

# DSA8200 Digital Serial Analyzer Declassification and Security Instructions



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**Tektronix**



**DSA8200 Digital Serial Analyzer  
Declassification and Security  
Instructions**

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# Preface

This document helps customers with data security concerns to clear or remove memory devices from the DSA8200 and modules.

The DSA8200 mainframes contain an open architecture PC with removable hard drive. All user storable data, such as waveforms, instrument settings, and screen shots, are stored on the removable hard drive. The hard drive is located on the rear panel. Remove the hard drive for storage or destruction. Additional hard drives can be purchased from Tektronix.

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

## Products

The following Tektronix products are covered by this document:

- DSA8200 Digital Serial Analyzer Sampling Oscilloscope mainframe
- 80E01, 80E02, 80E03, 80E04, 80E06, 80E07, 80E08, 80E09, and 80E10 plug-in modules
- 80A01, 80A02, 82A04, 80A05, and 80A06 plug-in modules
- 80A03 TekConnect Probe Adapter module
- 80C01, 80C02, 80C03, 80C04, 80C05, 80C06, 80C07, 80C08, 80C09, 80C10, 80C11, and 80C12 plug-in modules (including all options)

## Related Documents

*DSA8200 Digital Serial Analyzer Service Manual*

## Terms

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.
- **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-modifiable.** The 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.



# Clear and Sanitize Procedures

## Memory Devices

The following tables list the volatile and nonvolatile memory devices in the standard instrument and listed modules. Detailed procedures to clear or sanitize these devices, if any, are shown following each table.

**Table 1: Volatile Memory Devices**

Type and minimum size	Function	User Modifiable <sup>1</sup>	Data input method	Location	To clear	To sanitize
<b>DSA8200</b>						
SDRAM 64M x 64	Embedded processor system memory	No	Written by processor system	Processor board		Remove power from the instrument for at least 20 seconds
SDRAM 8 MB	Video memory	Yes	Microsoft Windows	Bridge board		Remove power from the instrument for at least 20 seconds
SDRAM 64M x 64	Windows processor system memory	Yes	Microsoft Windows	Windows µATX board		Remove power from the instrument for at least 20 seconds
SRAM 256 bytes	Front keypad microcontroller	No	Written by processor system	Front panel board		Remove power from the instrument for at least 20 seconds
Channel SRAM 32 each 24 KB	SRAM for Acquisition system channels	No	Written by processor system	Acquisition board		Remove power from the instrument for at least 20 seconds
SRAM 2 each 352 bytes	Channel group microprocessor	No	Written by processor system	Acquisition board		Remove power from the instrument for at least 20 seconds
<b>80A03 module</b>						
Channel SRAM 2 each 1 KB	Channel microprocessor	No	Written by processor system	80A03 interface control boards		Remove power from the instrument for at least 20 seconds

<sup>1</sup> During normal instrument operation.

**Table 2: Nonvolatile Memory Devices**

Type and minimum size	Function	User modifiable <sup>1</sup>	Data input method	Location	To clear	To sanitize
<b>DSA8200</b>						
Removable hard drive 40 GB	Holds all user-storable data (waveforms and instrument settings)	Yes	Application, Microsoft Windows	Rear of DSA8200		Remove the hard drive and store it in a secure area or destroy it.
CD RW / DVD drive 700 MB	Windows CD RW / DVD peripheral	Yes	Microsoft Windows	Front of DSA8200		Remove all CDs. Rewritable CDs can be formatted, stored in a secure area, or destroyed. Non-rewritable CDs can either be stored or destroyed.

**Table 2: Nonvolatile Memory Devices (cont.)**

Type and minimum size	Function	User modifiable <sup>1</sup>	Data input method	Location	To clear	To sanitize
NVRAM 128 kB	Instrument configuration, option keys, option usage count	No	Programmed at factory	Processor board		Not applicable – no user data
Flash ROM 128 kB	GPIB configuration	No	Programmed at factory	Processor board		Not applicable – no user data
Flash ROM 512 kB	Boot ROM	No	Programmed at factory	Processor board		Not applicable – no user data
ROM 22 kB	FPGA configuration	No	Programmed at factory	Processor board		Not applicable – no user data
EEPROM 2 each 4 bytes	Temperature sensor	No	Not programmed	Processor board		Not applicable – no user data
Microprocessor – no details provided by manufacturer	Touch screen controller	No	Programmed at manufacturer	Display adapter board		Not applicable – no user data
FLASH ROM 128 kB	Display controller	No	Programmed at manufacturer	Bridge board		Not applicable – no user data
EPROM 8 kB	Front keypad microcontroller	No	Programmed at manufacturer	Front panel board		Not applicable – no user data
NVRAM 128 kB		No		Acquisition board		Not applicable – no user data
OTP EPROM 2 each 15 kB	Channel group microprocessor	No	Programmed at factory	Acquisition board		Not applicable – no user data
EEPROM 2 each 256 bytes	Channel group microprocessor	No	Not used	Acquisition board		Not applicable – no user data
<b>80E01, 80E02, 80E03, 80E04, 80E06, 80E07, 80E08, 80E09, 80E10, 80A01, 82A04, 80A05, 80A06 modules</b>						
EEPROM 2 kB	Module configuration memory	Yes	Programmed at factory; also stores calibration and compensation data for module	80Exx, 80Axx, 82Axx main board		Not applicable – no user data
EEPROM 4 bytes (2 each 80E07, 80E08, 80E09, 80E10)	Temperature sensor	No	Not used	80Exx, 80Axx, 82Axx sampler boards		Not applicable – no user data
<b>80C01, 80C02, 80C03, 80C04, 80C05, 80C06, 80C07, 80C08, 80C09, 80C10, 80C11, 80C12 modules (including all options)</b>						
EEPROM 2 kB	Module configuration memory	Yes	Programmed at factory; also stores calibration and compensation data for module, and user wave lengths and scales	80Cxx main board		Use the sanitize procedure documented below for user wavelength(s) and scale(s)
EEPROM 4 bytes	Temperature sensor	No	Not used	80Cxx sampler boards		Not applicable – no user data

Table 2: Nonvolatile Memory Devices (cont.)

Type and minimum size	Function	User modifiable <sup>1</sup>	Data input method	Location	To clear	To sanitize
<b>80A03</b>						
FLASH ROM 2 each 8 kB	Channel microprocessor	No	Programmed at factory	80A03 interface control boards		Not applicable – no user data
EEROM 2 each 512 bytes	Channel microprocessor	No	Programmed at factory	80A03 interface control boards		Not applicable – no user data

<sup>1</sup> During normal instrument operation.

### Nonvolatile Clear or Sanitize Procedures

**Check 80Cxx Modules User Wavelengths and Scales.** Use the following procedure to check if the 80Cxx module User Wavelength(s) and Scale(s) are set to the factory defaults and to record information for later recovery.

1. Power down the instrument and insert the optical module into the upper left large slot. Note: the upper right large slot may also be used, adjusting the channel parameter to CH3.
2. Power up the instrument and wait for the oscilloscope application to become active.
3. From Table 3 for the applicable module(s), send each of the programmable interface query commands to the instrument. Note that the 80C10 contains two pairs of wavelengths and scales.
4. If the user wavelength(s) and user scale(s) returned match the factory default User Wavelength(s) or User Wavelength Scale(s), no further sanitize actions are necessary.
5. If either the user wavelength(s) or user scale(s) returned do not match the factory default User Wavelength(s) or User Wavelength Scale(s), sanitizing is necessary.
  - For recovery at a later time, first write down the User Wavelength(s) and User Wavelength Scale(s), and store in a secure location.
  - Perform the procedure *Sanitize 80Cxx Module to Factory Default Settings for User Wavelength(s) and Scale(s)*.

**Table 3: Optical Module User Wavelengths (Factory Defaults) – Query Commands**

Module type (all options)	Programmable interface query commands	User wavelength (factory default)	User wavelength scale (factory default)
80C01	TEKPHW:CH1:LONG? "OPTWAVEL",2	1000	
	TEKPHW:CH1:DOUBLE? "OPTSCALE",2		18
80C02	TEKPHW:CH1:LONG? "OPTWAVEL",2	1000	
	TEKPHW:CH1:DOUBLE? "OPTSCALE",2		18
80C07B	TEKPHW:CH1:LONG? "OPTWAVEL",4	1550	
	TEKPHW:CH1:DOUBLE? "OPTSCALE",4		780
80C08C	TEKPHW:CH1:LONG? "OPTWAVEL",4	1550	
	TEKPHW:CH1:DOUBLE? "OPTSCALE",4		315
80C10	TEKPHW:CH1:LONG? "OPTWAVEL",1	1550	
	TEKPHW:CH1:DOUBLE? "OPTSCALE",1		15
	TEKPHW:CH1:LONG? "OPTWAVEL",3	1310	
	TEKPHW:CH1:DOUBLE? "OPTSCALE",3		10
80C11	TEKPHW:CH1:LONG? "OPTWAVEL",2	1550	
	TEKPHW:CH1:DOUBLE? "OPTSCALE",2		30
80C12	TEKPHW:CH1:LONG? "OPTWAVEL",3	1550	
	TEKPHW:CH1:DOUBLE? "OPTSCALE",3		315

**Sanitize 80Cxx Modules to Factory Default Settings for User Wavelength(s) and Scale(s).** The following procedure provides instructions on how to sanitize user wavelength(s) and scale(s) to return them to their factory defaults. It is recommended that the previous *Check 80Cxx Modules User Wavelengths and Scales* procedure be performed first so that the sanitize procedure is only performed when necessary in order to reduce the risk of accidental corruption of calibration data in the module. This procedure requires the use of one of the programmable interfaces to the instrument (such as GPIB) and the use of programmable interface commands. Connectivity and programmability information is provided within the online help of the oscilloscope application.

1. Power down the instrument and insert the optical module into the upper left large slot. Note: the upper right large slot may also be used, adjusting the channel parameter to CH3.
2. Power up the instrument and wait for the oscilloscope application to become active.
3. From Table 4 for the applicable module(s), send each of the programmable interface commands to the instrument. Note that the 80C10 contains two pairs of wavelengths and scales.
4. After all commands for all applicable modules have been issued to the instrument, send the command `TEKPHW:CH1:EEPROMUPDT` to the instrument. Wait at least 30 seconds before performing any other instrument command or operation (including powering off the instrument).

**Table 4: Optical Module User Wavelengths (Factory Defaults) – Sanitize Commands**

Module type (all options)	Programmable interface commands
80C01	TEKPHW:CH1:LONG "OPTWAVEL",2,1000 TEKPHW:CH1:DOUBLE "OPTSCALE",2,18
80C02	TEKPHW:CH1:LONG "OPTWAVEL",2,1000 TEKPHW:CH1:DOUBLE "OPTSCALE",2,18
80C07B	TEKPHW:CH1:LONG "OPTWAVEL",4,1550 TEKPHW:CH1:DOUBLE "OPTSCALE",4,780
80C08C	TEKPHW:CH1:LONG "OPTWAVEL",4,1550 TEKPHW:CH1:DOUBLE "OPTSCALE",4,315
80C10	TEKPHW:CH1:LONG "OPTWAVEL",1,1550 TEKPHW:CH1:DOUBLE "OPTSCALE",1,15 TEKPHW:CH1:LONG "OPTWAVEL",3,1310 TEKPHW:CH1:DOUBLE "OPTSCALE",3,10
80C11	TEKPHW:CH1:LONG "OPTWAVEL",2,1550 TEKPHW:CH1:DOUBLE "OPTSCALE",2,30
80C12	TEKPHW:CH1:LONG "OPTWAVEL",3,1550 TEKPHW:CH1:DOUBLE "OPTSCALE",3,315

## How to Recover from Clearing 80Cxx Module Settings for User Wavelengths and Scales

The following procedure provides instructions on how to recover user wavelength(s) and scale(s) back to prerecorded user settings following a sanitize. This procedure requires the use of one of the programmable interfaces to the instrument (such as GPIB) and the use of programmable interface commands. Connectivity and programmability information is provided within the online help of the oscilloscope application.

1. Power down the instrument and insert the optical module into the upper left large slot.

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**NOTE.** *The upper right large slot may also be used, adjusting the channel parameter to CH3.*

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2. Power up the instrument and wait for the oscilloscope application to become active.
3. From Table 5 for all modules, send each of the programmable interface commands to the instrument.

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**NOTE.** *The 80C10 contains two pairs of wavelengths and scales.*

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4. After all commands for all applicable modules have been issued to the instrument, send the command TEKPHW:CH1:EEPROMUPDT to the instrument. Wait at least 30 seconds before performing any other instrument command or operation (including powering off the instrument).
5. Verify that the values match the pre-recorded values.

**Table 5: Optical Module User Wavelengths (Factory Defaults) – Recover Commands**

Module type (all options)	Programmable interface commands
80C01	TEKPHW:CH1:LONG "OPTWAVEL",2,<pre-recorded wavelength value> TEKPHW:CH1:DOUBLE "OPTSCALE",2,<pre-recorded scale value>
80C02	TEKPHW:CH1:LONG "OPTWAVEL",2,<pre-recorded wavelength value> TEKPHW:CH1:DOUBLE "OPTSCALE",2,<pre-recorded scale value>
80C07B	TEKPHW:CH1:LONG "OPTWAVEL",4,<pre-recorded wavelength value> TEKPHW:CH1:DOUBLE "OPTSCALE",4,<pre-recorded scale value>
80C08C	TEKPHW:CH1:LONG "OPTWAVEL",4,<pre-recorded wavelength value> TEKPHW:CH1:DOUBLE "OPTSCALE",4,<pre-recorded scale value>

**Table 5: Optical Module User Wavelengths (Factory Defaults) – Recover Commands (cont.)**

<b>Module type (all options)</b>	<b>Programmable interface commands</b>
80C10	TEKPHW:CH1:LONG "OPTWAVEL",1,<pre-recorded wavelength value> TEKPHW:CH1:DOUBLE "OPTSCALE",1,<pre-recorded scale value> TEKPHW:CH1:LONG "OPTWAVEL",3,<pre-recorded wavelength value> TEKPHW:CH1:DOUBLE "OPTSCALE",3,<pre-recorded scale value>
80C11	TEKPHW:CH1:LONG "OPTWAVEL",2,<pre-recorded wavelength value> TEKPHW:CH1:DOUBLE "OPTSCALE",2,<pre-recorded scale value>
80C12	TEKPHW:CH1:LONG "OPTWAVEL",3,<pre-recorded wavelength value> TEKPHW:CH1:DOUBLE "OPTSCALE",3,<pre-recorded scale value>

## Data Export Devices

The following table lists the data export devices in the standard instrument and listed modules. Detailed procedures to disable these devices, if any, are shown following the table.

**Table 6: Data Export Devices**

Type and minimum size	Function	User modifiable <sup>1</sup>	Data input method	Location	To disable
<b>DSA8200</b>					
Removable hard drive 40 GB	Holds all user-storable data (waveforms and instrument settings)	Yes	Application; Microsoft Windows	Rear of DSA8200. Additional drives can be purchased from Tektronix.	Remove the hard drive and store it in a secure area or destroy it.
CD RW / DVD drive 700 MB	Windows CD RW / DVD peripheral	Yes	Microsoft Windows	Front of DSA8200	Remove all CDs. Rewritable CDs can be formatted, stored in a secure area, or destroyed. Non-rewritable CDs can either be stored or destroyed.
USB host port (supports removable USB flash drive)	User storage of reference waveforms, screen images, instrument setups, and any other data through Windows	Yes	User writable (Windows)	USB host port on front of instrument (1 each) and rear of instrument (4 each).  Files can be deleted or over-written on the oscilloscope or a PC, or USB flash drive can be removed and destroyed.	The USB host port cannot be disabled.
USB device port	Supports remote control and data transfer to a PC.	Yes	Not currently supported <sup>2</sup>	USB host port on front of instrument (1 each) and rear of instrument (4 each)	The USB device port is not currently supported. but may be in the future
LAN Ethernet connector	Transfer data	N/A	N/A	Rear panel	N/A
Parallel port	Windows parallel port	N/A	N/A	Rear panel	N/A
Serial port	Windows serial port	N/A	N/A	Rear panel	N/A
PS/2 Keyboard and Mouse Interfaces (2 each)	Windows serial port	N/A	N/A	Rear panel	N/A
Second monitor out	Windows second monitor port	N/A	N/A	Rear panel	N/A
Scope out	Scope VGA out	N/A	N/A	Rear panel	N/A
External audio port	Windows line out audio	N/A	N/A	Rear panel	N/A
GPIO connector	Transfer data	N/A	N/A	Rear panel	N/A



Table 6: Data Export Devices (cont.)

Type and minimum size	Function	User modifiable <sup>1</sup>	Data input method	Location	To disable
TekProbe sampling module host interfaces (6 slots)	Communicates setup and control with attached sampling modules	No	N/A	Module slots	TekProbe host ports cannot be disabled. Communications will stop if module is removed.
TekProbe real-time probe host interfaces (6 slots, 2 each)	Communicates setup and control with attached real time probes	No	N/A	Module slots and front of electrical modules	TekProbe host ports cannot be disabled. Communications will stop if probe is removed.
<b>80E01, 80E02, 80E03, 80E04, 80E07, 80E08, 80E09, 80E10 modules</b>					
TekProbe real-time probe host interfaces (6 slots, 1 or 2 each)	Communicates setup and control with attached real-time probes	No	N/A	Front of specific electrical modules (2 each, except 80E01, which is 1 each)	TekProbe host ports cannot be disabled. Communications will stop if probe is removed.

<sup>1</sup> During normal instrument operation.

<sup>2</sup> Future software releases may support this feature.



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# Built-In Security Features

Neither the DSA8200 nor any of the modules covered in this document contain any built-in security features.



# Troubleshooting

## How to Clear or Sanitize a Non-Functional Instrument

**DSA8200** These products contain an open architecture PC with a removable hard drive. All user storable data such as waveforms, instrument settings, and screen shots are stored on the removable hard drive. The hard drive is located on the rear panel. Remove the hard drive for storage or destruction. Additional hard drives can be purchased from Tektronix.

A read / write CD drive is standard and located on the front panel. Remove all CDs and/or DVDs. Rewritable CDs can be formatted, stored, or destroyed. Non-rewritable CDs can be stored or destroyed.

Turn off the power for at least 20 seconds to clear volatile memory.

**80E01, 80E02, 80E03,  
80E04, 80E06, 80E07,  
80E08, 80E09, 80E10,  
80A01, 80A03, 80A04,  
80A05, 80A06, and 82A04  
Modules**

The non-volatile memory in these products contains no user storable data (waveforms or instrument settings).

Turn off the power for at least 20 seconds to clear volatile memory.

**80A02 Module**

This product contains no volatile or non-volatile memory

**80C01, 80C02, 80C03,  
80C04, 80C05, 80C06,  
80C07, 80C08, 80C09,  
80C10, 80C11, 80C12  
modules (including all  
options)**

The non-volatile memory in these products contains no waveform data, but does contain a single user storable instrument parameter pair (User Wavelength, composed of both a wavelength value, and an associated scale factor value). The 80C10 product contains two pairs.

- If the 80Cxx is nonfunctional, or if it is functional but there is no functional host mainframe available to perform the following procedure, there is no means available to clear wavelength(s) and scale factor(s) and set them to factory defaults. In this case, destruction of the module is the only means to sanitize it.
- If the 80Cxx is functional and another host mainframe is available that also is functional, perform the procedure *Sanitize 80Cxx Module to Factory Default Settings for User Wavelength(s) and Scale(s)* located under the *Clear and Sanitize Procedures* to sanitize user wavelength(s) and scale factor(s).

Turn off the power for at least 20 seconds to clear volatile memory.