

Keysight E36200 Series Autoranging DC Power Supplies

This manual provides the documentation for the following instruments:

- E36231A
- E36232A
- E36233A
- E36234A

Notices

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CAUTION

A CAUTION notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a CAUTION notice until the indicated conditions are fully understood and met.

WARNING

A WARNING notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.

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This document describes instrument security features and the steps to declassify an instrument through memory clearing, sanitization, or removal.

Warranty

This Keysight Technologies product is warranted against defects in material and workmanship for a period of three years from the date of shipment. During the warranty period, Keysight Technologies will, at its option, either repair or replace products that prove to be defective. For warranty service or repair, this product must be returned to a service facility designated by Keysight Technologies. Buyer shall prepay shipping charges to Keysight Technologies, and Keysight Technologies shall pay shipping charges to return the product to Buyer. For products returned to Keysight Technologies from another country, Buyer shall pay all shipping charges, duties, and taxes.

Where to Find the Latest Information

Documentation is updated periodically. For the latest information about these products, including instrument software upgrades, application information, and product information, see the following URLs:

<http://www.keysight.com/find/e36200>

<http://www.keysight.com/find/e36231A>

<http://www.keysight.com/find/e36232A>

<http://www.keysight.com/find/e36233A>

<http://www.keysight.com/find/e36234A>

<http://www.keysight.com/find/e36200firmware>

To receive the latest updates by email, subscribe to Keysight Email Updates:

<http://www.keysight.com/find/MyKeysight>

Information on preventing instrument damage can be found at:

<http://www.keysight.com/find/PreventingInstrumentRepair>

Is Your Product Software Up-to-Date?

Periodically, Keysight releases software updates to fix known defects and incorporate product enhancements. To search for software updates for your product, go to the Keysight Technical Support website at:

<http://www.keysight.com/find/techsupport>

Contacting Keysight Sales and Service Offices

Assistance with test and measurement needs, and information on finding a local Keysight office, is available on the Internet at:

<http://www.keysight.com/find/assist>

If you do not have access to the Internet, please contact your field engineer.

NOTE

In any correspondence or telephone conversation, refer to the instrument by its model number and full serial number. With this information, the Keysight representative can determine whether your unit is still within its warranty period.

Products Covered by this Document

Product family name	Product name	Model numbers
Power Supply	Autoranging DC Power Supplies	E36231A, E36232A, E36233A, E36234A

Document purpose

This document describes instrument security features and the steps to declassify an instrument through memory clearing, sanitization, or removal.

For additional information, go to:

<http://www.keysight.com/find/security>

NOTE

Ensure that all information stored by the user in the instrument that needs to be saved is properly backed up before attempting to clear any of the instrument memory. Keysight Technologies cannot be held responsible for any lost files or data resulting from the clearing of memory. Be sure to read this document entirely before proceeding with any file deletion or memory clearing.

Security Terms and Definitions

Term	Definition
Clearing	As defined in Section 8-301a of DoD 5220.22-M, clearing is the process of eradicating the data on media before reusing the media so that the data can no longer be retrieved using the standard interfaces on the instrument. Clearing is typically used when the instrument is to remain in an environment with an acceptable level of protection.
Instrument Declassification	A term that refers to procedures that must be undertaken before an instrument can be removed from a secure environment, such as in the case when the instrument is returned for calibration. Declassification procedures include memory sanitization or memory removal, or both. Keysight declassification procedures are designed to meet the requirements specified in DoD 5220.22-M, Chapter 8.
Sanitization	As defined in Section 8-301b of DoD 5220.22-M, sanitization is the process of removing or eradicating stored data so that the data cannot be recovered using any known technology. Instrument sanitization is typically required when an instrument is moved from a secure to a non-secure environment, such as when it is returned to the factory for calibration. Keysight memory sanitization procedures are designed for customers who need to meet the requirements specified by the US Defense Security Service (DSS). These requirements are specified in the “Clearing and Sanitization Matrix” in Section 5.2.5.5.5 of the ISFO Process Manual.
Secure Erase	Secure Erase is a term that is used to refer to either the clearing or sanitization features of Keysight instruments.

Instrument Memory

This section contains information on the types of memory available in your instrument. It explains the size of memory, how it is used, its location, volatility, and the sanitization procedure.

Table 1-1 Summary of instrument memory

Memory type and size	User accessible as a mass storage device?	Writable during normal operation?	Data retained when powered off?	Purpose/Contents	Data input method	Location in instrument and remarks	Sanitization procedure
Main board microcontroller Channel 1 (ROM) 128 kByte	No	No	Yes	Channel 1 main board microcontroller execution code storage	Factory install/ Firmware upgrade	Channel 1 main board microcontroller	Not applicable, contains no application-specific information.
Main board microcontroller Channel 1 (RAM) 16 kByte	No	Yes	No	Channel 1 main board microcontroller temporary execution data	Microprocess or execution code/data	Channel 1 main board microcontroller	Power cycle
Main board microcontroller Channel 2 (ROM) 128 kByte	No	No	Yes	Channel 2 main board microcontroller execution code storage	Factory install/ Firmware upgrade	Channel 2 main board microcontroller	Not applicable, contains no application-specific information.
Main board microcontroller Channel 2 (RAM) 16 kByte	No	Yes	No	Channel 2 main board microcontroller temporary execution data	Microprocess or execution code/data	Channel 2 main board microcontroller	Power cycle

Table 1-1 Summary of instrument memory (continued)

Memory type and size	User accessible as a mass storage device?	Writable during normal operation?	Data retained when powered off?	Purpose/Contents	Data input method	Location in instrument and remarks	Sanitization procedure
Front panel internal flash (NORFlash) 1 MByte	No	No	Yes	Static images for firmware usage	Factory install	Front panel	Not applicable, contains no application-specific information.
Front panel internal flash (NORFlash) 15 MByte	Yes	Yes	Yes	Datalog	User-saved data	Front panel	EEPROM sanitize – See Table 1-2 .
Front panel microcontroller (ROM) 128 kByte	No	No	Yes	Front panel microcontroller execution code storage	Factory install/ Firmware upgrade	Front panel microcontroller	Not applicable, contains no application-specific information.
Front panel microcontroller (RAM) 16 kByte	No	Yes	No	Front panel microcontroller temporary execution data	Microprocess or execution code/data	Front panel microcontroller	Power cycle
IO controller microcontroller (ROM) 2 MByte	No	No	Yes	IO controller microcontroller execution code storage	Factory install/ Firmware upgrade	IO controller microcontroller	Not applicable, contains no application-specific information.

Table 1-1 Summary of instrument memory (continued)

Memory type and size	User accessible as a mass storage device?	Writable during normal operation?	Data retained when powered off?	Purpose/Contents	Data input method	Location in instrument and remarks	Sanitization procedure
IO controller microcontroller (RAM) 256 KByte	No	Yes	No	IO controller microcontroller temporary execution data	Microprocess or execution code/data	IO controller microcontroller	Power cycle
Main RAM (SDRAM) 16 MByte	No	Yes	No	Temporary execution data	Microprocess or execution code/data	Front panel	Power cycle
Instrument identification, calibration data, and power state (EEPROM) 246 Byte	No	Yes	Yes	Serial number, MAC address, versions, last power on state, calibration constants, calibration count, secure count, security code, and calibration message	Factory or service and user calibration	Front panel	Not applicable, contains no application-specific information.
Instrument state and setting (EEPROM) 127.7 KByte	Yes	Yes	Yes	User data, IO configuration, instrument configuration, and instrument state information.	User-saved data	Front panel	EEPROM sanitize – See Table 1-2 .

Summary of Memory Declassification Procedures

This section explains how to clear, sanitize, and remove memory from your instrument, for all classes of memory that are writable during normal operation.

NOTE

- Before you begin any memory clearing or sanitization procedures, be sure to record all the critical information (store and recall the instrument setting and record the IP address of the instrument). This information is essential for successful restoration of the instrument's operating system.
- Read this entire document before using any sanitization procedure. Failure to do so may necessitate returning the instrument to an Authorized Keysight Service Center for firmware downloads and recalibration.

Table 1-2 EEPROM

Description and purpose	This is the user's partition of the instrument's internal storage that uses a EEPROM device and internal flash. Storage may include user data, IO configuration, instrument configuration, state information, and datalogging.
Size	127.7 kBytes for EEPROM and 15 MBytes for internal NORFlash
Memory clearing	To clear the user-accessible calibration message or passcode, set the passcode and message through SCPI commands: To clear calibration message: cal:string 'This is cal string' To clear calibration passcode: cal:secure:code 0

Table 1-2 EEPROM

<p>Memory sanitization ***** Requires instrument security option *****</p>	<p>Performing an instrument sanitization requires the instrument security option (SEC) to be purchased.</p> <p>On the front panel press: Utilities > Test/Setup > Calibration > Reset to Factory > Yes</p> <p>From the remote interface, send: SYSTem:SECurity:IMMediate</p> <p>Note: The instrument's security setting must be unlocked to perform these actions.</p> <p>This sanitizes all user-accessible instrument memory and restarts the instrument. This includes deleting and sanitizing all user-defined state or preference information, and user-defined I/O settings. The instrument's firmware, serial/model number, MAC address, last power on state, and calibration data are preserved.</p> <p>This command complies with requirements in chapter 8 of the National Instrument Security Program Operating Manual (NISPOM). This command is for users, such as military contractors, who must comply with NISPOM. Specifically, the action will fully declassify all non-volatile memory using the methods specified in the June 28, 2007 DSS Memory Clearing and Sanitization Matrix.</p>
<p>Memory removal</p>	<p>This memory cannot be removed without damaging the instrument. The user may remove the front panel assembly on which the memory chip resides.</p>

Procedure for Declassifying a Faulty Instrument

If the instrument is not able to power on, the user information cannot be cleared using the front panel or the remote interface. The only choice in this situation is to take manual steps to remove any user information that may be present.

References

- 1** DoD 5220.22-M, “National Industrial Security Program Operating Manual (NISPOM)” United States Department of Defense. Revised February 28, 2006.

May be downloaded in Acrobat (PDF) format from:

<https://www.dss.mil/ma/ctp/io/fcb/nisp/>

- 2** ISFO Process Manual for the Certification and Accreditation of Classified Systems under the NISPOM Defense Security Service.

DSS-cleared industries may request a copy of this document via email, by following the instructions at:

https://www.dss.mil/contact/knowledge_center/

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