



**PA3000  
Declassification and Security  
Instructions**

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# Preface

This document helps customers with data security concerns to sanitize or remove memory devices from the Tektronix PA3000 Series Power Analyzer.

These products have data storage (memory) devices and data output devices. 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:

- PA3000

## Terms 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.** 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

The following terms are used with the memory devices in this document:

- **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.





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# Memory devices

This section lists the volatile and non-volatile memory devices in the instrument. Detailed procedures to clear or sanitize these devices, if any, are available later in this document.

## Volatile memory devices

<b>Device name</b>	Main DSP internal memory
<b>Type and size</b>	SRAM, 68 kbytes
<b>Function</b>	Main DSP operating memory
<b>Type of user information stored</b>	Both user settings and user data
<b>Backed-up by battery</b>	No
<b>Method of modification</b>	Indirectly
<b>Data input method</b>	Firmware
<b>Location</b>	Main board, U3
<b>User accessible</b>	No
<b>To clear</b>	Remove the power from the instrument for at least 20 seconds.

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<b>Device name</b>	Main DSP external memory
<b>Type and size</b>	SRAM, 1 Mbyte
<b>Function</b>	Main DSP operating memory
<b>Type of user information stored</b>	Both user settings and user data
<b>Backed-up by battery</b>	No
<b>Method of modification</b>	Indirectly
<b>Data input method</b>	Firmware
<b>Location</b>	Main board, U2
<b>User accessible</b>	No
<b>To clear</b>	Remove the power from the instrument for at least 20 seconds.

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<b>Device name</b>	Display memory
<b>Type and size</b>	DRAM, 2 Mbytes
<b>Function</b>	Graphical display
<b>Type of user information stored</b>	Data on the display
<b>Backed-up by battery</b>	No
<b>Method of modification</b>	Indirectly
<b>Data input method</b>	Firmware
<b>Location</b>	Main board, U24

<b>User accessible</b>	No
<b>To clear</b>	Remove the power from the instrument for at least 20 seconds.
<b>Device name</b>	Channel DSP internal memory
<b>Type and size</b>	SRAM, 512 kbytes (x4)
<b>Function</b>	Analog measurement system program
<b>Type of user information stored</b>	Both user settings and user data
<b>Backed-up by battery</b>	No
<b>Method of modification</b>	Indirectly
<b>Data input method</b>	Firmware
<b>Location</b>	Main board, U28, U30, U32, U34
<b>User accessible</b>	No
<b>To clear</b>	Remove the power from the instrument for at least 20 seconds.
<b>Device name</b>	Ethernet controller
<b>Type and size</b>	SRAM, 3808 bytes
<b>Function</b>	Ethernet controller variables
<b>Type of user information stored</b>	Both user settings and user data
<b>Backed-up by battery</b>	No
<b>Method of modification</b>	Indirectly by sending remote commands to the instrument
<b>Data input method</b>	Ethernet communication
<b>Location</b>	Ethernet / USB card, U4
<b>User accessible</b>	No
<b>To clear</b>	Remove the power from the instrument for at least 20 seconds.
<b>Device name</b>	Ethernet controller
<b>Type and size</b>	SRAM, 8192 bytes
<b>Function</b>	Ethernet transmit and receive buffers
<b>Type of user information stored</b>	Remote command data and response data. This can include user settings and user data as well as data broadcast over Ethernet.
<b>Backed-up by battery</b>	No
<b>Method of modification</b>	Indirectly by sending remote commands to the instrument
<b>Data input method</b>	Ethernet communication
<b>Location</b>	Ethernet / USB card, U4
<b>User accessible</b>	No
<b>Process to sanitize</b>	Remove the power from the instrument for at least 20 seconds.
<b>Device name</b>	USB host controller
<b>Type and size</b>	SRAM, 4 kbytes
<b>Function</b>	USB operating memory

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<b>Type of user information stored</b>	Both user settings and user data
<b>Backed-up by battery</b>	No
<b>Method of modification</b>	Indirectly by storing data, settings, or screen captures on a USB memory stick
<b>Data input method</b>	Firmware
<b>Location</b>	Ethernet / USB card, U3
<b>User accessible</b>	No
<b>To clear</b>	Remove the power from the instrument for at least 20 seconds.

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<b>Device name</b>	USB device controller
<b>Type and size</b>	SRAM, 384 bytes
<b>Function</b>	USB transmit and receive buffers
<b>Type of user information stored</b>	Remote command data and response data. This can include user settings and user data.
<b>Backed-up by battery</b>	No
<b>Method of modification</b>	Indirectly by sending remote commands to the instrument
<b>Data input method</b>	USB communication
<b>Location</b>	Main board, U6
<b>User accessible</b>	No
<b>Process to sanitize</b>	Remove the power from the instrument for at least 20 seconds.

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## Nonvolatile memory devices

<b>Device name</b>	Analog EEPROM
<b>Type and size</b>	EEPROM, 128 kbytes (x1 for each channel installed)
<b>Function</b>	Calibration constants
<b>Type of user information stored</b>	None
<b>Method of modification</b>	Indirectly through firmware
<b>Data input method</b>	Factory configuration
<b>Location</b>	Analog module, U1
<b>User accessible</b>	No
<b>To clear</b>	Not applicable, does not contain user data or settings.
<b>Process to sanitize</b>	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality.

<b>Device name</b>	Main EEPROM
<b>Type and size</b>	EEPROM, 128 kbytes
<b>Function</b>	User configuration storage
<b>Type of user information stored</b>	User configuration storage
<b>Method of modification</b>	Indirectly through firmware
<b>Data input method</b>	User changing the configuration of the product
<b>Location</b>	Main board, U8
<b>User accessible</b>	Yes, through undocumented internal commands
<b>To clear</b>	See instructions under <a href="#">Clear procedure</a> on page 9
<b>Process to sanitize</b>	The instrument does not provide a method to sanitize the memory. To sanitize, remove the memory and destroy using an approved sanitization method for EEPROM devices. Note, this will disable instrument functionality requiring a factory repair.

<b>Device name</b>	Ethernet EEPROM
<b>Type and size</b>	EEPROM, 256 kbytes
<b>Function</b>	Storage of Ethernet settings
<b>Type of user information stored</b>	User Ethernet settings
<b>Method of modification</b>	Indirectly through firmware
<b>Data input method</b>	User changing the Ethernet configuration settings
<b>Location</b>	Ethernet / USB card, U5
<b>User accessible</b>	No
<b>To clear</b>	Follow instructions for setting Ethernet interface settings under <a href="#">Clear procedure</a> on page 9.
<b>Process to sanitize</b>	The instrument does not provide a method to sanitize the memory. To sanitize, remove the memory and destroy using an approved sanitization method for EEPROM devices. Note, this will disable instrument functionality requiring a factory repair.

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<b>Device name</b>	Main DSP internal flash
<b>Type and size</b>	FLASH, 512 kbytes
<b>Function</b>	Stores operating code
<b>Type of user information stored</b>	None
<b>Method of modification</b>	Indirectly through firmware
<b>Data input method</b>	Firmware upgrade program
<b>Location</b>	Main board, U3
<b>User accessible</b>	Yes, through undocumented internal commands
<b>To clear</b>	Not applicable, does not contain user data or settings.
<b>Process to sanitize</b>	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality.

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<b>Device name</b>	External flash
<b>Type and size</b>	FLASH, 1 Mbyte
<b>Function</b>	Stores operating code
<b>Type of user information stored</b>	None
<b>Method of modification</b>	Indirectly through firmware
<b>Data input method</b>	Firmware upgrade program
<b>Location</b>	Main board, U4
<b>User accessible</b>	Yes, through undocumented internal commands
<b>To clear</b>	Not applicable, does not contain user data or settings.
<b>Process to sanitize</b>	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality.

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<b>Device name</b>	USB host processor
<b>Type and size</b>	FLASH, 64 kbytes
<b>Function</b>	Stores operating code
<b>Type of user information stored</b>	None
<b>Method of modification</b>	Indirectly through firmware update file transfer
<b>Data input method</b>	File transfer from a USB memory stick
<b>Location</b>	Ethernet / USB card, U3
<b>User accessible</b>	No
<b>To clear</b>	Not applicable, does not contain user data or settings.
<b>Process to sanitize</b>	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality.

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<b>Device name</b>	Ethernet controller
<b>Type and size</b>	Ethernet controller, 128 kbytes
<b>Function</b>	Stores operating code
<b>Type of user information stored</b>	None

<b>Method of modification</b>	Indirectly through firmware
<b>Data input method</b>	Firmware upgrade program
<b>Location</b>	Ethernet / USB card, U4
<b>User accessible</b>	Yes, through undocumented internal commands
<b>To clear</b>	Not applicable, does not contain user data or settings.
<b>Process to sanitize</b>	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality.

<b>Device name</b>	Logic
<b>Type and size</b>	FLASH, 144 CPLD macrocells (x2)
<b>Function</b>	Digital logic
<b>Type of user information stored</b>	None
<b>Method of modification</b>	None
<b>Data input method</b>	Factory programming
<b>Location</b>	Main board, U25, U26
<b>User accessible</b>	No
<b>To clear</b>	Not applicable, does not contain user data or settings.
<b>Process to sanitize</b>	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality.

<b>Device name</b>	Channel logic (voltage)
<b>Type and size</b>	FLASH, 72 CPLD macrocells (x1 for each channel installed)
<b>Function</b>	Digital logic
<b>Type of user information stored</b>	None
<b>Method of modification</b>	None
<b>Data input method</b>	Factory programming
<b>Location</b>	Analog module, U24
<b>User accessible</b>	No
<b>To clear</b>	Not applicable, does not contain user data or settings.
<b>Process to sanitize</b>	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality.

<b>Device name</b>	Channel logic (current)
<b>Type and size</b>	FLASH, 72 CPLD macrocells (x1 for each channel installed)
<b>Function</b>	Digital logic
<b>Type of user information stored</b>	None
<b>Method of modification</b>	None
<b>Data input method</b>	Factory programming
<b>Location</b>	Analog module, U55
<b>User accessible</b>	No

<b>To clear</b>	Not applicable, does not contain user data or settings.
<b>Process to sanitize</b>	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality.

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## Data export devices

This section lists the data export devices. Detailed procedures to disable these devices, if any, are included.

### USB Host port

<b>Device type</b>	USB host port (supports removable USB flash drive)
<b>Function</b>	User storage of results, instrument setup, and screen captures
<b>Method of modification</b>	Directly
<b>Data input method</b>	User writeable
<b>Location</b>	USB host port on front of instrument. Files can be deleted or over-written on the PC, or USB flash drive can be removed and destroyed.
<b>To disable</b>	The USB port cannot be disabled.

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### USB Device port

<b>Device type</b>	USB device port
<b>Function</b>	Supports remote control and data transfer to a PC.
<b>Method of modification</b>	Directly
<b>Data input method</b>	Remote control via USBTMC
<b>Location</b>	USB device port on rear of instrument
<b>To disable</b>	The USB client device port cannot be disabled.

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### LAN Ethernet connector

<b>Device type</b>	LAN Ethernet connector
<b>Function</b>	Supports remote control and data transfer to a PC
<b>Method of modification</b>	Directly
<b>Data input method</b>	Remote control
<b>Location</b>	Rear panel
<b>To disable</b>	The Ethernet LAN controller cannot be disabled.

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### GPIB connector

<b>Device type</b>	GPIB connector
<b>Function</b>	Supports remote control and data transfer to a PC
<b>Method of modification</b>	Directly
<b>Data input method</b>	Remote control
<b>Location</b>	Rear panel (optional)
<b>To disable</b>	The GPIB interface cannot be disabled.

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**RS-232 connector**

<b>Device type</b>	RS-232 connector
<b>Function</b>	Supports remote control and data transfer to a PC
<b>Method of modification</b>	Directly
<b>Data input method</b>	Remote control
<b>Location</b>	Rear panel
<b>To disable</b>	The RS-232 interface port cannot be disabled.

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## Clear user memory

To clear the non-volatile memory, complete the procedure described below. In any case, no measurement results are stored. Only instrument setup and calibration information can be stored in memory inside the instrument.

### Clear procedure

To erase confidential data from your instrument, perform the following procedure. This procedure does not erase or change factory calibration constants.

The following user settings need to be cleared as separate actions:

- Current configuration
- User configurations 1 through 8
- User communications settings (these are not reset by loading the default configuration)

To reset the current configuration (used at power on).

1. Press the front panel **MENU** button.
2. Scroll down to **User Configuration**.
3. Select **Load Default Configuration**.
4. Wait for confirmation that the configuration has been loaded.

To reset configurations 1 through 8 to default.

1. First load the default configuration as detailed above.
2. Select **Configuration 1** (the first configuration below *Save To USB* option).
3. Scroll down to **Save Current Configuration** and select this option (bottom soft key).
4. When finished, select **OK**.
5. If the name of the configuration is not “Configuration 1”, then rename the configuration.
6. Repeat steps 2 through 5 for configurations 2 through 8.

To clear the communication settings.

1. Press the front panel **MENU** button.
2. Scroll down to **Interfaces**.
3. In the RS232 menu, set the baud rate to the factory default of **38400**.
4. In the GPIB menu set the address to the factory default of **5**.
5. In the Ethernet IP Selection Method menu, select the factory default of **Set IP using DHCP**.
6. In the Ethernet Static IP Setting menu, set the IP address to **192.168.2.255**, the Subnet mask to **255.255.255.0** and the Default Gateway to **192.168.2.1** (factory defaults).

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## Clear or sanitize a non-functional instrument

If your instrument is not functioning, perform either of the following actions:

- Remove the main board and the Ethernet / USB card from the instrument and return the instrument to Tektronix for repair, or
- Remove U8 from the main board and U5 from the Ethernet / USB card, then return the instrument to Tektronix for repair.

Refer to your company's internal policies regarding handling or disposal of the main board and the Ethernet / USB card or U8 from the main board and U5 from the Ethernet USB card. When returning 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

## External memory devices

Remove any USB flash drives or external hard drives from the instrument.

Refer to your company's internal policies regarding handling or disposal of the external memory device.

## Charges

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

