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**PXIe-4142**

**Manufacturer:** National Instruments

**Board Assembly Part Numbers** (Refer to Procedure 1 for identification procedure):

Part Number and Revision	Description
150660B-01L or later	PXIe-4140 Flex SMU: 10V, 100 mA
150660B-02L or later	PXIe-4141 Flex SMU: 10V, 100 mA
150660B-03L or later	PXIe-4141 Flex SMU: 10V, 100 mA w/ High Sense Resistance
153690A-01L or later	PXIe-4142 Flex SMU: 24V, 150 mA
153690A-02L or later	PXIe-4143 Flex SMU: 24V, 150 mA
153697A-01L or later	PXIe-4144 Flex SMU: 6V, 500 mA
153697A-02L or later	PXIe-4145 Flex SMU: 6V, 500 mA

### Volatile Memory

<i>Target Data</i>	<i>Type</i>	<i>Size</i>	<i>Battery Backup</i>	<i>User<sup>1</sup> Accessible</i>	<i>System Accessible</i>	<i>Sanitization Procedure</i>
Digital logic controller	FPGA w/ Block RAM	387 KB	No	No	Yes	Cycle Power

### Non-Volatile Memory (*incl. Media Storage*)

<i>Target Data</i>	<i>Type</i>	<i>Size</i>	<i>Battery Backup</i>	<i>User Accessible</i>	<i>System Accessible</i>	<i>Sanitization Procedure</i>
Device configuration	Flash	8 MB	No			
• Device information				No	Yes	None
• Calibration metadata				Yes	Yes	Procedure 2
• Calibration data <sup>2</sup>				No	Yes	None

<sup>1</sup> Refer to *Terms and Definitions* section for clarification of *User* and *System Accessible*

<sup>2</sup> Calibration constants that are stored on the device include information for the device's full operating range. Any implications resulting from partial self-calibration can be eliminated by running the full self-calibration procedure.

## Procedures

### **Procedure 1 – Board Assembly Part Number identification:**

To determine the Board Assembly Part Number and Revision, refer to the label applied to the surface of your product. The Assembly Part Number should be formatted as “P/N: #####A-##L

### **Procedure 2 – Calibration Information EEPROM (Calibration Metadata):**

The user-accessible areas of the Calibration Information flash are exposed through a calibration Applications Programming Interface (API) in LabVIEW. To clear the Calibration Metadata area, complete the following steps:

1. To clear the calibration password, use the niDCPower Change Ext Cal Password.vi to overwrite the current password of the device you wish to clear.
2. To clear the user-defined information, use the niDCPower Set Cal User Defined Info.vi to overwrite the current user-defined information of the device you wish to clear.

## Terms and Definitions

### **Cycle Power:**

The process of completely removing power from the device and its components and allowing for adequate discharge. This process includes a complete shutdown of the PC and/or chassis containing the device; a reboot is not sufficient for the completion of this process.

### **Volatile Memory:**

Requires power to maintain the stored information. When power is removed from this memory, its contents are lost. This type of memory typically contains application specific data such as capture waveforms.

### **Non-Volatile Memory:**

Power is not required to maintain the stored information. Device retains its contents when power is removed. This type of memory typically contains information necessary to boot, configure, or calibrate the product or may include device power up states.

### **User Accessible:**

The component is read and/or write addressable such that a user can store arbitrary information to the component from the host using a publicly distributed NI tool, such as a Driver API, the System Configuration API, or MAX.

### **System Accessible:**

The component is read and/or write addressable from the host without the need to physically alter the product.

### **Clearing:**

Per *NIST Special Publication 800-88 Revision 1*, “clearing” is a logical technique to sanitize data in all User Accessible storage locations for protection against simple non-invasive data recovery techniques using the same interface available to the user; typically applied through the standard read and write commands to the storage device.

### **Sanitization:**

Per *NIST Special Publication 800-88 Revision 1*, “sanitization” is a process to render access to “Target Data” on the media infeasible for a given level of effort. In this document, clearing is the degree of sanitization described.