

**AFG3000C and AFG3000 Series
Arbitrary Function Generators
Declassification and Security
Instructions**

www.tektronix.com



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Preface

This document helps customers with data security concerns to sanitize or remove memory devices from the Tektronix AFG3000C and AFG3000 Series Arbitrary Function Generators.

All of these products have data storage (memory) devices and data output devices (USB ports, GPIB connector, and LAN Ethernet connector). These instructions tell how to do the following:

- Clear or sanitize the memory devices.
- Clear or sanitize an instrument that is not functioning.

Reference The procedures in this document are written to meet the requirements specified in:

- NISPOM, DoD 5220.22–M, Chapter 8
- ISFO Process Manual for Certification & Accreditation of Classified Systems under NISPOM

Products The following Tektronix products are covered by this document:

Table 1: Supported products

AFG3011	AFG3021B	AFG3011C
AFG3101	AFG3022B	AFG3021C
AFG3102		AFG3022C
AFG3251		AFG3051C
AFG3252		AFG3052C
		AFG3101C
		AFG3102C
		AFG3151C
		AFG3152C
		AFG3251C
		AFG3252C

Related documents You can read more about your instrument in the following documents. These are available online at www.tektronix.com/downloads.

- *AFG3000C and AFG3000 Series Arbitrary Function Generator Service Manual*
- *AFG3000C and AFG3000 Series Arbitrary Function Generator Specifications and Performance Verification Technical Reference*
- *AFG3000C and AFG3000 Series Arbitrary Function Generator Quick Start User Manual*

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.
- **Instrument declassification.** A term that refers to procedures that must be undertaken before an instrument can be removed from a secure environment. Declassification procedures include memory sanitization and memory removal, and sometimes both.
- **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.** 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 accessible.** User is able to directly retrieve the memory device contents.
- **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 instrument. Detailed procedures to clear or sanitize these devices, if any, are shown following each table.

Terminology

The following terms are used in the tables in this section:

- User data – Describes the type of information stored in the device. Refers to waveforms or other measurement data representing signals connected to the instrument by users.
- User settings – Describes the type of information stored in the device. Refers to instrument settings that can be changed by the user.
- Both – Describes the type of information stored in the device. It means that both user data and user settings are stored in the device.
- None – Describes the type of information stored in the device. It means that neither user data nor user settings are stored in the device.
- Directly – Describes how data is modified. It means that the user can modify the data.
- Indirectly – Describes how data is modified. It means that the instrument system resources modify the data and that the user cannot modify the data.

Table 2: Volatile memory devices

Type and min. size	Function	Data Input method	Location	User accessible	To clear
SDRAM DDR 64M x 16	Microprocessor system memory, Display memory	Written by processor system	U501 on A71/A72 CPU board	No	Remove the power source from the instrument for at least 20 seconds.

Table 3: Nonvolatile memory devices

Type and min. size	Function	Data Input method	Location	User accessible	To sanitize
NAND flash 256M x 8	Holds instrument firmware, setups, waveforms, calibration data, Ethernet MAC address, and instrument serial number	Programmed at the factory Firmware operations and user input	U502 on A71/A72 CPU board	Yes	Use Secure . See the Clear or sanitize instrument procedure. (See page 4.)
SPI FLASH 8M bit	BIOS of instrument, saving boot up code	Programmed at the factory	U402 on A71/A72 CPU board	No	Replace it with a programmed part.

Clear or sanitize instrument

Use this Secure function to erase confidential data from your instrument. This procedure does not erase or change factory calibration constants.

1. Push the front-panel **Utility** button to display the Utility menu.
2. Push the **System** bezel button.
3. Push the **Secure** bezel button. The following message appears on the screen:
The Secure function will erase all setups and waveforms stored in the internal memory. Are you sure you want to execute secure function?
4. Select **OK** to execute Secure. Secure does the following:
 - Erases all waveforms and stored setups in all user memories.
 - Replaces the current front-panel setup with the default factory setup values.
 - Replaces the current GPIB and Ethernet settings with the default factory settings for models with these ports.

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 following the table.

Table 4: Media and data export devices

Type and min. size	Function	User modifiable	Data Input method	Location	Process to disable
USB host port	Supports removable USB memory device to save setups and waveforms	Yes	User writeable	Front panel	Files can be deleted or overwritten on the arbitrary function generator or a PC; USB memory device can be removed and destroyed. The USB host port cannot be disabled.
USB device port	Supports remote control and data transfer to PC	None	Remote control via USB TMC	Rear panel	The USB device port cannot be disabled.
LAN Ethernet	Supports remote control and data transfer to PC.	None	Remote control via VXI-11	Rear panel	The Ethernet port can be disabled. Set "0.0.0.0" as IP Address and Subnet Mask under Utility-I/O Interface-Ethernet.
GPIB	Supports remote control and data transfer to PC.	None	Remote control via IEEE488.2	Rear panel	The GPIB can be disabled. Select Off Bus as Utility-I/O Interface-GPIB-Configuration.

Built-in security features

The AFG3000 Series Arbitrary Function Generators have the following security functions:

- Secure
- Access Protection

Secure

To erase confidential data from the instrument, use the Secure function. Secure does not erase or change factory calibration constants. (See page 4, *Clear or sanitize instrument.*):

- Erases all waveforms and stored setups in all user memories
- Replaces the current front-panel setup with the default factory setup values
- Replaces the current GPIB and Ethernet settings with the default factory settings

Access protection

To protect calibration data and the instrument firmware, follow these steps:

1. Push the front-panel **Utility** button to display the Utility menu.
2. Push the **-more-** bezel button twice.
3. Push the **Security Menu** bezel button.
4. Select **Access Protection** to display the password input page.
5. Enter your password. Use the general purpose knob to select the characters and push the **Enter Character** bezel button after each selection.

As you enter the characters of your password, they are displayed as a series of asterisks (*****) on the password input page. If no specific password has been previously defined, use the default password DEFAULT.

6. Select **OK** to turn the access protection on.

NOTE. *If Access Protection is On, the Firmware Update and the Service Menu cannot be selected. To change the Access Protection to Off, you must enter the password.*

For information about changing the password, refer to the AFG3000 Series Quick Start User Manual.

For information about the Service Menu, refer to the AFG3000 Series Arbitrary Function Generators Service Manual.

Troubleshooting

How to clear or sanitize a nonfunctional instrument

If your instrument is not functioning and you need to clear or sanitize it, perform the following actions and return the instrument to Tektronix for repair:

CPU board Remove the CPU board and return the product to Tektronix. A new CPU board will be installed, and the instrument will be repaired and adjusted as necessary.

For removal instructions, refer to the *AFG3000 Series Arbitrary Function Generators Service Manual* available on the Tektronix Web site at www.tektronix.com/downloads.

After removal of the CPU board, refer to your company's internal policies regarding handling or disposal of the board.

USB memory device Remove any attached USB memory device from the instrument before returning the instrument for repair.

After removal of a USB memory device, refer to your company's internal policies regarding handling or disposal of the memory device.

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 memory

If you removed the CPU board in order to clear or sanitize your instrument, reinstall the board and perform the specified adjustment procedures to verify that the instrument is in the proper condition. For adjustment procedures, refer to the *AFG3000 Series Arbitrary Function Generators Service Manual*.

Change log

Document part number	Revision date	Change description
077-0814-00	November 2012	New document.
077-0814-01	June 2015	Updated with AFG3151C and AFG3152C information
