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## Version 1.6.7c Firmware Release Notes

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## General Information

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### Supported models

This firmware is intended for use on the following Keithley Instruments product models:

2461-SYS

### Firmware upgrade instructions

*NOTE: Do not turn off power or remove the USB flash drive until the upgrade process is complete.*

**From the front panel:**

1. Copy the firmware upgrade file to a USB flash drive. The file is: `ki_1642_v1_6_7c.upg`.
2. Verify that the upgrade file is in the root subdirectory of the flash drive and that it is the only firmware upgrade file in that location. 2461-SYS firmware files end with the file extension `.upg`. (for example: `ki_1642_v1_6_7c.upg`).
3. Disconnect any input and output terminals that are attached to the instrument.
4. Turn the instrument power off. Wait a few seconds.
5. Turn instrument power on.
6. Insert the flash drive into the USB port on the front panel of the instrument.
7. From the instrument front panel, press the **MENU** key.
8. Under System, select **Info/Manage**.
9. Choose an upgrade option:
  - To upgrade to a newer version of firmware: Select **Upgrade to New**.
  - To return to a previous of firmware: Select **Downgrade to Older**.
10. If the instrument is controlled remotely, a message is displayed. Select **Yes** to continue.
11. When the upgrade is complete, reboot the instrument.

*NOTE: A message is displayed while the upgrade is in progress. Do not remove power until the upgrade message shows complete. It should take less than 7 minutes.*

For additional information about upgrading the firmware, refer to the “How do I Upgrade Firmware?” topic in the “Frequently Asked Questions (FAQs)” section of the *Model 2461 Interactive SourceMeter® Instrument Reference Manual* (document number 2461-901-01). This manual is available online at <http://www.tek.com/support>, Search for “2461 Reference Manual”.

### Upgrade considerations for the Model 2461-SYS.

No special considerations at this time.

## Version v1.6.7c Release

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### Overview

Version 1.6.7c is an audited minor release which fixes several different bugs all listed below.  
[RELEASED 12-NOV-2018](#)

### Critical Fixes

NIHK6320 TSP-Link® node number 64 is no longer selectable.  
NIHK6306

**Models affected:**

All 2450 models, 2460 models, 2461 models

**Symptom:**

Using TSP-Link node number 64 could cause compatibility issues with older TSP-Link products.

**Resolution:**

The maximum TSP-Link node number has been limited to 63.

NS1115 Trigger timer does not generate the event at the correct time for long delay settings.

**Models affected:**

All 2450 models, 2460 models, 2461 models

**Symptom:**

Steps to reproduce:

```
trigger.timer[1].reset()  
trigger.timer[1].delay = delay_time  
trigger.timer[1].start.generate = trigger.ON
```

The event should be generated immediately but will not be generated if `delay_time` is greater than 65.5 ms.

**Resolution:**

This issue has been corrected.

NS284 Source range limit checking should generate error on invalid value.

**Models affected:**

All 2450 models, 2460 models, 2461 models

**Symptom:**

Setting the source range to a value greater than the maximum value would select the highest range but would not generate an error. For 2461-SYS models, the voltage range maximum value is 105 V and for current it is 1.05 A.

**Resolution:**

This issue has been corrected.

NS967 Output is still ON after turning it OFF and output light is off.

**Models affected:**

All 2450 models, 2460 models, 2461 models

**Symptom:**

Under certain conditions, creating a configuration list with the output OFF and then recalling it during the execution of a TriggerFlow® can result in the output state showing as OFF even when the output is still ON.

**Steps to reproduce:**

```
reset ()
smu.measure.func = smu.FUNC_DC_CURRENT
smu.measure.configlist.create('mList')
smu.source.configlist.create('sList')
smu.measure.configlist.store('mList')
smu.source.configlist.store('sList')
smu.source.func = smu.FUNC_DC_CURRENT
smu.source.output = smu.ON
trigger.model.load('ConfigList', 'mList', 'sList', 0.1)
trigger.model.initiate ()
waitcomplete ()
smu.measure.func = smu.FUNC_RESISTANCE
print("Expect OFF, found: "..smu.source.output)
smu.source.output = smu.OFF
print("Expect OFF, found: "..smu.source.output)
```

**Resolution:**

This issue has been corrected.

NS525 2461 allows settings outside of power limits.

**Models affected:**

All 2461 models

**Symptom:**

Using TSP commands, it is possible to configure the settings to exceed the power limits supported by the instrument.

Example steps to reproduce:

```
reset ()
smu.measure.range = 7
smu.source.ilimit.level = 7
smu.source.func = smu.FUNC_DC_VOLTAGE
smu.source.level = 105.
```

This attempts to configure the instrument for source 105 V with a 7 A source limit. This is outside the power limits, but does not generate an error.

**Resolution:**

This issue has been corrected.

NS560 SCPI voltage pulse sweep commands use incorrect default values.

**Models affected:**

All 2461 models

**Symptom:**

The default values *xBiasLimit* and *xPulseLimit* are incorrect for the following SCPI commands:

```
:SOURce [1] :PULSe :SWEep :VOLT :LINear.
:SOURce [1] :PULSe :SWEep :VOLT :LINear :STEP.
:SOURce [1] :PULSe :SWEep :VOLT :LOG.
```

This problem can result in unexpected errors being generated.

**Resolution:**

This issue has been corrected.

NS1119 Voltage source level not achieving full resolution.

**Models affected:**

All 2461-SYS models

**Symptom:**

The source level fine adjustment was not being set correctly due to a rounding error.

**Resolution:**

This issue has been corrected.

## **Version v1.6.6s Release**

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### **Overview**

Version 1.6.6s is the initial firmware release for the Model 2461-SYS. No fixes are listed since this is the very first firmware release. Known Issues, Usage Notes, and Upcoming Enhancements are listed below in this document.

### **Compatibility concerns**

N/A

### **Critical fixes**

N/A

### **Enhancements**

N/A

### **Noncritical fixes**

N/A

### **Known issues**

N/A