

# **Agilent CompactPCI Time-to-Digital Converter**

This manual provides documentation for the following digitizers:

15-bit TDC U1050A

10-bit TDC U1051A

## **Security Features and Certificate of Volatility**



**Agilent Technologies**

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### WARNING

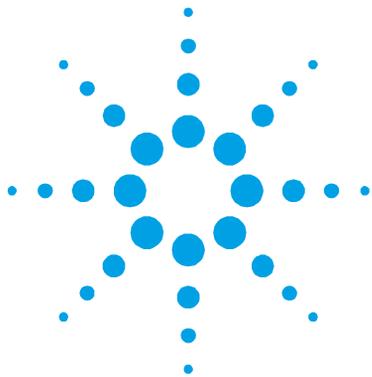
A **WARNING** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a **WARNING** notice until the indicated conditions are fully understood and met.

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## Products covered by this document

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## 1. Products covered by this document

| Product Family Name                  | Product Names | Model Numbers    |
|--------------------------------------|---------------|------------------|
| CompactPCI Time-to-Digital Converter | 15-bit TDC    | U1050A-001, -002 |
|                                      | 10-bit TDC    | U1051A           |

This document describes instrument memory types and security features. It provides a statement regarding the volatility of all memory types, and specifies the steps required to declassify an instrument through memory clearing, sanitization, or removal. For additional information, go to: <http://www.agilent.com/find/security>

### CAUTION

Be sure 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. Agilent 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.

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## CompactPCI TDC converter configurations

This section describes alternative configurations for CompactPCI converters. Due to continuous improvement of the CompactPCI TDC converter range, configurations may vary according to such factors as: manufacturing date, product name, and installed options:

### Memory configuration

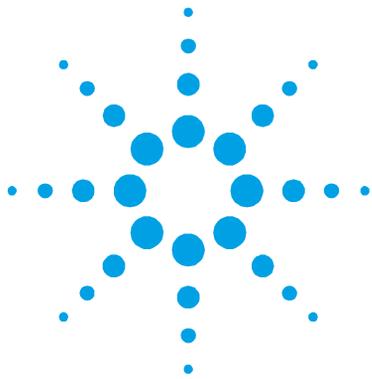
There is only one memory configuration per model. See **Table 1** Summary of non-volatile instrument memory - All Instruments and **Table 2** Summary of volatile instrument memory - All Instruments.

## Determining installed options

Use the application firmware provided with the instrument.

There are two different software applications available: AcqirisLive or Agilent MD1. They are provided with the instrument as part of the software package.

In order to determine the options installed on the instrument, launch one of the application and select menu Help → Instrument Information. A window will open containing the list of all instruments detected with their configuration.

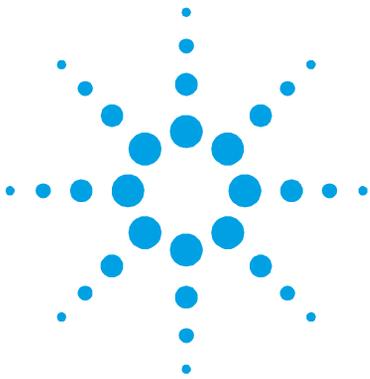


## 2. Security terms and definitions

| <b>Term</b>                            | <b>Definition</b>  |
|--|--|
| <b>Clearing</b>                        | As 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 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.  |
| <b>Instrument<br/>Declassification</b> | A term that refers to procedures that must be undertaken before an instrument can be removed from a secure environment, such as is the case when the instrument is returned for calibration. Declassification procedures include memory sanitization or memory removal, or both. Agilent declassification procedures are designed to meet the requirements specified in DoD 5220.22-M, “National Industrial Security Program Operating Manual (NISPOM)”, Chapter 8.  |
| <b>Sanitization</b>                    | <p>As 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 to the factory for calibration.</p> <p>Agilent 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 Appendix O of the ODAA Process Guide for C&amp;A of Classified Systems under NISPOM.</p> |
| <b>Secure Erase</b>                    | Secure Erase is a term that is used to refer to either the clearing or sanitization features of Agilent instruments.   |

## Security terms and definitions

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### **3. Instrument memory & certificate of volatility**

This chapter summarizes all memory types in the instrument.

The descriptions below are divided between:

- 1** Non-volatile memory,
- 2** Volatile memory.

## Non-volatile memory

This section contains information on the memory components available in your instrument. The table provides details of the size of each memory component, its type, how it is used, its location, volatility, and the sanitization procedure.

**NOTE**

The instrument contains no user-accessible non-volatile memory.

For this reason no sanitization procedure is required for any memory component.

**Table 1** Summary of non-volatile instrument memory - All Instruments

| Memory component, type and size                        | Model | Purpose/contents   | Data input method  | Location in instrument and remarks       | Sanitization procedure |
|--|-------|--|--|--|------------------------|
| Configuration & license memory<br>PCI EEPROM<br>4 Kbit | All   | Contains instrument configuration and license keys for measurement applications. License keys are encrypted. | Programmed at factory in production and by installing new license keys.<br>Cannot be written in normal operating mode. | On main board.<br>Contains no user data. | None                   |
| Control logic memory<br>CPLD<br>64 macrocells          | All   | Contains encrypted firmware code.  | Programmed at factory in production.<br>Cannot be written in normal operating mode.                                    | On main board.<br>Contains no user data. | None                   |

## Volatile memory

The volatile memory in the instrument does not retain any information when AC power is removed from the chassis in which it is inserted.

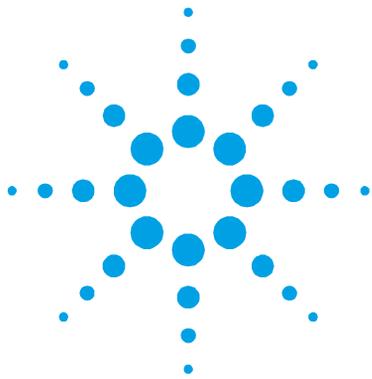
Following the sanitization procedure meets the memory sanitization requirements specified in the “Clearing and Sanitization Matrix” in Appendix O of the ODAA Process Guide for C&A of Classified Systems under NISPOM.

**Table 2** Summary of volatile instrument memory - All Instruments

| <b>Memory component, type and size</b> | <b>Model</b> | <b>Purpose/contents</b>                            | <b>Data input method</b>   | <b>Location in instrument and remarks</b> | <b>Sanitization procedure</b> |
|--|--------------|--|--|---|-------------------------------|
| Standard memory SRAM<br>512K x 12 bit  | U1051A       | Contains measurement data from acquisition system. | Programmed by firmware. Accessible to user through software control. | On main board.                            | Reset by a power off.         |
| FPGA memory SRAM<br>946 Kbit max       | All          | Contains measurement data from acquisition system. | Programmed by firmware. Accessible to user through software control. | On main board.                            | Reset by a power off.         |

## **Instrument memory & certificate of volatility**

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## 4. Memory clearing, sanitization and/or removal procedures

This chapter explains how to clear, sanitize, and remove memory from your instrument, for all types of non-volatile memory that can be written to during normal instrument operation.

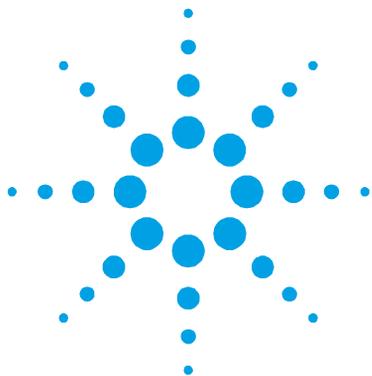
**Table 3** CPLD, Complex programmable logic devices

|                                |   |
|--------------------------------|---|
| <b>Description and purpose</b> | These memory devices are used to execute timing, control, and measurement functions. No user data is contained in these devices. This memory cannot be written to during instrument operation.                  |
| <b>Memory clearing</b>         | Not applicable. This memory does not contain user information and is not accessible by the user.  |
| <b>Memory sanitization</b>     | Not applicable. This memory does not contain user information and is not accessible by the user.  |
| <b>Memory removal</b>          | Not applicable.   |
| <b>Write protecting</b>        | Not applicable.   |
| <b>Memory validation</b>       | Not applicable.   |
| <b>Remarks</b>                 | These devices are programmed in the factory via diagnostic connectors on the PCB assemblies. After instrument assembly, the diagnostic connectors are not physically accessible and not electrically connected. |

## Memory clearing, sanitization and/or removal procedures

**Table 4** EEPROM, Electrically erasable programmable read only memory

|                                |  |
|--------------------------------|--|
| <b>Description and purpose</b> | These memories are used to identify the assemblies (header info) and store option configuration data. Some are also used to hold factory software for FPGAs. The software is loaded when the instrument powers up. This memory cannot be written to during instrument operation.   |
| <b>Memory clearing</b>         | Not applicable. This memory does not contain user information and is not accessible by the user.   |
| <b>Memory sanitization</b>     | Not applicable. This memory does not contain user information and is not accessible by the user.   |
| <b>Memory removal</b>          | Not applicable.  |
| <b>Write protecting</b>        | Not applicable.  |
| <b>Memory validation</b>       | Not applicable.  |
| <b>Remarks</b>                 | These memories are only writable by factory/service center software, or upgrade installation software. These memories are internally connected to proprietary internal control data busses (as opposed to standard computer busses such as IDE, PCI, USB). They are not accessible by the Operating System or by third-party software, or by the user, to protect the measurement accuracy and consistency of the instrument. They are rarely modified, to ensure no degradation of instrument performance. These memories contain no user data. Many of these memories have long write times, and limited write endurance, so they are not intended to be written to dynamically by software. |



## 5. Procedure for declassifying a faulty instrument

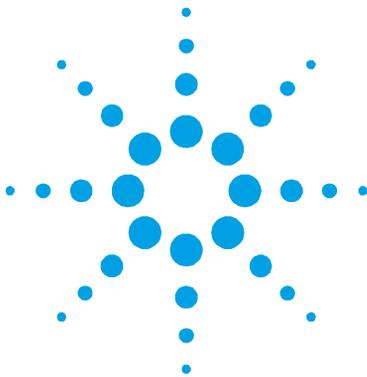
Even if the instrument is not able to power on, it may be declassified by following the procedures below.

### **Declassification procedure**

The instrument can be disposed of without any further intervention.

## Procedure for declassifying a faulty instrument

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## 6. 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:  
[http://www.dss.mil/isp/fac\\_clear/download\\_nispom.html](http://www.dss.mil/isp/fac_clear/download_nispom.html)
- 2 ODAA Process Guide for C&A of Classified Systems under NISPOM**  
Defense Security Service.  
DSS-cleared industries may request a copy of this document via email, by following the instructions at:  
<http://www.dss.mil/isp/odaa/request.html>
- 3 User Manual Agilent Acqiris Time-to-Digital Converters**  
Manual Part Number U1092-90017  
Available in Acrobat PDF from in the software package delivered with the instrument.  
<http://cp.literature.agilent.com/litweb/pdf/U1092-90017.pdf>