

**AFG2021
Arbitrary/Function Generator
Declassification and Security
Instructions**

www.tektronix.com



077-0619-00

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.

Contacting Tektronix

Tektronix, Inc.
14150 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 to find contacts in your area.

Table of Contents

Preface	iii
Clear and sanitize procedures	1
Memory devices	1
Media and data export devices	3
Built-In security features	5
Secure	5
Access Protection	5
Troubleshooting.....	7
How to clear or sanitize a nonfunctional instrument.....	7
How to recover from clearing or removing the memory	7
Change log	8

Preface

This document helps customers with data security concerns to sanitize or remove memory devices from the AFG2021Arbitrary/Function Generator.

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. The instructions also tell how to declassify 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:
- AFG2021Arbitrary/Function Generator

Related documents *AFG2021Arbitrary/Function Generator Service Manual* and *AFG2021Arbitrary/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 1: Volatile memory devices

Type and min. size	Function	Data Input method	Location	User accessible	To clear
SDRAM 1 M x 64	Microprocessor system memory, Display memory	Written by processor system	U202, U203 on main board	No	Remove the power source from the instrument for at least 20 seconds.

Table 2: Nonvolatile memory devices

Type and min. size	Function	Data Input method	Location	User accessible	To sanitize
Flash, 4 M x 16	Holds instrument firmware, setups, waveforms, calibration data, Ethernet MAC address, and instrument serial number	Programmed at the factory, firmware operations, and user input	U201 on main board	Yes	Use Secure. See the Clear or sanitize instrument procedure (See page 2.).

Clear or sanitize instrument

Use this Secure function to erase confidential data from your AFG2021 Series Arbitrary/Function Generators. 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.

Media and data export devices

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

Table 3: 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 ¹	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 ¹	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.

¹ This device is only available on AFG2021 instruments with option GL.

Built-In security features

The AFG2021 Arbitrary Function Generator has the following security functions:

- Secure
- Access Protection

Secure

To erase confidential data from the instrument, use the Secure function (See page 2, *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
- Secure does not erase or change factory calibration constants

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.*

You can change the password when Access Protection is off. First, enter the old password and push the OK bezel button. Then enter the new password. The password must be 7 characters.

For information about changing the password, refer to the AFG2021 Series Arbitrary/Function Generators Quick Start User Manual.

For information about the Service Menu, refer to the AFG2021 Arbitrary/Function Generators Service Manual.

Troubleshooting

How to clear or sanitize a nonfunctional instrument

If your instrument is not functioning, perform the following actions and return the instrument to Tektronix for repair. Describe the initial problem with the product. Tektronix will install replacement parts and then repair and return the instrument.

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

For removal instructions, refer to the AFG2021 Arbitrary Function Generator Service Manual, available on the Tektronix Web site at www.tektronix.com/downloads.

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

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

After removal of USB memory devices, 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 removing the memory

If you removed the main 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 AFG2021 Arbitrary Function Generator Service Manual.

Change log

Document part number	Revision date	Change description
077-0619-00	April 2012	New document