# Tektronix 4000 Series Oscilloscopes Declassification and Security Instructions

Revision B

www.tektronix.com

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Tektronix

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

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# Preface

If you have data security concerns, this document helps you to sanitize or remove memory devices from the Tektronix 4000 Series Digital Phosphor Oscilloscopes.

The 4000 series products have data storage (memory) devices and data output devices (CompactFlash card, and USB ports). These instructions tell you how to clear or sanitize the memory devices, and also tell you how to declassify an instrument that is not functioning.

Instrument code and calibration settings reside in nonvolatile flash memory. Instrument setups and reference waveforms may also be stored in flash memory or on CompactFlash and USB drives connected to the instrument.

If you have any questions, contact the Tektronix Technical Support Center at www.tektronix.com/support.

## Products

The following Tektronix products are covered by this document:

- DPO4104
- DPO4054
- DPO4034
- DPO4032
- MSO4104
- MSO4054
- MSO4034
- MSO4032

## Related Documents

The *Tektronix 4000 Series Digital Phosphor Oscilloscopes Service Manual*, part number 071-2137-XX, is available on the Tektronix Web site at www.tektronix.com/manuals.

## 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 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-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 for the DPO4000 and MSO4000 Series

| Type and minimum size | Function | User modifiable | Data input method | Location | To clear or sanitize |
|---|---|---|---|---|---|
| CMOS, SDRAM, 32 M X 16, 512 MB DDR2, 1.8 V, 333 MHZ (EFFECTIVE 667 MHZ); MT47H32M16FT-3 REBAL | DDR memory: contains waveform acquisition data during operation | Only by the processor system | N/A | Acquisition board; the number of SDRAM devices vary by model | Remove power from the instrument for at least 20 seconds |
| CMOS, DDR; 16 MB X 16, 256 M, 10 NS, 2.5 V; MT46V16M16TG-8, TSOP66, DS3 | DDR memory: contains instrument code and data during operation | Only by the processor system | N/A | Acquisition board | Remove power from the instrument for at least 20 seconds |
| CMOS, PERIPHERAL; VIDEO ACCELERATOR, INTERNAL SDRAM, XGA, PCI, AGP, ATI M6C16H, BGA696 | Display ASIC: includes SDRAM, which contains display images during operation | Only by the processor system | N/A | Acquisition board | Remove power from the instrument for at least 20 seconds |

### Table 2: Additional Volatile Memory Devices for the MSO4000 Series

| Type and minimum size | Function | User modifiable | Data input method | Location | To clear or sanitize |
|---|---|---|---|---|---|
| CMOS, DRAM; 8MX32, 256MB, SDRAM, 3.3V; MT48LC8M32B2F5-7, 90-BALL FBGA (11MM X 13MM), DS4 | DDR memory: contains instrument code and data during operation | Only by the processor system | N/A | Acquisition board | Remove power from the instrument for at least 20 seconds |
| CMOS, DRAM; 4MX32, 128MB, SDRAM, 3.3V; MT48LC4M32B2FC-7, 90-BALL FBGA (11MM X 13MM), DS4 | Display ASIC: includes SDRAM, which contains display images during operation | Only by the processor system | N/A | Acquisition board | Remove power from the instrument for at least 20 seconds |

### Table 3: Nonvolatile Memory Devices

| Type and minimum size | Function | User modifiable | Data input method | Location | To clear or sanitize |
|---|---|---|---|---|---|
| CMOS, EEPROM; 128 X 8, SERIAL; 24C01A, SOIC8 | EEPROM: contains PowerPC hardware configuration | Only by the processor system | N/A | Acquisition board | Not applicable - no user data |

### Table 3: Nonvolatile Memory Devices (cont.)

| Type and minimum size | Function | User modifiable | Data input method | Location | To clear or sanitize |
|---|---|---|---|---|---|
| CMOS, FLASH; 16 M X 8 OR 8M X 16, 128 MBIT, 150 NS, 3 V, QFLASH; MT28F128J3FS-15, BGA64 | Flash: contains the instrument firmware, calibration constants, reference waveforms, and instrument setups | Only by the processor system | N/A | Acquisition board | Not applicable for calibration constants.<br>Use the TekSecure feature to erase reference waveforms and instrument setups.(See page 3, *What TekSecure Does*.)<br>Use the procedure to disable the LAN Ethernet and to clear information, such as IP addresses. (See page 4, *Disable the LAN Port and Clear LAN Ethernet Settings*.) |
| CMOS, FLASH; 512 K X 8, 3.0 V, 90 N S, BOTTOM SECTOR; AM29LV040B-90JC, PLCC32 | Flash: contains the instrument boot code | Only by the processor system | N/A | Acquisition board | Not applicable - no user data |

## Data Export Devices

The following table lists the data export devices.

### Table 4: Data Export Devices

| Type and minimum size | Function | User modifiable | Data input method | Location | To disable |
|---|---|---|---|---|---|
| CompactFlash card port | Supports the removable CompactFlash memory card; user storage of reference waveforms, screen images, and instrument setups | Yes | Save | CompactFlash port on the front of the instrument | Files can be deleted or overwritten on the instrument or a PC; the CompactFlash card can be removed and destroyed.<br>The CompactFlash port cannot be disabled. |
| USB host ports | Supports the removable USB flash drive; user storage of reference waveforms, screen images, and instrument setups | Yes | Save | USB host ports on the front and rear of the instrument | Files can be deleted or overwritten on the instrument or a PC; the USB flash drive can be removed and destroyed.<br>The USB host ports cannot be disabled. |
| USB device port | Supports remote control and data transfer to a PC | Yes | Remote control via USBTMC | USB device port on the rear of the instrument | The USB device port cannot be disabled. |

# Built-In Security Features

## When to Use TekSecure

You can use the TekSecure function to erase setup and reference waveform data stored in internal flash memory.

The 4000 series models have three USB host ports (one on the front and two on the rear panel) and one CompactFlash port on the front panel. Any USB flash devices or CompactFlash cards can be removed and stored or destroyed.

## What TekSecure Does

The TekSecure function does the following:

- Replaces all waveforms in all reference memories with null sample values
- Replaces the current front-panel setup and all stored setups with the default setup values
- Calculates the checksums of all reference waveform memory and setup memory locations to verify successful completion of waveform and setup erasure
- Displays a dialog indicating whether the secure erase was successful or unsuccessful

***NOTE.*** *TekSecure does not erase or change factory calibration constants or Ethernet settings.*

To use TekSecure:

1. Push the front-panel **Utility** button.
2. Push the **Utility Page** lower-bezel button and use the **Multipurpose a** knob to select **Config**.
3. Push the **TekSecure Erase Memory** lower-bezel button.
4. Push the **OK Erase Setup and Ref Memory** side-bezel button. Wait for the "TekSecure operation complete" dialog box to display.
5. Push the **Menu Off** front-panel button to close the dialog box.

To reset the instrument RAM:

1. Power off the instrument.
2. Power on the instrument.

## Disable the LAN Port and Clear LAN Ethernet Settings

To disable the LAN port and clear LAN Ethernet settings, such as IP addresses, follow these steps:

***CAUTION.*** *If you need to restore network connectivity at a later date, make sure to write down all setting values before clearing them.*

1. Remove the network cable from the LAN port on the rear of the instrument.
2. Push the front-panel **Utility** button.
3. Push the **Utility Page** lower-bezel button and use the **Multipurpose a** knob to select **I/O**.
4. Push the **Ethernet Network Settings** lower-bezel button.
5. Push the **Change Instrument Settings** side-bezel button.
6. Push the ↑ or ↓ arrow side-bezel button to position the cursor on the **User Password** information.
7. Push the **Clear** lower-bezel button.
8. Push the ↓ arrow side-bezel button to position the cursor on the **Instrument IP Address** information.
9. Push the **Clear** lower-bezel button.

10. Push the ↓ arrow side-bezel button to position the cursor on the **Domain Name** information.
11. Push the **Clear** lower-bezel button.
12. Push the ↓ arrow side-bezel button to position the cursor on the **DNS IP Address** information.
13. Push the **Clear** lower-bezel button.
14. Push the ↓ arrow side-bezel button to position the cursor on the **Gateway IP Address** information.
15. Push the **Clear** lower-bezel button.
16. Push the ↓ arrow side-bezel button to position the cursor on the **Subnet Mask** information.
17. Push the **Clear** lower-bezel button.
18. Push the **OK Accept** side-bezel button.

The LAN system is disabled and no longer allows data traffic in or out. The relevant LAN Ethernet settings are also cleared.

## Disable the USB Device Port

To disable the USB device port, follow these steps:

1. Remove any USB cable or device from the USB device port on the rear of the instrument.
2. Push the front-panel **Utility** button.
3. Push the **Utility Page** lower-bezel button and use the **Multipurpose a** knob to select **I/O**.
4. Push the **USB** lower-bezel button.
5. Push the **Disabled (Off Bus)** side-bezel button to disable the USB device port.

The USB device port is disabled and no longer allows data traffic in or out.

# Clear and Sanitize a Non-Functional Instrument

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

### Acquisition board

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

For removal instructions, refer to the *Tektronix 4000 Series Digital Phosphor Oscilloscopes Service Manual*, part number 071-2137-XX, available on the Tektronix Web site at www.tektronix.com/manuals.

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

### CompactFlash Memory Card

Remove the CompactFlash memory card and return the instrument to Tektronix for repair.

After removal of the CompactFlash memory card, refer to your company's internal policies regarding handling or disposal of the memory card.

### 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 company'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.