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## Version 1.6.7d 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:

DMM7512

### Firmware upgrade instructions

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

The firmware file must be in the root subdirectory of the flash drive and must be the only firmware file in that location. You can upgrade or downgrade the firmware from the virtual front panel. Refer to "[Using the DMM7510 virtual front panel](#)" in the *Model DMM7510 Reference Manual* for information. This manual is available online at <https://www.tek.com/support>.

#### *From the virtual front panel:*

1. Copy the firmware upgrade file to a USB flash drive. The file is: `ki_DMM7512_v1_6_7d.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. Model DMM7512 firmware files end with the file extension `.upg`.  
(for example, `ki_DMM7512_v1_6_7d.upg`).
3. Disconnect any 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 version 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.*

**Note: You must perform this procedure for both modules of the DMM7512.**

### Upgrade considerations for the Model DMM7512

Upgrade files are available on the Keithley Instruments website (<https://www.tek.com/keithley>).

To find firmware files on the Keithley Instruments website:

1. Select the **Support** tab.
2. Select **Find Software, Manuals, FAQs By Model**.
3. In the model number box, type **DMM7512**.
4. Select **Go**.
5. Select **Software**. A list of available firmware updates and any available documentation for the instrument is displayed.
6. Click the file you want to download.

## Version v1.6.7d Release

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### Overview

Version 1.6.7d is an audited minor release which fixes several different bugs all listed below.

[RELEASED 12-NOV-2018](#)

### Critical Fixes

NIHK6042 Trigger models hangs with fast NPLC setting.

**Models affected:**

All DMM7512 models

**Symptom:**

Setting up a Trigger Flow model using the TSP-Link® trigger lines for synchronization with a fast measurement in a loop can hang waiting for the trigger.

**Resolution:**

This issue has been corrected.

NIHK4274 TSP-Link performance improvements.

**Models affected:**

All DMM7512 models

**Symptom:**

TSP-Link connection can generate errors if the unit is performing high sample rate or low NPLC measurements.

**Resolution:**

This issue has been corrected.

NIHK6106 TSP-Link initialization memory leak.

NIHK6239

**Models affected:**

All DMM7512 models

**Symptom:**

Performing a `tsplink.initialize()` command would reduce the amount of available memory slightly each time it executed. This occurred because the firmware was not correctly clearing the group leaders, which led to extra memory allocation. Eventually this problem can result in an out of memory condition.

**Resolution:**

This issue has been corrected.

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

NIHK6306

**Models affected:**

All DMM7512 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.

SYS42 Creating a script on a remote TSP-Link node causes a "Node inaccessible" error.

**Models affected:**

All DMM7512 models

**Symptom:**

Steps to reproduce:

1. Use `tsplink.initialize()` to create the TSP-Link network.
2. Send the script source to the remote node via the dataqueue:  
`node[remoteNode].dataqueue.add(myScript.source)`
3. Create the script on the remote node  
`node[remoteNode].execute(myScript.name ..  
"= script.new(dataqueue.next(), [{" .. myScript.name .."}])")`
4. The remote node becomes unresponsive and a node inaccessible error is generated.

**Resolution:**

This issue has been corrected.

SYS535 Using a 2600S, 2600AS, 2600BS, 3706, or a 3706A product as the TSP-Link master results in errors for some commands.

**Models affected:**

All DMM7512 models

**Symptom:**

Using a 2600S, 2600AS, 2600BS, 3706, or a 3706A product as the TSP-Link master will generate errors when attempting to use functions or attributes that accept enumeration types

**Resolution:**

This issue has been corrected.

NS1131 Sending data to TCP/IP socket is too slow.

**Models affected:**

All DMM7512 models

**Symptom:**

The TCP/IP socket interface can experience long delays before the acknowledge packet is sent from the instrument for large data packets.

**Resolution:**

This issue has been corrected.

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

**Models affected:**

All DMM7512 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.

## Version v1.6.6f Release

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### Overview

Version 1.6.6f is the initial firmware release for the Model DMM712. 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

PR55094 Compact buffers do not support negative measurements

**Models affected:**

All DMM7512 models

**Symptom:**

If you create a buffer with a “Compact” style, the negative sign will not be reported. All negative measurements will appear to be positive (the absolute value of the measurement). This does not affect default buffers (defbuffer1 and defbuffer2) since they are fixed at “Standard” style.

**Workaround:**

When creating a custom buffer, use the “Standard” or “Full” style. Avoid “Compact” buffers until this is resolved.

PR54918 Loading a configuration list from the trigger model turns off autoranging

**Models affected:**

All DMM7512 models

**Symptom:**

If you create a trigger model that uses a “Config List” block to recall or load a previous or next set of settings, autoranging is turned off. By default, this leaves the instrument on the 1000V range. This occurs even if the configuration list index attempts to turn autoranging on.

**Workaround:**

If possible, use a trigger model that does not depend on Configuration Lists.

If possible, apply settings using Configuration Lists outside of the trigger model.

PR54333 SCPI problems with MIN/MAX for the Threshold Level unique to Frequency or Period functions

**Models affected:**

All DMM7512 models

**Symptom:**

Use the [SENSe[1]]:<function>:THReshold:LEVel command where <function> is FREQuency or PERiod to attempt to set the level to MINimum or MAXimum. It will incorrectly attempt to set it to 700V, independent of range. On lower ranges, this generates an error.

**Workaround:**

Specify the actual value instead of using the MINimum or MAXimum parameter.

PR54737, A saved setup (SCPI) or configuration script (TSP) may generate errors when recalling or running it  
PR54700

**Models affected:**

All DMM7512 models

**Symptom:**

A saved setup or configuration script saves and restores the state of the instrument. When the instrument saves the settings into a configuration script, it generates incorrect TSP syntax for some settings in the script. As a result, errors are generated when the script is run to recall the setup. This aborts the execution of the configuration script and halts the process to restore settings. For detailed information on the errors, refer to the Event Log. Warnings do not halt script execution.

This problem only applies to a subset of TSP command sequence with examples shown in the table below. Most configurations are not affected.

**Workaround:**

Transfer the setup or configuration script to a computer. Edit it with a text editor and correct the command that generated the error so that it uses the proper syntax.

Possible Errors:

Invalid Command Sequence:	Correct Command Sequence
dmm.measure.func = dmm.FUNC_CONTINUITY dmm.measure.range = <a number>	dmm.measure.func = dmm.FUNC_CONTINUITY
dmm.measure.func = dmm.FUNC_DIODE dmm.measure.range = <a number>	dmm.measure.func = dmm.FUNC_DIODE
trigger.model.* commands appear before settings for "--set up DMM" (look for comment in script)	Move the trigger.model.* commands to appear after the settings for "--set up ACAL" (look for comment in script)

PR54656 Cannot set the aperture to 0 for the digitizer using SCPI

**Models affected:**

All DMM7512 models

**Symptom:**

You cannot set the aperture to 0 using the SCPI language as documented in the manual. Either of these commands will generate an error:

```
:SENSE:DIG:CURR:APER 0      ERROR!  
:SENSE:DIG:VOLT:APER 0     ERROR!
```

**Workaround:**

Use "AUTO" instead of 0 if you wish to select an Automatic aperture.

```
:SENSE:DIG:CURR:APER AUTO   CORRECT!  
:SENSE:DIG:VOLT:APER AUTO   CORRECT!
```

PR54688 Cannot always abort scripts that use the trigger model with Frequency or Period functions

**Models affected:**

All DMM7512 models

**Symptom:**

Configure the trigger model to take Frequency or Period measurements using a script. Attempt to abort the script while it is running. The instrument may not always halt execution of the script.

**Workaround:**

Allow the trigger model in the script to run to completion.

PR54377 Trigger model hangs if a config list attempts to switch between Digitize and Measure

**Models affected:**

All DMM7512 models

**Symptom:**

Create a trigger model using a Measure block that also loads a point from a config list with the function set to take digitizer measurements. The conflict between the DMM Measure and Digitize will cause the trigger model to run indefinitely once started. It is not possible to stop it. This also applies if you create a trigger model with a Digitizer block with a config list that sets up a DMM Measure function.

**Workaround:**

Avoid mismatches between Digitizer and DMM Measure that can be introduced when using config lists with the trigger model. Consider configuring and loading separate trigger models or writing a TSP script to achieve the desired behavior.

PR55118 Trigger model doesn't update to follow active buffer

**Models affected:**



All DMM7512 models

**Symptom:**

Use the Graph's Trigger tab to configure a trigger model. After the trigger model is generated, change the active buffer from the home screen. The trigger model will not get updated and will still put measurements in what was previously the active buffer.

**Workaround:**

There are several ways to avoid this:

- (1) Change the Active Buffer before configuring the trigger.
- (2) After changing the Active Buffer, force regeneration of the trigger model by making a change to any setting on the Graph's Trigger tab.
- (3) Manually reconfigure the trigger model to change the buffer selected in the Measure/Digitize block (Menu > Trigger Flow).

PR54974, UI graph occasionally appears to be missing digitizer data  
PR54934

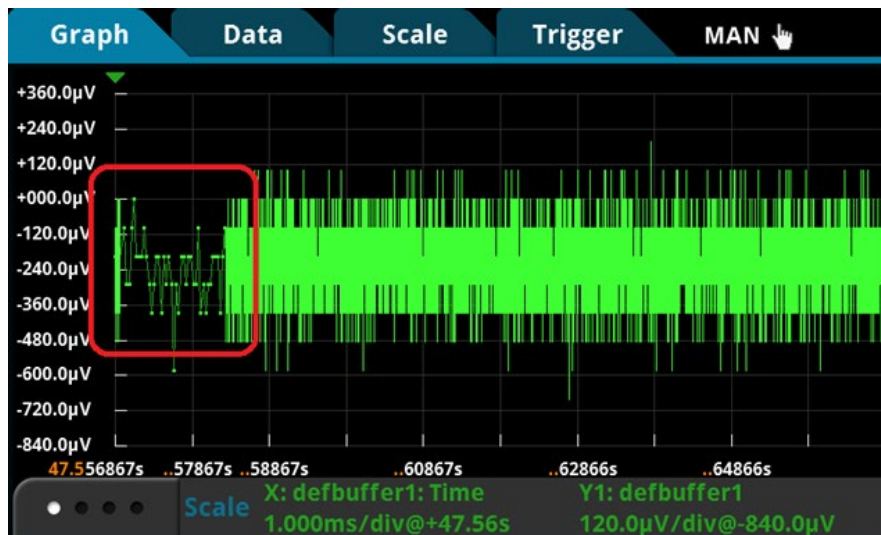
**Models affected:**

All DMM7512 models

**Symptom:**

When using the UI to view bursts of digitizer data on the graph, you may see areas that appear to have missing data. See the example in the image below. Even though data is being sampled consistently throughout the viewable range, it appears as though fewer points are available in the circled area.

This may only occur when more than 5,000 points are visible on the graph at once and sample rates exceed 50k.



**Workaround:**

Pan or scale the graph by touching it to force a refresh. All data will appear. The measurements were taken and are in the buffer.

If you touch the screen in “Continuous Measurement Triggering” mode, panning in the time dimension will lock your time position. This will freeze your view on older data. If you continue to take measurements, your data will correctly disappear when the buffer wraps and the older data you were looking at is overwritten (assuming your buffer is continuous). If you wish to avoid this, it may be helpful to put the instrument in Manual (“Trigger Key Triggering”) mode and manually trigger each acquisition using the TRIGGER key.

PR54436 UI graph may fail to autoscale under certain circumstances

**Models affected:**

All DMM7512 models

**Symptom:**

When viewing the graph, the graph may not autoscale correctly when the x-axis scale is set to “All”.

**Workaround:**

Pan or scale the graph by touching it to force a refresh. The autoscale algorithm will correct itself.

PR54415 UI graph does not display the dashed lines for the analog trigger levels set over the bus

**Models affected:**

All DMM7512 models

**Symptom:**

Configure the analog trigger using remote bus commands. Then view the graph from the front panel. The dotted line to indicate the analog trigger level(s) will not appear.

**Workaround:**

There is no workaround over the bus. The only option is to program the level from the UI for it to be visible.

PR54741 UI graph can encounter scaling and panning difficulties when displaying 2 or more traces

**Models affected:**

All DMM7512 models

**Symptom:**

Configure the graph to show 2 or more traces at once. Autoscale may not always work correctly. Panning and zooming the signals may also be difficult at times.

**Workaround:**

For screen gestures, try repeating the operation over the trace you wish to modify. If autoscale is not yielding expected results, try manually setting scale. The “Scale” tab can always be used to precisely set a scale to pan or zoom into a trace.

PR54718 UI Reading Table does not always allow scrolling to access all digitized readings

**Models affected:**

All DMM7512 models

**Symptom:**

The UI Reading Table (Menu > Reading Table) may not allow you to scroll down using the touch screen or the on screen arrows even though there is additional data. This problem is particularly pronounced after using the “Jump to” option to navigate the table.

**Workaround:**

Use the “Refresh” button and then try to navigate again. This often works if the “Jump to” option has never been invoked. If this still does not work, use the “Jump to” option. Jumping should allow for full access to the entire data set.

PR48636 DMM7512 writes to a USB Flash drive file that is read only

**Models affected:**

All DMM7512 models

**Symptom:**

The DMM7512 will write over read-only files on flash drives. For example, if the DMM7512 attempts to write to file aaa.txt that is marked read-only, the DMM7512 will rewrite file aaa.txt without warning. This problem does NOT suggest the DMM7512 randomly overwrites arbitrary files on a flash drive.

**Workaround:**

There is no known workaround for this issue at this time.