erase or remove any secure data without affecting the calibration of the instrument. You can also calibrate the instrument in a nonsecure site, and then use the instrument in a secure area without recalibration.

Media Storage and Data Export Devices

The following table lists the media storage and data export devices in the instrument. Detailed procedures to disable these devices, if any, are shown in the following table.

Table 3: Media storage / Data export devices

Type	Function	User modifiable	Data input method	Location	Process to disable
USB host port	Supports removable USB flash drive. User storage of instrument setups and exported waveform data.	Yes	User input	USB host port on front and rear of the instrument	Files can be deleted or overwritten on the arbitrary waveform generator or a PC; USB flash drive can be removed and destroyed. The USB ports can be disabled. (See page 2, <i>Disabling USB and CD-RW Capability</i> .)
CD-RW, DVD-ROM drive	Store and transport data	Yes	User input	Front panel	Remove all CDs and DVDs. Rewritable CDs can be formatted, stored in a secure area, or destroyed. Non-rewritable CDs or DVDs can either be stored or destroyed. Drive can be disabled. (See page 2, <i>Disabling USB and CD-RW Capability</i> .)
LAN Ethernet	Transfer data	Yes	User input	Rear panel	Ethernet port can be disabled. (See page 3, <i>To Disable LAN Ethernet Connectivity Using the BIOS</i> .)
GPIB	Remote control of instrumentation systems	Yes	User input	Rear panel	The GPIB can be disabled. (See page 3, <i>To Disable GPIB Using the Windows Device Manager</i> .)

Built-In Security Features

To secure the instrument setups or waveform data, you must remove the hard disk drive and store it in a safe place as described in Table 2. Additional removable hard drives (Tektronix part number 065-0768-00) can be purchased from Tektronix.

If the hard drive has been removed and a new hard drive is installed, you need to install the operating system and instrument application software. You can use the Operating System Restore DVD and Product Software CD that were shipped with the instrument.

Troubleshooting

How to Clear or Sanitize a Non-Functional Instrument

If your instrument is not functioning, proceed as follows. Refer to your organization's policies regarding storage or disposal of any removed items.

- | | |
|----------------------------|---|
| Hard Disk Drive | Remove the hard disk drive before returning the instrument to Tektronix for repair. |
| CD-RW/DVD ROM Drive | Remove all CDs and DVDs. |
| USB Flash Drive | Remove any attached USB flash drive from the instrument before returning the instrument for repair. |
| Charges | Replacement of any missing hardware will be charged according to the rate at the time of replacement. |

How to Recover from Clearing or Sanitizing the Instrument's Memory

If the hard drive has been removed and a new hard drive is installed, you need to install the operating system and instrument application software. You can use the Operating System Restore DVD and Product Software CD that were shipped with the instrument.