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Destruction of Data in Non-Volatile Memory in the Keithley Model 6220 / 6221 Current Source

The Keithley Model 622x contains memory devices to hold firmware code that is executed by an internal microprocessor to operate the product and memory to save setup information. The following sections describe how the data stored in the memory devices may be cleared or destroyed.

Warning: Some of the procedures in this document may expose hazardous voltage and the risk of electric shock or death. Only trained, qualified, technical persons experienced with the risks and precautions of working with electrical instruments should perform these procedures.

Description of memory devices and their use:

1. 1 of 2M by 16 bit Flash: Stores firmware for the instrument.
2. 1 of 2M by32 bit SDRAM: Operation memory (NOT battery backed up).
3. 1 of 256k by 8 bit FRAM: Stores calibration constants and internal information about the unit (e.g. Model and serial number).
4. The microprocessor is a Motorola Coldfire ™ (or equivalent) and contains 4kbyte SRAM, 8kByte D-cache, 16kByte I-cache. It is NOT battery backed up.

Procedure for clearing memory content:

Note: If the Model 622x starts and operates properly when powered on, it is very unlikely that the memory was compromised.

Warning: Follow all instructions, including safety warnings, in the service sections of the Model 706 manual when performing the following steps.

1. 1 of 2M by 16 bit Flash:
   To allow field upgrade to the operating software, this memory device may be reprogrammed using a program, called the Flash Wizard, provided by Keithley Instruments Inc. If data (other than the operating system) was loaded into this memory device, the unit would be non-functional. To overwrite any suspect content in these memory devices, follow the instructions with the Keithley Flash Wizard and reload the operating firmware, using the original revision that came with the product when new, or a compatible upgrade version. The Flash Wizard first clears all content in these memory devices then overwrites them with the new the firmware. Note: the firmware that is used for the upload must be known to be valid and kept secure to prevent tampering.

   We do not currently offer a program to just erase this code. Complete destruction of firmware requires physical removal of the integrated circuits and destruction of the integrated circuits. Note: this action renders the unit unusable.

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2. 1 of 2M by 32 bit SDRAM: Turn off power for one (1) minute.

3. 1 of 256k by 8 bit FRAM: Memory is not user accessible. A recalibration will overwrite most sections of the memory. Return to the factory for a complete over-write of this memory.

4. The microprocessor: Turn off power for one (1) minute.

If you have any further questions or comments, please feel free to contact my office at anytime.

Regards,

W. Pelster

William Pelster
Director of Quality