PA1000
Declassification and Security Instructions

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Tektronix

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Preface

This document helps customers with data security concerns to sanitize or remove memory devices from the Tektronix PA1000 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:

- PA1000

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.
- **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.

Memory devices

Volatile memory devices

Device name	CPU internal memory
Type and size	SRAM, 68 kbytes
Function	Main DSP operating memory
Type of user information stored	Both user settings and user data
Backed-up by battery	No
Method of modification	Indirectly by firmware
Data input method	Firmware
Location	Main card, U35
User accessible	No
To clear	Remove the power from the instrument for at least 20 seconds.

Device name	CPU external memory
Type and size	SRAM, 512 kbytes
Function	DSP operating memory
Type of user information stored	Both user settings and user data
Backed-up by battery	No
Method of modification	Indirectly by firmware
Data input method	Firmware
Location	Main card, U45
User accessible	No
To clear	Remove the power from the instrument for at least 20 seconds.

Device name	Ethernet controller
Type and size	SRAM, 3808 bytes
Function	Ethernet controller variables
Type of user information stored	Both user settings and user data
Backed-up by battery	No
Method of modification	Indirectly
Data input method	Firmware
Location	Main card, U60
User accessible	No
To clear	Remove the power from the instrument for at least 20 seconds.

Device name	Ethernet controller
Type and size	SRAM, 8192 bytes
Function	Ethernet transmit and receive buffers
Type of user information stored	Remote command data and response data. This may include user settings and user data as well as data broadcast over Ethernet.
Backed-up by battery	No
Method of modification	Indirectly by sending remote commands to the instrument
Data input method	Ethernet communication
Location	Main card, U60
User accessible	No
To clear	Remove the power from the instrument for at least 20 seconds.

Device name	USB device controller
Type and size	SRAM, 384 bytes
Function	USB transmit and receive buffers
Type of user information stored	Remote command data and response data. This may include user settings and user data.
Backed-up by battery	No
Method of modification	Indirectly by sending remote commands to the instrument
Data input method	USB communication
Location	Main card, U4
User accessible	No
To clear	Remove the power from the instrument for at least 20 seconds.

Device name	Display controller
Type and size	SRAM, 256 kbytes
Function	Graphical display memory
Type of user information stored	Data on the display
Backed-up by battery	No
Method of modification	Indirectly by firmware
Data input method	Firmware
Location	Main card, U42
User accessible	No
To clear	Remove the power from the instrument for at least 20 seconds.

Device name	USB host controller
Type and size	SRAM, 16 kbytes
Function	USB file handling
Type of user information stored	Data written to USB memory devices. This includes results logging and product settings.
Backed-up by battery	No
Method of modification	Indirectly by firmware

Data input method	Firmware
Location	Main card, U1
User accessible	No
To clear	Remove the power from the instrument for at least 20 seconds.

Nonvolatile memory devices

Device name	CPU internal flash
Type and size	FLASH, 512 kbytes
Function	Stores operating code
Type of user information stored	None
Method of modification	Indirectly by firmware
Data input method	Firmware update program
Location	Main card, U35
User accessible	Yes, through undocumented internal commands
To clear	Not applicable, does not contain user data or settings.
Process to sanitize	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality.

Device name	Ethernet controller
Type and size	FLASH, 128 kbytes
Function	Stores operating code
Type of user information stored	None
Method of modification	None
Data input method	Factory programming
Location	Main card, U60
User accessible	No
To clear	Not applicable, does not contain user data or settings
Process to sanitize	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality.

Device name	Logic
Type and size	FLASH, 72 CPLD macrocells
Function	Digital logic
Type of user information stored	None
Method of modification	None
Data input method	Factory programming
Location	Main card, U9

User accessible	No
To clear	Not applicable, does not contain user data or settings
Process to sanitize	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality.
Device name	Logic (current channel)
Type and size	FLASH, 72 CPLD macrocells
Function	Digital logic
Type of user information stored	None
Method of modification	None
Data input method	Factory programming
Location	Main card, U8
User accessible	No
To clear	Not applicable, does not contain user data or settings
Process to sanitize	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality.
Device name	Logic (voltage channel)
Type and size	FLASH, 72 CPLD macrocells
Function	Digital logic
Type of user information stored	None
Method of modification	None
Data input method	Factory programming
Location	Main card, U14
User accessible	No
To clear	Not applicable, does not contain user data or settings
Process to sanitize	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality.
Device name	EEPROM
Type and size	EEPROM, 32 kbytes
Function	Stores calibration data and user settings
Type of user information stored	User settings
Method of modification	Indirectly by firmware
Data input method	User changing product settings
Location	Main card, U61
User accessible	Yes, through undocumented internal commands.
To clear	See instructions under *Clear procedure* on page 7.
Process to sanitize	The instrument does not provide a method to sanitize this 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.

Device name	USB host controller
Type and size	FLASH, 256 kbytes
Function	Stores operating code
Type of user information stored	None
Method of modification	None
Data input method	Factory programming
Location	Main card, U1
User accessible	No
To clear	Not applicable, does not contain user data or settings
Process to sanitize	Not applicable, does not contain user data or settings. Sanitizing would disable instrument functionality.

Data export devices

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

USB Host port	
Device type	USB host port (supports removable USB flash drive)
Function	User storage of results and instrument setup
Method of modification	Directly
Data input method	User writeable
Location	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.
To disable	The USB port cannot be disabled.
USB Device port	
Device type	USB device port
Function	Supports remote control and data transfer to a PC.
Method of modification	Directly
Data input method	Remote control via USBTMC
Location	USB device port on rear of instrument
To disable	The USB client device port cannot be disabled.
LAN Ethernet connector	
Device type	LAN Ethernet connector
Function	Supports remote control and data transfer to a PC
Method of modification	Directly
Data input method	Remote control
Location	Rear panel.
To disable	The Ethernet LAN controller cannot be disabled.

GPIB connector

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

Clear user memory

To secure the non-volatile memory, complete the Clear 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 5
- User communications settings (these are not reset by loading the defautl 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 5 to default:

1. First load the default configuration as detailed above.
2. Select **Configuration 1**.
3. Scroll down to **Save Current** and select this option (bottom soft key).
4. Wait for confirmation that the "Configuration saved successfully."
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 5.

To clear the communication settings:

1. Press the front panel **MENU** button.
2. Scroll down to **Interfaces**.
3. In the GPIB menu, set the address to the factory default of **6**.
4. In the Ethernet Static IP Setting menu, set the IP address to **10.10.10.200**, the Subnet mask to **10.10.10.250**, and the Default Gateway to **192.168.2.1** (factory defaults).

Clear or sanitize a non-functional instrument

If your instrument is not functioning, perform the following steps:

- Remove the main card from the instrument and return the instrument to Tektronix for repair, or
- Remove U61 from the main card and return the instrument to Tektronix for repair.

Refer to your company's internal policies regarding handling or disposal of the main card or U61 from the main 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.