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## General Information

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### ***Supported Models***

This firmware is used on the following Keithley products: 2400, 2410, 2420, 2430, 2425, 2440, and all “-C” versions.

Because this firmware is used on multiple models, this version of firmware may be available for use on one or more models while still being unqualified for use on the others. Please refer to the upgrade considerations section below for the product of interest for more details.

## **Installation Instructions**

You can obtain the Keithley Flash Wizard32 from either the Keithley web site (<http://www.keithley.com/support>) or by contacting Keithley Instruments Application support.

## **C32 Release**

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### **Overview**

#### **Critical fixes**

PR42558      **Models affected: 2400, 2410, 2420, 2425, 2430, 2440, and all "C" versions**

**Symptom:**

Units may report "over-temperature" when they are not overheating.

**Resolution:**

The issue has been resolved

## **C31 Release**

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### **Overview**

#### **Critical fixes**

PR31544      **Models affected: 2400, 2410, 2420, 2425, 2430, 2440 and all "C" versions**

**Symptom:**

Unit may stop responding if output on/off is pressed when in an infinite sweep with the display turned off.

**Resolution:**

The issue has been resolved.

PR40971      **Models affected: 2400, 2410, 2420, 2425, 2430, 2440, and all "C" versions**

**Symptom:**

Unit may give "Too small for sense range" when setting current compliance with compliance range sync turned on.

**Resolution:**

The issue has been resolved

### ***Non-critical fixes***

PR30035 ***Models affected: 2400, 2410, 2420, 2425, 2430, 2440 and all "C" versions***

***Symptom:***

Unit may occasionally display "Not a Num" for a reading if offset-compensated ohms is used and leads are not connected.

***Resolution:***

The issue has been resolved.

## **C30 Release**

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### ***Overview***

No hardware modifications or recalibration issues are required.

### ***Upgrade Considerations for Models 2400,2410,2420,2425,2430,2440***

### ***Installation Instructions***

After obtaining the Flash program and the Firmware file, unzip the files in a folder of your choice and run the "setup.exe" program. Follow the instructions to install the program. When the installation is complete, launch the program from your Windows Start menu under Programs/Keithley Instruments. The Application support staff will also provide the file for the latest firmware revision. Put that file in a folder where you can find it and then run the Flash Wizard32 program. The program will autodetect the instrument and request you to specify the firmware file.

It is recommended to put the instrument on a UPS to avoid possibility of the instrument losing power during the upgrade process,

Either GPIB or RS-232 communications can be used to perform the upgrade. GPIB will be significantly faster. The upgrade only takes several minutes using the GPIB.

Contact the Keithley Applications team if you have any questions or concerns about upgrading.

### ***Critical Fixes***

PR28880 ***Models Affected:2400,2410,2420,2425,2430,2440***

***Symptom:***

When the OVP is flickering on the display, the unit "Locks up" or times out on the GPIB. OVP can be caused by electrically noisy environments.

***Resolution:***

Unit will no longer lock up the GPIB or the instrument.

PR24684 **Models Affected: 2400, 2410, 2420, 2425, 2430, 2440 and all "C" versions**

**Symptom:**

When using the Offset Compensation ohms math function, displays "Not a Num"

**Resolution:**

This issue is resolved.

## **Enhancements**

There are no Enhancements with this release

## **Non-critical Fixes**

PR25266 **Models Affected: 2420, 2425, 2430, 2440**

**Symptom:**

Autorange in current mode only does not downrange when appropriate.

**Resolution:**

This issue is resolved.

## **C29 Release**

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### **Overview**

C29 was not released.

## **C28 Release**

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### **Overview**

C28 was only released for Model 2420 to implement corrections for internal manufacturing issues. No hardware modifications or recalibration issues are required.

## **C27 Release**

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### **Overview**

No hardware modifications or recalibration issues are required.

### **Critical Fixes**

PR22327 **Models Affected: 2400, 2410, 2420, 2425, 2430, 2440 and all "C" versions**

**Symptom:**

If using the \*SRE register, the MAV bit is reported incorrectly in the RS-232 communication. This will lead to the SRQ not generated.

**Resolution:**

This issue is resolved

PR23912 **Models Affected: 2400,2410,2420,2425,2430 and all "C" versions**

**Symptom:**

In the 488.1 mode, the unit can lock up the bus if using external trigger and addressed to talk. If the trigger hasn't occurred, the unit will time out. The BUS will not respond again until the unit is power recycled.

**Resolution:**

This issue is corrected.

**Enhancements**

There are no Enhancements with this release

**Non-Critical Fixes**

PR23012 **Models Affected: 2400,2410,2420,2425,2430,2440 and all "C" versions**

**Symptom:**

From front panel operation only: the Current source delay is limited to changes in the 100uS resolution, whereas the voltage source delay can be changed within 10uS. Both delays should be configurable to within 10uS resolution.

**Resolution:**

This issue is corrected.

PR23886 **Models Affected: 2400,2410,2420,2425,2430,2440 and all "C" versions**

**Symptom:**

Transients occur between steps in the custom sweep when the instrument switches configuration from a voltage source to a current source.

**Resolution:**

This issue is corrected.

**Models Affected: 2430,2430-C**

**Symptom:**

The Source Output trigger could have delay (<1mS) between the output trigger and the pulse.

**Resolution:**

The Source output trigger now occurs at the same time as the pulse output.

**Models Affected: 2430-C**

**Symptom:**

Unit locks up when the contact check reports a failure in the pulse mode with auto source auto clear enabled. Requires a power recycle.

**Resolution:**

This issue is corrected.

## C26 Release

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### Overview

No hardware modifications or recalibration issues are required.

### Critical Fixes

PR20014 **Models Affected: 2400,2410,2420,2425,2430,2440 and all "C" versions**

**Symptom:**

While Compliance Range Sync feature is enabled, incorrect current measurement are possible, the value may be off by orders of magnitude.

For example, the displayed reading is 100.05 mA instead of the expected 100uA.

**Resolution:**

This was introduced in C24 when the Compliance Range Sync feature was introduced. This issue is corrected.

PR20130 **Models Affected: 2400,2410,2420,2425,2430,2440 and all "C" versions**

**Symptom:**

Range hold delay feature causes incorrect output voltages when the voltage source range is increased. For example, when increasing the instrument's output from 0 volts (200mV range) to 7 volts (10 volt range), the output is at 0.2volts instead of 7.

**Resolution:**

This issue is corrected.

### Enhancements

PR21121 **Models Affected: 2400,2410,2420,2425,2430,2440 and all "C" versions**

**Enhancement:**

Simplified front panel bi-polar sweep capability for Log and Stair sweeps. Did not have the ability to change polarity without the use of the sign key. C26 changed the configuration sweep menus to allow editing the sign of the values without having to use the sign key.

Custom sweep not affected by enhancement. Still requires the use of the sign key.

PR19965 **Models Affected: 2400,2410,2420,2425,2430,2440 and all "C" versions**

**Enhancement:**

Add ability to have the current measure range temporarily go to the compliance during a source memory sweep.

It is desired to have the current measure range go to the compliance range temporarily during a source memory sweep, then go to the desired measure range. This is so any current transients due to cable capacitance can go away quickly at the higher compliance range, but then be able to take a reading on the lower measure range. Otherwise, need to requires a long delay before a reading or a higher measure range.

PR19966 **Models Affected: 2400,2410,2420,2425,2430,2440 and all "C" versions**

**Enhancement:**

Add ability to do source memory branching on both pass and fail.

It is desired to have the ability to do source memory branching on both passing and failing limits. Previous to C26, it was only possible to do one or the other when evaluating limits.

PR21051 **Models Affected: 2400,2410,2420,2425,243,2440 and all "C" versions**

**Enhancement:**

In keeping with the new nomenclature for the output enable ( previously referred to as the INTERLOCK), the following commands were added.

:OUTPut[1]:ENABle[:STATe] ON|OFF and :OUTP1:ENABle:TRIPped

PR21206 **Models Affected: 2400,2410,2420,2425,2430,2440 and all "C" versions**

**Enhancement:**

Model 6430 code is removed from the 2400 series code to become it's own code base.

### **Non-Critical Fixes**

PR22599 **Models Affected:2400,2410,2420,2425,2430,2440 and all "C" versions**

**Symptom:**

Binary data transfer delivers sometimes more data than expected

**Resolution:**

This issue is corrected.