

**AWG5000C and AWG7000C Series  
Declassification and Security  
Instructions**

[www.tektronix.com](http://www.tektronix.com)



077-0457-00

**Tektronix**

Copyright © Tektronix. All rights reserved. Licensed software products are owned by Tektronix or its subsidiaries or suppliers, and are protected by national copyright laws and international treaty provisions.

Tektronix products are covered by U.S. and foreign patents, issued and pending. Information in this publication supersedes that in all previously published material. Specifications and price change privileges reserved.

TEKTRONIX and TEK are registered trademarks of Tektronix, Inc.

TekLink is a trademark of Tektronix, Inc.

## **Contacting Tektronix**

Tektronix, Inc.  
14200 SW Karl Braun Drive  
P.O. Box 500  
Beaverton, OR 97077  
USA

For product information, sales, service, and technical support:

- In North America, call 1-800-833-9200.
- Worldwide, visit [www.tektronix.com](http://www.tektronix.com) to find contacts in your area.

---

# Table of Contents

Preface .....	iii
Clear and Sanitize Procedures.....	1
Memory Devices.....	1
Data Export Devices.....	2
Built-In Security Features.....	6
Troubleshooting.....	7
How to Clear or Sanitize a Non-Functional Instrument .....	7
How to Recover from Clearing or Removing the Instrument’s Memory .....	7



---

# Preface

This document helps users with data security concerns to sanitize or remove memory devices from the AWG5000C and AWG7000C Series Arbitrary Waveform Generators.

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

**Products** The following Tektronix products are covered by this document:

- AWG5002C, AWG5012C, AWG5014C
- AWG7082C, AWG7122C

## Related Documents

- *AWG5000C and AWG7000C Series Arbitrary Waveform Generators Quick Start User Manual*, Tektronix part number 071-2481-XX, available on the Tektronix Web site at [www.tektronix.com/manuals](http://www.tektronix.com/manuals)
- *AWG5000 Series Arbitrary Waveform Generators Service Manual*, Tektronix part number 077-0304-XX, available on the Tektronix Web site at [www.tektronix.com/manuals](http://www.tektronix.com/manuals)
- *AWG7000 Series Arbitrary Waveform Generators Service Manual*, Tektronix part number 077-0305-XX, available on the Tektronix Web site at [www.tektronix.com/manuals](http://www.tektronix.com/manuals)
- *065-0811-00 and Above Hard Disk Drive Assembly Without Software* instructions, Tektronix part number 075-0970-XX

**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 are 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 must either press a rear-panel OFF switch or remove the power source from the instrument.

- **Remove.** This is 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 user can write to the memory device during normal instrument operation, using the instrument 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 in the standard instrument and listed options.

**Table 1: Volatile memory devices**

Type or minimum size	Function	User modifiable	Data input method	Location	To clear	To sanitize
PC RAM (See page 5, <i>PC RAM Size</i> .)	PC motherboard	No	Written by processor system	PC motherboard	Remove power from the instrument for at least 20 seconds.	Remove power from the instrument for at least 20 seconds.
DDR2 SDRAM 265 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.	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 (AWG5000C series)	Remove the power source from the instrument for at least 20 seconds.	Remove the power source from the instrument for at least 20 seconds.
Pipelined SRAM 1 M x 72 bits	Waveform memory for holding waveforms to generate	Yes	Written by processor system	AWG12G board (AWG7000C series)	Remove the power source from the instrument for at least 20 seconds.	Remove the power source from the instrument for at least 20 seconds.

**Table 2: Nonvolatile memory devices**

Type and minimum size	Function	User modifiable	Data input method	Location	To clear	To sanitize
Removable hard drive	Holds all user-storable data (waveforms and instrument settings)	Yes	Windows UI and AWG UI	Rear panel	(See page 5, <i>Removable Hard Drive</i> .)	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 5, <i>Removable Hard Drive</i> .)
EEPROM 64 K	Model configurations and calibration data	No	Not accessible	MIO board	Not applicable	Not applicable
EEPROM 4 K	MAC address for TekLink	No	Not accessible	MIO board	Not applicable	Not applicable (See page 4, <i>To Disable TekLink Using the Windows Device Manager</i> .)
EEPROM 4 K	PCI Bus configurations	No	Not accessible	MIO board	Not applicable	Not applicable
EEPROM 64 K	Contains count for actuation of relays	No	Not accessible	OUT1G board (AWG5000C series)	Not applicable	Not applicable

**Table 2: Nonvolatile memory devices (cont.)**

Type and minimum size	Function	User modifiable	Data input method	Location	To clear	To sanitize
EEPROM 64 K	Contains count for actuation of relays	No	Not accessible	OUT10G board (AWG7000C series)	Not applicable	Not applicable
EEPROM 64 K	Model configurations and calibration data	No	Not accessible	AWG12G board (AWG7000C series)	Not applicable	Not applicable
NVRAM 4 MB	Motherboard BIOS and BIOS settings	Yes	BIOS UI	PC motherboard	Not applicable	Not applicable
EEPROM 1 KB	PCI/PCIe bus settings	No	Not accessible	MIO board	Not applicable	Not applicable

## Data Export Devices

The following table lists the data export devices in the standard instrument and listed options.

**Table 3: Data export devices**

Type and minimum size	Function	User modifiable <sup>1</sup>	Data input method	Location	To disable
USB host port	Supports removable USB flash drive. User storage of instrument setups and exported waveform data.	Yes	Save	USB host ports on front and rear of instrument	Files can be deleted or overwritten on the instrument or a PC; USB flash drive can be removed and destroyed.  The USB ports can be disabled. (See page 3, <i>Disabling USB and CD-RW Capability.</i> )
CD-RW, DVD-ROM drive	Store and transport data	Yes	Read and write	Drive on front of instrument	Drive can be disabled. (See page 3, <i>Disabling USB and CD-RW Capability.</i> )
LAN Ethernet	Transfer data	Yes	Read, write, and controls programs	Ethernet port on rear of instrument	Ethernet port can be disabled. (See page 4, <i>To Disable LAN Ethernet Connectivity Using the BIOS.</i> )
GPIB	Remote control of instrumentation systems	Yes	Read, write, and controls programs	GPIB port on rear of instrument	The GPIB can be disabled. (See page 4, <i>To Disable GPIB Using the Windows Device Manager.</i> )
TekLink	Remote control of instrumentation systems	Yes	Read, write, and controls programs	TekLink port on rear panel	TekLink can be disabled. (See page 4, <i>To Disable TekLink Using the Windows Device Manager.</i> )

<sup>1</sup> 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 Windows Device Manager disables the devices for Windows programs. This procedure disables 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 must 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 Delete 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.



**WARNING.** *When you modify the BIOS configuration, be sure to follow the instructions exactly. If you make additional changes, you could disable the instrument.*

---

### 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 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 PCI-GPIB.
8. Select Disable from the list.

## Removable Hard Drive

All user-storable data is stored on the removable hard drive. Scrub the hard drive in a manner that meets local and any other security requirements that you have.

---

**NOTE.** Before scrubbing the hard drive, be sure that you created OS Restore CD-ROMs. For more information, see *Creating Operating System Restore CD-ROMs* in your instrument *Quick Start User manual*.

---

**To remove the hard drive.** The following procedure describes how to remove the disk drive.

1. Make sure that the main unit power is OFF.
2. Locate the hard disk drive on the rear of the instrument.
3. Loosen the two thumb screws on both sides of the main unit and carefully pull out the disk drive. Note the orientation of the assembly as you remove it.



---

**WARNING.** Static electricity can damage the hard disk drive. To avoid damaging the hard disk drive with static electricity, store the removed disk drive in a secure, static-free location.

---

After the hard drive has been scrubbed, the operating system and instrument software can be reinstalled.

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.

**To reinstall the hard drive.** The following procedure describes how to reinstall the disk drive.

1. Make sure that the main unit power is OFF.
2. Orient the hard disk drive in the instrument and push it into place until the data and power connections are firmly engaged.
3. Tighten the two thumb screws to secure the assembly to the instrument.

## PC RAM Size

To check the size of the PC RAM in the instrument, refer to the General tab of the Windows System Properties dialog box.

## 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. (See Table 2 on page 1.) Additional removable hard drives (Tektronix part number 065-0811-XX) can be purchased from Tektronix.

If the hard drive has been removed and a new hard drive is installed, you must install the operating system and instrument application software. Refer to the *AWG5000 and AWG7000 Series Quick Start User Manual* for restoring the operating system software and for installing the application software.

# 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.

For removal instructions, refer to your instrument service manual. (See page iii, *Related Documents*.)

<b>Hard Disk Drive</b>	Remove the hard disk drive before returning the instrument to Tektronix for repair.
<b>CD-RW/DVD ROM Drive</b>	Remove all CDs and DVDs. If it is not possible to remove the disk, you might need to remove the disk drive. Refer to your instrument service manual for instructions.
<b>USB Flash Drive</b>	Remove any attached USB flash drive from the instrument before returning the instrument for repair.

## How to Recover from Clearing or Removing the Instrument's Memory

If the hard drive has been removed and a new hard drive is installed, you must install the operating system and instrument application software.