

Keithley Instruments
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Declassification and Security Instructions

Introduction

If you have data security concerns, this document tells you how to clear or sanitize Series 2268 850-Watt DC Power Supply memory devices. It also explains how to declassify an instrument that is not functioning.

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 and Accreditation of Classified Systems under NISPOM

Contact information

If you have any questions after you review the information in this documentation, please contact your local Keithley Instruments office, sales partner, or distributor, or call Keithley Instruments corporate headquarters (toll-free inside the U.S. and Canada only) at 1-800-935-5595, or from outside the U.S. at +1-440-248-0400. For worldwide contact numbers, visit the [Keithley Instruments website](http://www.keithley.com) (<http://www.keithley.com>).

Products

This document contains procedures for the following Keithley Instruments models:

- 2268-20-42
- 2268-40-21
- 2268-60-14
- 2268-80-10
- 2268-100-8
- 2268-150-5

Terminology

The following terms may be used in this document:

- **Clear:** Removes data on media or in memory before reusing it in a secured area. Clears all reusable memory to deny access to previously unsecured information.
- **Demo setups:** Demonstration modules that come loaded on the instrument; you cannot modify them.
- **Direct method of modification:** You can modify data directly.
- **Erase:** Equivalent to clear (see above).
- **Indirect method of modification:** The instrument system resources modify the data; you cannot modify it.



- **Instrument declassification:** Procedures that must be completed before an instrument can be removed from a secure environment. Declassification procedures include memory sanitization and memory removal.
- **Media storage and data export device:** 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 power is turned off.
- **Protected user data area:** Contains data that is protected by a password.
- **Remove:** Clears instrument data by physically removing the memory device from the instrument.
- **Sanitize:** Eradicates instrument data from media and memory so it 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 nonsecured area.
- **Scrub:** Directly retrieve and clear the contents of the memory device.
- **User accessible:** You can directly retrieve the contents of the memory device.
- **User data:** Measurement data that represents signals that you connect to the instrument.
- **User-modifiable:** You can write to the memory device during normal instrument operation using the front-panel interface or remote control.
- **User settings:** Instrument settings that you can change.
- **Volatile memory:** Temporary memory; data is lost when the instrument is turned off.

Memory devices

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

Volatile memory devices

The following table lists Series 2268 volatile memory devices and relevant memory-related information. If the table indicates that a device can be cleared or sanitized by the user, see the detailed instructions in [Clear and sanitize procedures](#) (on page 4).

Type and minimum size	Function	User modifiable	Data input method	Location	To clear	To sanitize
P89V51RD2FBC 1 kb static RAM	Temporary memory used by the microprocessor controller for internal processor operations (on the microprocessor chip)	No	None	Main board	Turn instrument power off	Turn instrument power off
PCF8570T/F5 256 bit x 8 bytes of static RAM	Temporary storage of system variables and data during operation	No	None (communicates only with the processor)	Main board	Turn instrument power off	Turn instrument power off
A44 32 KB SRAM at U1	Temporary memory used by the microprocessor controller for internal processor operations (on the GPIB board)	No	None	GPIB board	Turn instrument power off	Turn instrument power off
P89V51RD2 Processor with 1 KB RAM	Temporary storage of system variables and data during operation	No	None	GPIB board	Turn instrument power off	Turn instrument power off
Lantronix XPORT XP1001000-03R 256 KB SRAM	Temporary storage for LAN protocol firmware	Not in normal use	None (internal communication within LAN chipset only)	Ethernet board	Turn instrument power off	Turn instrument power off

Nonvolatile memory devices

The following table lists Series 2268 nonvolatile memory devices and relevant memory-related information. If the table indicates that a device can be cleared or sanitized by the user, see the detailed instructions in [Clear and sanitize procedures](#) (on page 4).

Type and minimum size	Function	User modifiable	Data input method	Location	To clear	To sanitize
EEPROM 25LC1/5N, 16 KB	Contains calibration data and user settings	Yes ¹	Front-panel or remote interface control	Main board	Perform a hard or soft reset	Follow Clear and sanitize procedures (on page 4)
P89V51RD2FBC Processor with 64 KB flash memory	Contains the instrument firmware	Not in normal use ²	Firmware update	Main board	Follow Clear and sanitize procedures (on page 4)	Follow Clear and sanitize procedures (on page 4)
P89V51RD2FBC Processor with 64 KB flash memory and secondary 8 KB block of flash memory (on 110-0312-01-01 GPIB board)	Contains factory data	Not in normal use ³	Factory	GPIB board	Remove and destroy 110-0312-01-01 GPIB board ⁴	Remove and destroy 110-0312-01-01 GPIB board
Lantronix XPORT XP1001000-03 device 512 KB flash memory	Contains the operating system for the ethernet port and the LXI web server	Not in normal use	Factory	Ethernet board	Reset to factory default through the ethernet port and Lantronix Device Installer software ⁵	Reset to factory default through the ethernet port and Lantronix Device Installer software
Lantronix XPORT XP1001000-03 device 16 KB ROM	Contains the boot program for the device	Not in normal use	Factory	Ethernet board	Remove and destroy XPORT XP1001000-03 device	Remove and destroy XPORT XP1001000-03 device

¹ Clearing the calibration data from memory will cause the instrument to operate outside of its specifications. You will have to return the instrument to the factory to be recalibrated.

² Writing to this memory is not recommended because overwriting the flash memory will render the power supply inoperative and you will have to return the instrument to the factory for repair.

³ Writing to this memory is not recommended because it requires specific actions that are not documented.

⁴ There is no user means to clear the flash memory or EEPROM on the 110-0312-01-01 board.

⁵ The Lantronix Device Installer software and instructions are available at <http://www.lantronix.com/> (<http://www.lantronix.com/>).

Clear and sanitize procedures

If the memory device you want to clear or sanitize can be modified by users, you can use one of the following procedures to do so.

Front-panel procedure

To use a soft reset to restore default parameter settings, but retain calibration data:

1. Turn off the power supply, and then turn it on again. When the instrument is powering on, 8888 8888 is visible on the output voltage and current displays.
2. Press and hold both the **OUTPUT ENABLE Main** button and **OUTPUT ENABLE Aux** button for three seconds. ΠΙ5ΥΣρΣ is displayed.

When the soft reset has been triggered, ΠΙΣΥΧΛρ is displayed for one second on the output voltage display, and then the model number is displayed for one second before the instrument returns to normal mode. When the soft reset is complete, the instrument settings are restored to their defaults (see the following table for those settings). Existing calibration data is retained.

Default settings after a soft reset

Parameter	Setting
Address	1
Data rate (Kbps)	9.6
Communication mode	RS-232
Vout setting	0 V
Iout setting	0 A
Output	Off
AUX out	Off
Trigger	Off
External on/off Polarity	Negative
Autostart mode	Off
AUX autostart mode	Off
UVP	0 V
Foldback trigger	None
Foldback delay	0.5 s
Current share mode	CONTroller
Alarm output latches	263 (0 x 107, all latches enabled)
Alarms mask	2047 (0 x 7FF, all enabled)
Interlock	Disabled
Voltage analog programming	Off
Voltage APG scale	10 V
Current analog programming	Off
Current APG scale	10 V
Voltage output protection	Off
Current output protection	Off
Voltage output enable protection	Off
Current output enable protection	Off

Remote command procedure

To clear or sanitize a memory device using remote commands over a remote interface, send one of the following commands:

```
*RST  
[ : ]SYStem[ <channel> ]:RESet
```

The reset command does the following:

- Sets device-specific functions to factory default settings
- Forces the device into the OCIS and OQIS states (see IEEE Std 488.2, sections 12.5.2 and 12.5.3 respectively)

The reset command does not affect the following:

- The state of the IEEE-488.1 interface
- The state of the IEEE-488.1 device address
- The output queue
- The Standard Status Register Enable setting
- The Standard Event Status Enable (SESR) setting
- The Operation and Questionable SCPI status registers and their fanout registers
- Calibration data that affects device specifications
- The Protected User Data query response

Clear or sanitize a nonfunctional instrument

To sanitize a nonfunctional instrument, remove the main and CPU boards and return the instrument to Keithley Instruments for installation of replacement boards.