R&S®HMP
Power Supply
Instrument Security Procedures

3662.9758.02 - 01

ROHDE&SCHWARZ

Contents

1 Overview

In many cases, it is imperative that the R&S HMP Power Supplies are used in a secured environment. Generally, these highly secured environments do not allow any test equipment to leave the area unless it can be proven that no user information leaves with the test equipment. Security concerns can arise when devices need to leave a secured area e.g. to be calibrated or serviced. This document describes the types of memory and their usage in the R&S HMP series. It provides a statement regarding the volatility of all memory types and specifies the steps required to declassify an instrument through memory clearing or sanitization procedures. These sanitization procedures are designed for customers who need to meet the requirements specified by the US Defense Security Service (DSS).

2 Instrument Models Covered

Table 2-1: Power Supply models

Model	Order number
R&S HMP2020	3629.6718.02
R&S HMP2030	3629.6718.03
R&S HMP4030	3629.6776.03
R&S HMP4040	3629.6776.04

3 Security Terms and Definitions

Clearing - The term "clearing" is defined in Section 8-301a of DoD 5220.22-M, "National Industrial Security Program Operating Manual (NISPOM)". Clearing is the process of eradicating the data on media so that the data can no longer be retrieved using the standard interfaces on the instrument. Therefore, clearing is typically used when the instrument is to remain in an environment with an acceptable level of protection.

Sanitization - The term "sanitization" is defined in Section 8-301b of DoD 5220.22-M, "National Industrial Security Program Operating Manual (NISPOM)". 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 for service of calibration. The memory sanitization procedures described in this document 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 14.1.16 of the ISFO "Manual for the Certification and Accreditation of Classified Systems under the NISPOM".

Instrument declassification - The term "instrument declassification" refers to procedures that must be undertaken before an instrument can be removed from a secure environment, for example when the instrument is returned for calibration. Declassification procedures include memory sanitization or memory removal, or both.

The declassification procedures described in this document are designed to meet the requirements specified in DoD 5220.22-M, "National Industrial Security Program Operating Manual (NISPOM)", Chapter 8.

4 Types of Memory and Information Storage

The HMP Power Supplies contain various memory components. The following table provides an overview of the memory components that are part of your instrument. For a detailed description regarding type, size, usage and location, refer to the subsequent sections.

Table 4-1: Memory types

Memory type	Size	Content	Volatility	User Data	Sanitization procedure
Front MCU – Internal Flash Memory	128kByte	Operating instructions, operating data	Non-Volatile	No	Not required
Front MCU – Internal SRAM	8kByte	User and program data	Volatile	Yes	Power Off
Front MCU – Internal EEPROM	4kByte	Instrument settings, state and user data	Non-volatile	Yes	Secure Erase
Channel MCU - Internal Flash (1x per channel)	64kByte	Operating instructions, operating data	Non-volatile	No	Not required
Channel MCU - Internal SRAM (1x per channel)	4kByte	User and program data	Volatile	Yes	Power Off
Channel MCU – Internal EEPROM (1x per channel)	2kByte	Calibration and production data	Non-volatile	No	Not required

4.1 Volatile Memory

The volatile memory in the instrument loses its contents as soon as power is removed from the instrument. The volatile memory is not a security concern. Removing power from this memory meets the memory sanitization requirements specified in the "Clearing and Sanitization Matrix" in Section 5.2.5.5.5 of the ISFO Process Manual for the Certification and Accreditation of Classified Systems under the NISPOM.

SRAM

The HMP series has up to four 8 KByte SRAM devices which are integrated in the power supply's channel and front microcontrollers. The SRAMs contain the user and program data of the firmware and loses its memory as soon as power is removed.

Sanitization procedure: Turn off instrument power

4.2 Non-Volatile Memory

The R&S HMP series contain non-volatile flash memories. User data can be removed from these memories with the Secure Erase procedure.

Front MCU EEPROM

The R&S HMP series has an EEPROM on the front MCU that contains Instrument settings, states and user data. User data is not erased when power is removed from the instrument. The R&S HMP series provides a sanitizing procedure that ensures that user data is irretrievably removed from the instrument.

Sanitization procedure: Secure Erase procedure (see Chapter 5, "Secure Erase Procedure", on page 5)

Channel MCU EEPROM

The R&S HMP series has one EEPROM per channel used to store Calibration and production data. It does not hold user data nor can the user access the storage.

Sanitization procedure: None required (no user data)

Front / Channel MCU Flash Memory

The HMP series has up to five microcontrollers each with an integrated flash memory up to 128 KByte. The flash memory contains the control firmware. It does not hold user data nor can the user access the storage.

Sanitization procedure: None required (no user data)

5 Secure Erase Procedure

To sanitize the internal flash memory, perform the following steps:

1. Press the menu button.
2. Scroll down to select “Reset Device”.
3. Select “Yes” to proceed when prompted to reset to factory defaults.
4. Wait for device to reboot and all user data will be removed and factory default settings restored.

Do **not** turn off the instrument during the Secure Erase process!

The Secure Erase procedure meets the memory sanitization requirements specified in the "Clearing and Sanitization Matrix" in Section 14.1.16 of the ISFO Process Manual for the Certification and Accreditation of Classified Systems under the NISPOM.

6 Instrument Declassification

Before you can remove the Power Supply from a secured area (for example to perform service or calibration), all classified user data needs to be removed. You can declassify the Power Supply as follows:

1. Sanitize the non-volatile memory as described in **Chapter 5, "Secure Erase Procedure"**.
2. Turn off the Power Supply. This will sanitize the volatile memory.

Following these steps removes all user data from the Power Supply. The Power Supply can now leave the secured area. These declassification procedures meet the needs of customers working in secured areas.

Validity of instrument calibration after declassification

The permanent adjustment values required to maintain the validity of the R&S HMP series' calibration are not affected by the Secure Erase procedure. Therefore, performing the declassification procedure does not affect the validity of the instrument's calibration.

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