Tektronix®

TBS2000 Series Oscilloscope

Declassification

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Oscilloscope

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Warning

The servicing instructions are for use by qualified personnel only. To avoid personal injury, do not perform any servicing unless you are qualified to do so. Refer to all safety summaries prior to performing service.

Supports Product Firmware V1.0 and above

Contacting Tektronix

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

- In North America, call 1-800-833-9200.

- Worldwide, visit *www.tek.com* to find contacts in your area.

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Preface

This document helps customers with data security concerns to sanitize or remove memory devices from their instrument.

This series of instruments contains an open architecture PC with removable mass storage. You can order additional removable mass storage devices to swap in and out of the instrument as needed for security reasons.

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

Products

The following Tektronix products are covered by this document:

- TBS2072
- TBS2102
- TBS2074
- TBS2104

Terms

The following terms may be used in this document:

- **Clear.** This eradicates 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. A device that is used to store or export data from the instrument, such as a USB port/ USB flash drive.
- **Sanitize.** This removes the data from media/memory so that the data cannot be recovered using any known technology. This is typically used when the device will be moved (temporarily or permanently) from a secured area to a nonsecured area.
- **Scrub.** This is equivalent to sanitize.
- **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.
- **User Accessible.** User is able to directly retrieve the memory device contents.
- **User-Modifiable.** The memory device can be written to by the user during normal instrument operation, using the instrument user interface or remote control.
- **Volatile memory.** Data is lost when the instrument is powered off.
- **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.

- **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.

Clear and sanitize procedures

If your instrument is not functioning and you need to clear or sanitize it, proceed as follows:

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 *TBS2000 Series Digital Storage Oscilloscope Service Manual* , part number 077-1150-XX, available on the Tektronix Web site at www.tek.com/manuals.

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

USB flash drive

Remove the USB flash drive and return the instrument to Tektronix for repair.

After removal of the USB flash drive, refer to your organization's internal policies regarding handling or disposal of the flash drive.

Charges

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

TekSecure

TekSecure™ capability is present in TBS2000 oscilloscopes. Pressing TekSecure erases and overwrites all of the waveform and setup memories. The waveform memories, stored in nonvolatile memory, are overwritten with an "empty," all zeros pattern. The setup memories, stored in nonvolatile memory, are overwritten with the factory default front-panel setup. The current front-panel setup is also overwritten with the default factory setup.

Using TekSecure will not affect calibration of the instrument because the calibration constants are stored in another nonvolatile memory completely separate from any acquisition data. This allows complete erasure/removal of any secure data without affecting the oscilloscope calibration. It also allows the oscilloscope to be calibrated in a non-secure site and then used in a secure area without the need for recalibration.

Memory devices

The following tables list the volatile and nonvolatile memory devices in the instrument.

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 or 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 minimum size	Function	Type of user info stored	Backed-up by battery	Method of modification	Data input method	Location	User accessible	To clear	To sanitize
SDRAM 768 MB (std)	Holds active acquisition data	User data	No	Indirectly	Firmware operations	4ch Main board	Yes	Remove power from the instrument for at least 20 seconds	Remove power from the instrument for at least 20 seconds
SDRAM 256 MB (std)	Holds active acquisition data	User data	No	Indirectly	Firmware operations	2ch Main board	Yes	Remove power from the instrument for at least 20 seconds	Remove power from the instrument for at least 20 seconds
SDRAM 256 MB (std)	Microprocessor system memory	User data, user settings	No	Directly	Written by processor system	Main board	Yes	Remove power from the instrument for at least 20 seconds	Remove power from the instrument for at least 20 seconds

Table 2: Nonvolatile memory devices

Type and minimum size	Function	Type of user info stored	Method of modification	Data input method	Location	User accessible	To clear	To sanitize
NAND Flash 4 Gbytes	Holds instrument operating system and application software. Holds all user-storable data such as waveforms, measurement results, and instrument settings.	User data and user settings	Indirectly	Firmware operations, user input	Main board	Yes	Use TekSecure to clear reference waveforms and instrument setups.	Use TekSecure to clear reference waveforms and instrument setups.
Serial Flash 2 Mbytes	Holds instrument calibration data, serial number, and Option key	None	Indirect	Firmware operations	Main board	No	Not applicable, does not contain user data or setting. Clearing would disable instrument functionality.	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality

Clear NAND Flash data using TekSecure

Procedure:

1. 1. Before doing TekSecure, save your user data into a USB thumb drive. See the following steps:

   - Press Save/Recall on the front panel

   - Select Save Setup (bezel 1) , select Save to USB file (bezel 2), press Save (bezel 5), to save setup to USB.

   - Select Save Waveform (bezel 1), select Save to USB file (bezel 2), press Save (bezel 5), to save waveform to USB.

2. Enter into Utility>Config> Teksecure Erase Memory, press it.

3. There will be a pop up menu of warning showing: "This procedure will erase all nonvolatile RAM, All reference waveforms and save setups will be erased. Calibration constants will be retained. This will take approximately 3 minutes. Are you sure you want to erase?"

4. Press Yes. It will begin TekSecure, and after it finishes, it will reboot the instrument.

Media and data export devices

The following table lists the data export devices in the instrument.

Table 3: Media and Data export devices

Type and minimum size	Function	Method of modification	Data input method	Location	User accessible	To disable
USB host port (supports removable USB flash drive)	User storage of reference waveforms, screen images, and instrument setups. Wireless connection through USB WiFi dongles.	Directly	User writeable	USB host ports on front of instrument: Just for USB disk Files can be deleted or over-written on the oscilloscope or a PC, or USB flash drive can be removed and destroyed. USB host ports on rear of instrument: Just for USB WiFi dongles.	Yes	The USB host port cannot be disabled.
USB device port	Supports remote control and data transfer to a PC.	Directly	Remote control via USBTMC	USB device port on rear of instrument	Yes	The USB device port cannot be disabled.
LAN Ethernet connector	Supports remote control and data transfer to a PC.	Directly	NA	Rear panel	Yes	N/A

Change log

Document part number	Revision date	Change description

TBS2000 Series Declassification and Security Instructions