KEITHLEY DMM7512
7.5 Digit Graphical
Multimeter

KEITHLEY DMM7512 7.5 Digit Graphical Multimeter Instruction Manual

Contents

KEITHLEY DMM7512 7.5 Digit Graphical Multimeter

GENERAL INFORMATION

SUPPORTED MODELS

This firmware is used on the following Keithley Instruments product models: Model DMM7512 7½ Digit Graphical Multimeter

INSTALLATION INSTRUCTIONS

Firmware upgrade and downgrade instructions

NOTE

If you are upgrading from a firmware version earlier than 1.7.10, use the Downgrade to older option from the front panel or use the downgrade remote commands. See “Upgrading the firmware” in your instrument’s Reference Manual for more information. When upgrading from a firmware version earlier than 1.7.10, system messages will display the firmware version as 1.7.1. This is a cosmetic issue and does not affect instrument performance.
If you are upgrading your instrument from version 1.7.10, follow the “Installation Instructions” in the General Information section of this document.

CAUTION

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 (.upg file) to a USB flash drive.
2. Verify that the upgrade file is in the root subdirectory of the flash drive and that it is the only firmware file in that location.
3. Disconnect any terminals that are attached to the instrument.
4. Turn the instrument power off. Wait a few seconds.
5. Turn the instrument power on.
6. Insert the flash drive into the USB port on the instrument.

You can now access the virtual front panel to upgrade or downgrade the firmware. Refer to “Accessing the virtual front panel” in Model DMM7512 7½ Digit Sampling Multimeter Instrument Information (document number 0713576xx, where xx is the revision number). This manual is available online at **tek.com/keithley**. When you have connected to the instrument, continue with the installation process.

To upgrade or downgrade the firmware:

1. From the instrument virtual front panel, press the MENU key.
2. Under System, select Info/Manage.
3. Choose an upgrade option.
4. To upgrade to a newer version of firmware: Select Upgrade to New.

5. To return to a previous version of firmware: Select Downgrade to Older.
6. When the upgrade is complete, reboot the instrument.

You must perform this procedure for both modules of the DMM7512.
A message is displayed while the upgrade is in progress.
For additional firmware installation instructions, refer to the Model DMM7512 7½ Digit Sampling Multimeter Instrument Information (document number 0713576xx, where xx is the revision number). This manual is available online at **tek.com/keithley**.

VERSION 1.7.16 RELEASE

OVERVIEW
Version 1.7.16 provides fixes and enhancements.

ENHANCEMENTS

Category:	**General changes**
Reference number:	SK-2828Support was added for a new serial number format. A serial number can now be assigned using a standard format of four alphanumeric and six numeric characters.
Category:	**General changes**
Reference number:	SK-2764Updated the End User License Agreement (EULA) to the current revision.

VERSION 1.7.12 RELEASE

OVERVIEW
Version 1.7.12 provides a fix.

CRITICAL FIX

Reference number: Symptom: Resolution:	NS-2105Saving numerous configuration scripts or system setups may lead to an out of memory error message depending on the time since the instrument has been restarted. This issue has been resolved.

VERSION 1.7.10 RELEASE

NOTE
When you load the 1.7.10 firmware into your instrument, system messages will display the firmware version as 1.7.1. This is only a cosmetic issue and does not impact the performance of the unit. Subsequent firmware upgrades will display a two-digit firmware version number. To install firmware version 1.7.10 on your instrument, use the Downgrade to older option from the front panel or use the downgrade remote commands. See “Upgrading the firmware” in your instrument’s Reference Manual for more information.

OVERVIEW
Version 1.7.10 provides fixes and enhancements.

CRITICAL FIXES

Reference number: Symptom: Resolution:	NS-2070Heavy script processing can interfere with the timely generation of an SRQ as the result of setting the MAV bit in the Status Byte Register. This interference affects both the bus and the front panel display. This issue has been resolved.
Reference number: Symptom: Resolution:	NS-2072After changing the group number of a node to be the group number previously used for another node, the instrument may generate errors when trying to start a test on that node using the execute() command, even after using waitcomplete() to make sure the previous tests have finished. Subsequently, performing a waitcomplete() on the previous group number may cause the instrument to wait for tests to complete on that node even though the node is in a new group. This issue has been resolved.
Reference number: Symptom: Resolution:	NS-2074The MAV bit may be set in the status byte indicating that there is data to be read from the instrument, but the subsequent read operation to pull that data from the instrument fails and times-out. This may occur when rapidly generating data and enabling the MAV bit to be set in the status model to indicate when data is available to read from the instrument. This issue has been resolved.

ENHANCEMENTS

Category:	**System commands**
Reference number:	NS-1946New commands have been added:TSP: lan.dstprotection = lan.ON or lan.OFFSCPI: SYSTem:COMMunication:LAN:DST:PROTection <ON (1) orOFF(0)>OFF is the default command state.When DST protection is turned OFF, a simple open-and-close on the DST port (5030) will close any and all open LAN connections.When DST protection is turned ON, the DST port will need to be opened and the system login and password entered followed by closing the DST port to close any open LAN connections, including the DST port.Turning DST protection ON prevents LAN connections from being inadvertently closed by your IT department performing a port scan across the corporate network.

VERSION 1.7.7 RELEASE

OVERVIEW
Version 1.7.7 provides fixes.

CRITICAL FIXES

Reference number:	NS-2025
Symptom:	While running a test loop in an application that sends the reset() command as part of the code, a blue screen appears after running the test for several days.
Resolution:	The issue has been resolved.
Reference number:	NS-2043
Symptom:	While remotely communicating with the instrument, if a new error is displayed on the front panel shortly after a previous error is being cleared from the front panel, the instrument may become unresponsive or inoperative.
Resolution:	The issue has been resolved.

VERSION 1.7.5 RELEASE

OVERVIEW

Version 1.7.5 provides fixes and enhancements.

ENHANCEMENTS

Category:	**General settings**
Reference number:	The “Branch to Block” setting on various branch blocks on the Trigger Flow screen o n the front panel now allows a minimum value of 0.

VERSION 1.7.3 RELEASE

OVERVIEW

Version 1.7.3 provides fixes and enhancements.

CRITICAL FIXES

Reference number:	NS-1908
Symptom:	Changing an annunciator setting (such as auto zero or filter enable) on the Settings o r Calculations screen is not reflected in the Home screen annunciators.
Resolution:	This issue has been corrected.
Reference number:	NS-1909
Symptom:	Temperature readings are shown as k (for kilo) degrees Celsius, Fahrenheit, or Kelvi n instead of degrees Celsius, Fahrenheit or Kelvin.
Resolution:	This issue has been corrected.
Reference number:	NS-1927
Symptom:	The LXI identification web page shows the incorrect LXI version and web page links.
Resolution:	This issue has been corrected.

ENHANCEMENTS

Category	Remote commands
Reference number:	NS-1931: Added a TLS (transport layer security) option when using thetspnet.connect() command. *connectionID = tspnet.connect(ipAddress, port Number, initString, useTLS) ipAddress*: A string that indicates the IP address or host name to connect to.*port Number*: Default 5025.*initString*: Sends a string to *ipAddress*. *useTLS*: 0 or 1;0: Do not use TLS with the connection (default)1: Use TLS with the connection. When *useTLS* is set to 1, the instrument negotiates the security protocol when connecting to the host or IP address that is used. This security protocol is used when using tspnet.write() to send data or tspnet.read() to receive data.The following is an example of how to use a host name with the TLS option:*connectionID* = tspnet.connect("**hostname.domain.com**", 443, "", 1)
Category	**Remote commands**
Reference number:	NS-1960: The localnode.gettime with fractional () TSP command is available to retrieve the number of seconds elapsed since January 1, 1970, with fractional seconds appended to the returned response.

VERSION 1.7.2 RELEASE

OVERVIEW

Version 1.7.2 provides fixes and required support.

CRITICAL FIXES

Reference number: Symptom: Resolution:	NS-1910 Additional user-defined instrument configurations may be configured incorrectly following a reset command, resulting in incorrect or corrupted customer readings.This issue has been corrected.

NONCRITICAL FIXES

Reference number:	NS-1915
Symptom:	When running a Test Script Processor® (TSP) script application with a custom user interface that has an End App button, the custom user interface may not close properly when "End App" is selected.
Resolution:	This issue has been corrected. This fix also introduces a behavior change from previous firmware versions. If you are running a nested script (scripts running within a script), the user interface only displays the first running script. Previously, the user interface displayed name changes between nested scripts.

VERSION 1.7.0 RELEASE

OVERVIEW

Version 1.7.0 is a significant maintenance firmware release for the DMM7512 that brings numerous updates along with stability and reliability improvements. See the Model DMM7512 7½ Digit Sampling Multimeter Instrument Information (document number 0713576xx) for additional details. References to the front panel of the instrument in this section refer to the virtual front panel. Refer to "Accessing the virtual front panel" in Model DMM7512 7½ Digit Sampling Multimeter Instrument Information (document number 0713576xx). This manual is available online at **tek.com/keithley**.

CRITICAL FIXES

Reference number:	AR55036, AR62150, NS-339
Symptom:	Repeated creation and deletion of user-defined buffers may cause out-of-memory err ors. Error messages indicating the maximum size for buffers being created are wrong and provide misleading guidance.
Resolution:	Reading buffer memory management now allows users to easily allocate the largest size available when creating a reading buffer. Documentation has been clarified to ex plain the creation process. Improved buffer memory management also greatly reduce s the possibility of getting out-of-memory errors.
Reference number:	AR56349, AR60259, NS-929
Symptom:	USB communication issues.
Resolution:	To better accommodate the variety of VISA installation options available to users, the STALLing USBTMC is not active as it had been before.
Reference number:	AR61116, AR62660, NS-529, NS-1558
Symptom:	Repeatedly saving a buffer to a file on a USB flash drive using the buffer.saveappend command eventually causes Error 2203, “Cannot open file.”
Resolution:	This issue has been corrected.
Reference number:	AR62310
Symptom:	Exercising various combinations of virtual front panel settings for the Event Log may c ause the virtual front panel to lock up.
Resolution:	This issue has been corrected.
Reference number:	AR61734, NS-1097
Symptom:	Pressing shortcut while swipe screen is moving causes the instrument to become ino perable.
Resolution:	This issue has been resolved.
Reference number:	AR61925, NS-1108
Symptom:	Manual scaling of histogram display does not work correctly.
Resolution:	This issue has been resolved.
Reference number:	AR62632, NS-647, NS-682, KS-2983
Symptom:	Fast continuous streaming of data (at rates > 50 kS/s) results in report of buffer overrun condition.

Resolution:	Enhancements have been made in firmware to better support streaming to the computer while using digitizing, however, hardware limitations are still present. The KickStart software provides the framework and code to help the user achieve 50 kS/s runs for up to 5 hours.

ENHANCEMENTS

Reference number:	AR62431, NS-1636
Symptom:	A/D timeout error occurring, error code 5701.
Resolution:	This issue has been resolved.

Category	**Reading buffers**
	• Reading buffer memory management now allows users to easily allocate the largest size available when creating a reading buffer. • Additional options are now available when saving data to a USB flash drive. • Buffer statistics and options for accessing data from reading buffers have been added. • Added reading buffer math and unit support. • Added formatting options for writable buffers. • Added a method to clear the active buffer by pressing the MENU + EXIT keys. • When selecting the active buffer, an option now exists to create a new user buffer. • Added the display.active buffer TSP remote command and DISPlay:BUFFer:ACTive SCPI command to specify the active buffer for the instrument using remote commands.
Category	**Configuration lists**
	• Enhanced user interface screen for accessing configuration list settings. • Added the ability to use remote commands to store inactive measure function settings in a configuration list index. • Added the ability to use remote commands to query or configure inactive measure function attributes.
	Trigger model

Category	• The Measure and Digitize trigger blocks have been combined into a single Measure and Digitize block. The new trigger block either measures or digitizes based on the active function. When used with a Measure Configuration list, this trigger block lets you make sequential measurements with the analog-to-digital converter and the digitizer (when available) in the same trigger model. • The SCPI command is :TRIGger:BLOCk:MDIGitize. The TSP command is trigger.BLOCK_MEASURE_DIGITIZE. • The remote commands for the original Measure and Digitize trigger blocks are still accepted to provide compatibility with existing test programs and scripts. However, the trigger models generated with the original commands automatically use the new, combined Measure and Digitize block.
Category	**LXI**
	• The instrument is now compliant with LXI version 1.5. • An LXI/LAN ID indicator has been added to the System Communications screen. • To discover the instrument, use the LXI Discovery Tool.

Category	**Apps**
	• When applications are available, the Application APPS Manager screen displays th e applications for the instrument.
Category	**New commands and options**
	• Added a method to automatically install any scripts to internal storage memory that reside in an autoinstall directory on the USB drive when inserted into the instrumen t. • Added fs.* TSP commands for accessing and managing file system settings. • Added an option to show a Processing screen in the user interface to increase test execution speeds when screen updates are not required. • Added remote commands to set continuous measurement.
Category	**Ease of use**
	• Numerical entries on the virtual front panel user interface now support Minimum, M aximum, and Infinite options when applicable to the setting. • A high-resolution option has been added to the virtual front panel. • Graph and Histogram settings are now shared for ease of viewing data between th e two screens. Also added other graphing enhancements.
Category	**General changes**
	• The maximum TSP node ID is now 63. The previous maximum was 64. • The Access Mode option on the virtual front panel has been changed to Interface Access. • The user swipe screen is only displayed if user text is defined.

VERSION V1.6.7D RELEASE

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.
  TSP-Link initialization memory leak.
- **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.
  TSP-Link node number 64 is no longer selectable.
- **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.
  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 data queue: node[remote Node].data queue.add(myScript.source)
3. Create the script on the remote node node[remote Node].execute(myScript.name .. “= script.new(data queue.next (), [[” .. myScript.name ..”]])”)
4. The remote node becomes unresponsive and a node inaccessible error is generated.

- **Resolution:**
  This issue has been corrected.

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.
  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.
  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

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

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 (def buffer 1 and def buffer 2) 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.
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.
  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.
  A saved setup (SCPI) or configuration script (TSP) may generate errors when recalling or running it.
- **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_CONTINUITYdmm.measure.range = <a number>	dmm.measure.func = dmm.FUNC_CONTINUITY
dmm.measure.func = dmm.FUNC_DIODEdmm.measure.range = <a numbe r>	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!

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. 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. 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.

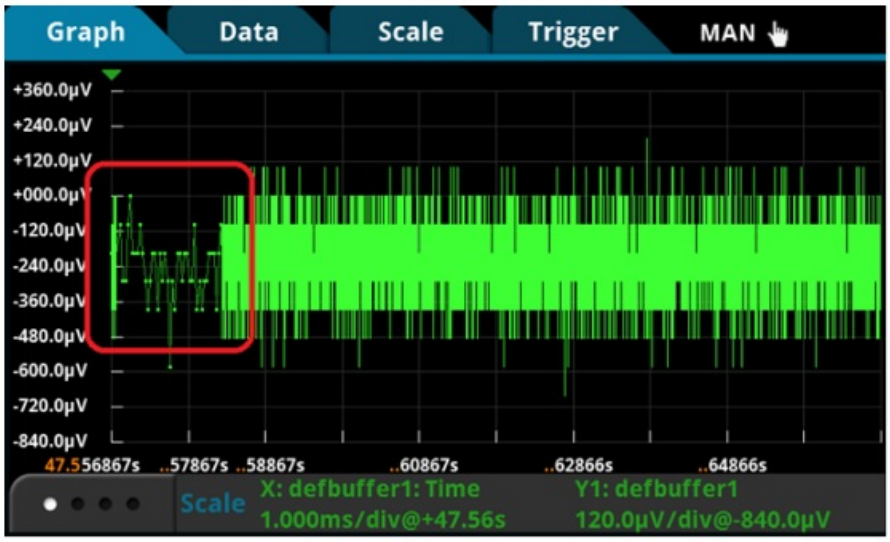
Workaround:
There are several ways to avoid this:

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).

UI graph occasionally appears to be missing digitizer data

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.

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.

  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.

  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.

  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. 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.

FAQ

- **Q: How often should I calibrate the device?**
  A: It is recommended to calibrate the device annually for accurate measurements.
- **Q: Can I use third-party accessories with the product?**
  A: To ensure compatibility and safety, it is advised to use accessories recommended by Keithley Instruments.

Documents / Resources

	KEITHLEY DMM7512 7.5 Digit Graphical Multimeter [pdf] Instruction Manual DMM7512, DMM7512 7.5 Digit Graphical Multimeter, DMM7512, 7.5 Digit Graphical Multimeter, Graphical Multimeter, Multimeter

References

- Keithley Instruments & Products | Tektronix
- User Manual