



**AWG4162**  
**Arbitrary Waveform Generator**  
**Declassification and Security**  
**Instructions**

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077-1202-00

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# Preface

This document helps customers with data security concerns to sanitize or remove memory devices from the Tektronix AWG4162 Arbitrary Waveform Generator.

This product has data storage (memory) devices and data output devices (USB and LAN). 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

**Required documents** No external documents are required to perform the procedures in this document.

## Terms that may be used in this document

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.
- **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.

**Device terms**

- **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.

# Memory devices

## Volatile memory devices

Type and min. size	Function	Type of user info stored	Backed up by battery	Method of modification	Data Input method	Location	User accessible	To clear	To sanitize
RLDRAM2 576Mbit	Storage of arbitrary waveforms	User data	No	Indirect	Firmware operations	SRGB board U11A/U11B	No	Remove power from the instrument for at least 1 seconds.	Remove power from the instrument for at least 1 seconds.
Microcontroller, 128 bytes on chip RAM	U17 firmware heap and stack variables	Not applicable	No	Indirect	Firmware operations	SRGB board U17	No	Remove power from the instrument for at least 1 seconds.	Remove power from the instrument for at least 1 seconds.
SDRAM 8GB	Binary user data	User data	No	Indirect	OS/APP operations	COM-E module	No	Remove power from the instrument for at least 1 seconds.	Remove power from the instrument for at least 1 seconds.

## Non-volatile memory devices

Type and min. size	Function	Type of user info stored	Method of modification	Data Input method	Location	User accessible	To clear	To sanitize
Microcontroller, 32K bytes on chip Flash	Front panel firmware	None	None	None	Front panel board U302	No	Not applicable. Does not contain user data or settings. Clearing would disable instrument functionality.	Not applicable. Does not contain user data or settings. Clearing would disable instrument functionality.
Microcontroller, 32K bytes on chip Flash	COM-E board firmware	None	None	None	COM-E board U1	No	Not applicable. Does not contain user data or settings. Clearing would disable instrument functionality.	Not applicable. Does not contain user data or settings. Clearing would disable instrument functionality.

Type and min. size	Function	Type of user info stored	Method of modification	Data Input method	Location	User accessible	To clear	To sanitize
EEPROM 1Mbytes	USB TEK-UTI firmware	None	None	None	COM-E board U17	No	Not applicable. Does not contain user data or settings. Clearing would disable instrument functionality.	Not applicable. Does not contain user data or settings. Clearing would disable instrument functionality.
EEPROM 512KBIT	USB controller start up data, calibration data, serial number,option key	None	Indirect	Firmware operation	SRGB board U15	No	Not applicable. Does not contain user data or settings. Clearing would disable instrument functionality.	Not applicable. Does not contain user data or settings. Clearing would disable instrument functionality.
Microcontroller, 256 bytes on chip EEPROM	Hardware license key	None	Indirect	Firmware operation	SRGB board U17	No	Not applicable. Does not contain user data or settings. Clearing would disable instrument functionality.	Not applicable. Does not contain user data or settings. Clearing would disable instrument functionality.
Hard disk	User data	Project settings, waveform, etc.	Direct	Write, copy, read from external storage medium	HDD	Yes	Delete user data	Delete user data

**How to clear or sanitize non-volatile memory**

This procedure will erase all setups and waveforms stored in the X drive. This procedure does not erase or change factory calibration constants.

1. Power on the instrument and press the Basic button to launch the Basic mode application.
2. Select the System panel.
3. Select Tools from the left-side menu.
4. Select the Secure button.
5. The following message will appear. Click OK to execute.  

“The Secure function will erase all setups and waveforms stored in the X drive. Are you sure you want to execute secure function?”
6. Wait for 10 minutes.



**How to recover from a non-volatile clear or sanitize procedure (Basic mode)**

1. Power on the instrument and press the Basic button to launch the Basic mode application.
2. Select the Default button on the Home panel.
3. The following message will appear. Click Yes to restore default settings.  
“Do you want to change to Default?”
4. Wait for 2 minutes.

**How to recover from a non-volatile clear or sanitize procedure (Advanced mode)**

There is no default setting for Advanced mode.

**Data export devices**

Type and min. size	Function	Type of user info stored	Method of modification	Data input method	Location	User accessible	Process to disable
LAN Ethernet connector	Transfer data	Direct	Indirect	Remote control	Rear panel	No	Cannot be disabled
USB	Transfer data	Direct	Indirect	USB	Front/Rear panel	No	Cannot be disabled

## Clear or sanitize a non-functional instrument

If your instrument is not functioning, return the instrument to Tektronix for repair.

**Charges** Replacement of any missing hardware will be charged according to the rate at the time of replacement.