TekScope
Oscilloscope Software
Release Notes

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077-1826-14 June 2026

Version 2.26.13

Last Revised

June 2026

Products:

This firmware version is intended for:

2 Series MSO: MSO22 and MSO24

4 Series B MSO: MSO44B and MSO46B

5 Series B MSO: MSO54B, MSO56B, MSO58B, and MSO58LP

6 Series B MSO: MSO64B, MSO66B, MSO68B, and LPD64

7 Series DPO: DPO714AX

NOTE: Please be advised that this version of the software is not available for specific oscilloscope models. Prior Tektronix oscilloscope models that are not supported by this version include: MSO44, MSO46, MSO54, MSO56, MSO58, and MSO64. For further details or assistance, please contact your regional Tektronix support team.

New Features

- Transfer Function Plot: visualize the frequency-domain relationship between two measurements for enhanced analysis and debugging.
- UA/UI Eye Diagram Markers: simplify eye measurement interpretation with direct UA and UI visualization. Markers (in the form of dots) are now displayed automatically, making it easier to correlate reported measurements with what users see on the eye diagram.
- Recall to Ref on Save: quickly assign the current acquisition to a new Ref waveform by checking this box in the Save Waveform menu.
- Improved edge detection logic for Digital Channels to handle high-noise waveforms in which the set Threshold is crossed multiple times in one sample period.

New Probe Support for 7 Series DPO

- Added support for TDP1500 Low Voltage Differential Probe with TCA-VPI50 TekConnect™ to TekVPI 50Ω Adapter.

Signal Integrity Modeling (option SIM) for 5 Series B MSO, 6 Series B MSO, and 7 Series DPO only

- Improved Error Reporting: accelerate troubleshooting with clearer and more actionable diagnostics.
- Independent SIM Window (Windows Only): run SIM controls and plot views on a second monitor for improved workflow efficiency.

Signal Integrity Modeling (option SIMA) for 5 Series B MSO, 6 Series B MSO, and 7 Series DPO only

- Transmitter EQ 3-Tap FFE and FIR Filter File Support: more accurately model transmitter equalization and system behavior.
- DFE P2Pn Support: enhanced receiver equalization capabilities for more realistic and standards-compliant receiver modeling.

New Power Distribution Network Analysis Solution (option 4/5/6-PDN) for 4 Series B MSO, 5 Series B MSO, 6 Series B MSO only

- Stability Evaluation for Power Integrity Analysis (SEPIA) uses the PICOTEST algorithm and evaluates power supply and VRM stability by extracting frequency-domain information from a time-domain voltage response to a step load. It analyzes transient ringing to estimate an equivalent RLC model, providing insight into damping, resonance, and control-loop stability without breaking the loop.
- New enhanced versions of FRA measurements, including Bode plot, PSRR, and 2-port Impedance measurements are added as part of the PDN Measurements group. These FRA measurements are much faster versions of existing ones and have improved features curated for power integrity experts.
- The PDN solution also includes Power Supply Induced Jitter (PSIJ) measurement useful for identifying and removing the effect of periodic jitter introduced on the high-speed serial data due to power rail noise.

Inverter and Motor Drive Analysis (option 4/5/6-IMDA)

- QEI decoding is improved with glitch suppression and Gray-code validation for accurate motor position, speed, and direction tracking to incorporate rapid changes in motor direction for robotic applications.

DDR5 and LPDDR5 (option 7-CMDDR5SYS and 7-CMLPDDR5) for 7 Series DPO

- LPDDR5 and DDR5: improved Vcent algorithm for measurements, which use an explicit clock source.
- DDR5 only: added support for the P77C292MM probe tip
- DDR5 only:new SCPI command syntax for CA Source of Address, TEKEXP:VALUE GENERAL "CA Probe Mode" (previously, TEKEXP:VALUE GENERAL "ADDR CMD Probe Mode").

Defects fixed

- 2 Series MSO only: fixed an issue that prevented the "Draw a Box" tool from drawing Mask objects.
- Fixed an issue causing erroneous reboots after booting with active High Voltage Differential Probes (like the THDP0200) connected to channels 2 to 8.
- Advanced Jitter Analysis (DJA): removed units from Q-Factor measurement results, as the Q-Factor ouput does not have units.
- Advanced Power Analysis (PWR): AWG amplitude is now set as intended for Frequency Response (FRA) measurements with "Constant Amplitude" setting enabled.
- Arbitrary Function Generator (AFG): resolved timing conflicts that could cause relay switching transients on Burst outputs.
- Fixed an issue with MATLAB file (.mat) handling that caused multiple copies of the same waveform to be saved in place of subsequent waveforms in segmented memory acquisitions (FastFrame, History Mode).
- Time Domain Reflectometry (TDR): fixed edge detection algorithm that could cause inaccurate impedance measurements on oscilloscopes <1 GHz bandwidth.
- Fixed an issue that could cause Linux oscilloscopes to reboot after hot swapping a USB-TMC device cable.
- Measurement Histograms are no longer blank for FastFrame records that include clipped waveforms.
- Saving or recalling session (.tss) and setup (.set) no longer causes Math Filter waveform scaling (with Auto-Scale turned off) to reset.
- Waveforms/spectra acquired with Current Probes now show correct units (usually dB-Amps) in Spectrum View.
- Fixed an issue that caused the Daylight Savings Time checkbox to disappear from Time menu.
- Fixed an issue on Windows oscilloscopes that would cause TekScope startup to halt at 60%.

Known issues

- Automatic Serial Decode outputs (Bus Decode waveforms) reduce acquisition rate on Windows oscilloscopes.
- LPD64 Aux-In-to-channels skew changes after reboot in some environments.
- Using the Trigger “Set to 50%” button resets Custom Hysteresis.
- Querying Channel Power measurement results will always return a value in Watts.

Version 2.24.10

Last Revised

April 2026

Products:

This firmware version is intended for:

7 Series DPO: DPO714AX

New features

Digital Phosphor technology with FastAcq™ high-speed waveform capture

- Fast waveform capture rate, up to 150,000 waveforms per second, provides a high probability of seeing the infrequent problems common in digital systems: runt pulses, glitches, timing issues, and more.
- To further enhance the visibility of rarely occurring events, intensity grading indicates how often rare transients are occurring relative to normal signal characteristics.

FastFrame™ segmented memory acquisition mode with high-speed trigger and waveform capture

- Enables efficient use of the oscilloscope acquisition memory by capturing many trigger events in a single record while eliminating the large time gaps between events of interest. View and measure the segments individually or as an overlay.
- Supports a minimum time between triggers of 33 ns or a maximum trigger rate > 30,000,000 waveforms per second.
- Used to quickly acquire large sets of waveforms and create highly averaged waveform data in two different configurations:
  - Average Summary Frame: frames will be averaged together horizontally from Frame 1 through Frame N to produce a Summary Frame at the end of the Frame Set.
  - Orthogonal FastFrame Averaging: frame averaging is performed vertically with Frame 1 of the Frame Set being averaged with Frame 1 of the next Frame set, Frame 2 with Frame 2 continuing all the way to Frame N. As each Frame Set is acquired, the acquisition count that makes up the average waveform contained within each frame increases by one. This results in a final Frame Set where each frame contains averaged waveform data. This differs from the Average Summary Frame, where only the

Summary Frame contains average waveform data. Orthogonal Fast Frame Averaging is useful for acquiring repeatable, multi-step processes where averaging is required to get a higher signal-to-noise ratio.

Known Issues

- The TekScope Windows application will stop loading at 60% in rare cases. Rebooting the scope will resolve this issue.
- Automatic Serial Decode outputs (Bus Decode waveforms) reduce acquisition rate on Windows scopes.
- Editing the SIM configuration requires the minimum Display be set to 1920x1080. Please ensure Display resolution settings are set as 1920x1080 with Scale value no greater than 125%.
- Using the Trigger “Set to 50%” button resets Custom Hysteresis.
- Querying Channel Power measurement results will always return a value in Watts.
- Help Content for New Features: Help pages for certain new feature windows may not appear when selecting the Help (?) icon. Updated documentation is available in PDF format on tek.com and will be integrated into a future software release.

Version 2.24.4

Last Revised

February 2026

Products:

This firmware version is intended for:

2 Series MSO: MSO22 and MSO24

4 Series B MSO: MSO44B and MSO46B

5 Series B MSO: MSO54B, MSO56B, MSO58B, and MSO58LP

6 Series B MSO: MSO64B, MSO66B, MSO68B, and LPD64

7 Series DPO: DPO714AX

NOTE: Please be advised that this version of the software is not available for specific oscilloscope models. Prior Tektronix oscilloscope models that are not supported by this version include: MSO44, MSO46, MSO54, MSO56, MSO58, and MSO64. For further details or assistance, please contact your regional Tektronix support team.

New features

Signal Integrity Modeling: Advanced (option SIMA) for 5 Series B MSO, 6 Series B MSO, and 7 Series DPO only

- Receiver equalization: Adds support for receiver equalization using a dedicated Rx Equalization workflow or within the Advanced workflow by placing a receiver block to the right of the Load block. It includes configurable Rx Filter, CTLE, FFE/DFE, and Clock Recovery blocks with test points after each stage.
- Transmitter equalization: Enables transmitter pre-emphasis and de-emphasis through configuration of the DUT Source block.

To ensure optimal performance of the application in receiver equalization, set the record length to no more than 25 M on 5/6 Series B MSO oscilloscopes and no more than 62.5 M on 7 Series DPO oscilloscopes.

Signal Integrity Modeling: Base (option SIM) for 5 Series B MSO, 6 Series B MSO, and 7 Series DPO only

- 4-Port Differential General-Purpose Block for advanced system modeling.
- High-Z Probe Block: a high-impedance probe block to support mid-circuit probing.
- Ability to export and save S-parameter data from the Advanced menu of S-parameter type blocks.
- Global Bandwidth Limit Plots for visualization in custom mode.
- Log/Linear Plot Scaling: Supported for test point magnitude and phase vs. frequency plots.

Serial Standard Decode and Search for 7 Series DPO only

- Features for DDR5 and LPDDR5 TekExpress Compliance (option 7-CMDDR5SYS and 7-CMLPDDR5):
  - Updated Vcent algorithm for measurements which use explicit clock source
- Features for DDR5 TekExpress Compliance only
  - Added support for the P77C292MM probe tips
  - Updated the SCPI command for CA source of address command from TEKEXP:VALUE GENERAL,"ADDR CMD Probe Mode" to TEKEXP:VALUE GENERAL,"CA Probe Mode" (option 7-SRUSB4).
- Features for USB4 & Thunderbolt 3/4 Protocol Analysis, Decode, and Search (option 7-SRUSB4)
  - USB4 V1.0 Decode with Packet View On/Off
  - USB4 V1.0 RSFEC Error Correction available only when Packet View Off
  - USB4 V1.0 Search

Power Analysis (option 4-PWR, 5-PWR, 6-PWR)

New Low-Voltage and High-Voltage Ride-Through (LVRT and HVRT) measurements are added under Green Power Analysis (option PWR) for 4 Series B MSO, 5 Series B MSO, and 6 Series B MSO. Supports grid-tied inverter ride-through validation against industry standards with automated voltage-time masks, reducing setup effort ahead of formal grid-compliance testing.

Advanced Jitter and Eye Analysis (DJA option) for 5 Series B MSO, 6 Series B MSO, and 7 Series DPO only

- Enhanced Eye Diagram Mask Editing: Supports rotate, drag-and-drop, resize, and add/remove vertices, consistent with Waveform View mask behavior.
- Enhanced Target BER Keypad: Allows entry of fractional mantissa and exponent values.

Automatic Channel-to-Channel Deskew for 7 Series DPO only

- Located in the CH > Other > Multichannel button.
- Uses Differential Fast Edge outputs on 7 Series DPO instruments, or an external signal source with a fast edge rate (approximately 30 ps) and a 1 kHz repetition rate.
- Deskew range is ±125 ps with deskew resolution down to 10 fs.
- Typical time to run this automatic deskew is approximately 5 seconds.

Defects fixed

- Hidden Digital Channels are no longer excluded from recalled session files (.tss).
- RFvT waveform views are no longer recalled in setups (.set) and sessions (.tss) that had these views turned off.
- Improved controls for Spectrum vertical scaling when using Vrms units.
- Callouts in the waveform view are no longer excluded when generating PDF reports.
- Fixes and changes made to improve SIM application stability.

Known issues

- The TekScope Windows application will stop loading at 60% in rare cases. Rebooting the scope will resolve this issue.
- Automatic Serial Decode outputs (Bus Decode waveforms) reduce acquisition rate on Windows oscilloscopes.
- Help Content for New Features: Help pages for certain new feature windows may not appear when selecting the Help (?) icon. Updated documentation is available in PDF format on tek.com and will be integrated into a future software release.
- Editing the SIM configuration requires the minimum display be set to 1920x1080. Please ensure Display resolution settings are set as 1920x1080 with Scale value no greater than 125%.
- LPD64 Aux-In-to-channels skew changes after reboot in some environments.
- Using the Trigger "Set to 50%" button resets Custom Hysteresis.
- 2 Series MSO units may take longer than usual to power off.
- Querying Channel Power measurement results will always return a value in Watts.

Version 2.22.8

Last Revised

December 2025

Products:

7 Series DPO: DPO714AX

NOTE: Please be advised that this version of the software is not available for specific oscilloscope models. Prior Tektronix oscilloscope models that are not supported by this version include: MSO44, MSO46, MSO54, MSO56, MSO58, and MSO64.

For further details or assistance, please contact your regional Tektronix support team.

New features

Signal Integrity Modeling (SIM)

- Automatic oscilloscope and probe modeling. SIM now provides a mode that auto-loads S-parameters for the DPO714AX scope and P7700/P7600 probes when using Advanced Workflow, reducing setup time and errors.
- RLC Network model control. A new check box lets you enable or disable the R, L, and C elements for more flexible circuit modeling.
- DUT Source block copy. You can now copy the DUT Source block from the Physical Model into the Simulation Model for faster and more consistent setup.
- Improved error messaging. Clearer, more descriptive error messages help you diagnose configuration issues quickly.

Serial Standard Automated Compliance Solutions

- USB4 v1.0 Gen 3x1 and 3x2 Tx

Serial Standard Decode and Search

- 64b/66b Line Decode and Search

Power analysis (WBG-DPT and IMDA)

- IMDA: Sin-Cos sensor is supported in DQ0 and all the mechanical measurements.
- WBG-DPT: Parallel Topology Analysis category has Overshoot, Undershoot and Damping factor measurements.

Advanced Jitter and Eye Analysis (DJA)

- SJ@Freq Measurement support. Measures sinusoidal jitter at a specified frequency for PLL and jitter tolerance analysis.

Miscellaneous

Support for peripheral CD/DVD drives on Embedded OS (Linux) products, adding read/write capabilities for optical media. Broad support for USB optical drives.

Defects fixed

- Resolved several SIM defects to improve overall software stability.
- Fixed an issue that would cause WBG-DPT Auto and Manual Deskews to fail.
- Fixed an issue where a connected AFG would fail to trigger properly during WBG-DPT testing.
- Fixed an issue where some IMDA measurement plots and results were not rendering properly in Reports.
- Fixed an issue that prevented the Waveform Cursor cross-hair from displaying in the waveview.
- Channel Power Measurements now show results in correct dB and Vrms units for alternate vertical settings.
- The MASK:MASK<x>:LIST? command now returns the full list of segments, not just those in MASK1.
- Fixed an issue where the front panel multi-purpose knob would not work in certain Sequence Trigger menu fields.
- Images saved with Inverted Colors now properly show the waveview grid.

Known issues

- Waveform (.wfm) files saved with FastFrame turned off do not contain trigger date information.
- Using a current probe with Spectrum View can cause the automatic scaling of the waveview to set too low of sensitivity, obscuring the spectrum waveform.
- Loading a setup (.set) or session (.tss) file with Jitter Measurements may produce a false "Low Amplitude" error message.
- Changing the Windows OS language settings to Simplified Chinese may temporarily cause the scope to display an "Uncalibrated" warning banner. Revert the Windows setting change to remove the banner.
- Using the Trigger “Set to 50%” button resets Custom Hysteresis.

- Automatic oscilloscope modeling with SIM is currently supported only for DPO714AX models.
- When using automatic probe modeling with SIM, it is recommended to turn ON the channels of interest before adding a new SIM instance.
- Old SIM sessions may fail to load or produce slightly different results due to changes introduced in this release.
- Editing the SIM configuration requires the minimum display be set to 1920 x 1080. Please make sure the display resolution settings are set as 1920 x 1080 with a scale value no greater than 125%.

Version 2.22.7

Last Revised

December 2025

Products:

This firmware version is intended for:

2 Series MSO: MSO22 and MSO24

4 Series B MSO: MSO44B and MSO46B

5 Series B MSO: MSO54B, MSO56B, MSO58B, and MSO58LP

6 Series B MSO: MSO64B, MSO66B, MSO68B, and LPD64

NOTE: Please be advised that this version of the software is not available for specific oscilloscope models. Prior Tektronix oscilloscope models that are not supported by this version include: MSO44, MSO46, MSO54, MSO56, MSO58, and MSO64. For further details or assistance, please contact your regional Tektronix support team.

New features

Signal Integrity Modeling (SIM)

Available on 5 Series B MSO and 6 Series B MSO instruments only.

- RLC Network model control. A new check box lets you enable or disable the R, L, and C elements for more flexible circuit modeling.
- DUT Source block copy. You can now copy the DUT Source block from the Physical Model into the Simulation Model for faster and more consistent setup.
- Improved error messaging. Clearer, more descriptive error messages help you diagnose configuration issues quickly.

Power analysis (WBG-DPT and IMDA)

- IMDA: Sin-Cos sensor is supported in DQ0 and all the mechanical measurements.
- WBG-DPT: Parallel Topology Analysis category has Overshoot, Undershoot and Damping factor measurements.

Advanced Jitter and Eye Analysis (DJA)

Available on 5 Series B MSO and 6 Series B MSO instruments only.

- SJ@Freq Measurement support. Measures sinusoidal jitter at a specified frequency for PLL and jitter tolerance analysis.

Miscellaneous

Support for peripheral CD/DVD drives on Embedded OS (Linux) products, adding read/write capabilities for optical media. Broad support for USB optical drives, with explicit support for 4 Series B MSO, 5 Series B MSO, and 6 Series B MSO instruments only.

Defects fixed

- Resolved several SIM defects to improve overall software stability.
- Fixed an issue that would cause WBG-DPT Auto and Manual Deskews to fail.
- Fixed an issue where a connected AFG would fail to trigger properly during WBG-DPT testing.
- Fixed an issue where some IMDA measurement plots and results were not rendering properly in Reports.
- Fixed an issue that prevented the Waveform Cursor cross-hair from displaying in the waveview.
- Channel Power Measurements now show results in correct dB and Vrms units for alternate vertical settings.
- The MASK:MASK<x>:LIST? command now returns the full list of segments, not just those in MASK1.
- Fixed an interaction between THDP0200 probes and the 200 MHz bandwidth filters on the 4 Series B MSO (MSO44B, MSO46B) that could cause incorrect results.
- Fixed an issue where the front panel multi-purpose knob would not work in certain Sequence Trigger menu fields.
- Images saved with Inverted Colors now properly show the waveview grid.

Known issues

- Waveform (.wfm) files saved with FastFrame turned off do not contain trigger date information.
- Using a current probe with Spectrum View can cause the automatic scaling of the waveview to set too low of sensitivity, obscuring the spectrum waveform.
- Loading a setup (.set) or session (.tss) file with Jitter Measurements may produce a false "Low Amplitude" error message.
- Changing the Windows OS language settings to Simplified Chinese may temporarily cause the scope to display an "Uncalibrated" warning banner. Revert the Windows setting change to remove the banner.
- LPD64 Aux-In-to-channels skew changes after reboot in some environments.
- Using the Trigger “Set to 50%” button resets Custom Hysteresis.
- 2 Series MSO units may take longer than usual to power off.
- Automatic oscilloscope modeling with SIM is currently supported only for DPO714AX models.

- When using automatic probe modeling with SIM, it is recommended to turn ON the channels of interest before adding a new SIM instance.
- Old SIM sessions may fail to load or produce slightly different results due to changes introduced in this release.
- Editing the SIM configuration requires the minimum display be set to 1920 x 1080. Please make sure the display resolution settings are set as 1920 x 1080 with a scale value no greater than 125%.

Version 2.20.9

Last Revised

October 2025

Products:

This firmware version is intended for:

2 Series MSO: MSO22 and MSO24

4 Series B MSO: MSO44B and MSO46B

5 Series B MSO: MSO54B, MSO56B, MSO58B, and MSO58LP

6 Series B MSO: MSO64B, MSO66B, MSO68B, and LPD64

7 Series DPO: DPO714AX

NOTE: Please be advised that this version of the software is not available for specific oscilloscope models. Prior Tektronix oscilloscope models that are not supported by this version include: MSO44, MSO46, MSO54, MSO56, MSO58, and MSO64.

For further details or assistance, please contact your regional Tektronix support team.

New features

Signal Integrity Modeling (SIM)

The SIM analysis suite provides tools for analyzing extremely fast signals, even in challenging measurement scenarios. The complete circuit simulation environment can correct errors introduced by fixtures, cables, probes, or other components. This results in cleaner eye diagrams that accurately represent the true behavior of the circuit. SIM is available on 5 Series B MSO, 6 Series B MSO, and 7 Series DPO instruments only.

- Multi-block de-embed and embed environments (physical and simulation models)
- Virtual test points for moving measurement reference planes to hard-to-probe locations
- Simplified workflows for easy setup
- Time and frequency-domain plots of S-parameters and test points
- Touch-optimized drag-and-drop controls
- Save and export filter file results for use in Tektronix compliance software or third-party tools
- Scalable support for numerous simulations and test points
- Perform S-parameter transformations and comparisons for rapid validation
- Workflow integration with TekScope PC

Serial Standard Automated Compliance Solutions for the 7 Series DPO

- USB4v1 Transmitter Test (Tx)
- PCIe Gen1/Gen2/Gen3/Gen4 Transmitter Test (Tx)
- MIPI D-PHY 1.2 and 2.1 Transmitter Test (Tx)
- DDR5 System Transmitter Test (Tx)
- LPDDR5 and 5x System Transmitter Test (Tx)

Frequency Response Analysis (FRA)

Included in PWR software packages. For the 2 Series MSO, FRA requires 2-SOURCE or 2-ULTIMATE.

- FRA now supports 0.1 Hz start frequency with Spectrum View
- All FRA measurements are optimized for ~30% faster execution
- AWG5000/AWG70000 products now supported as signal sources with maximum 1 GHz frequency
- New Sweep Profile replaces Amplitude Mode. It supports 25 frequency ranges with manual Span and RBW settings

Wide-Bandgap, Double-Pulse Test (WBG-DPT)

- Time trend plot with a CSV results export enabled for all WBG measurements
- Dual-channel AFG31000 control with shoot-through warning and waveform preview
- Dynamic RDSon measurement auto-annotates waveform region
- Diode Recovery Analysis (DRA) updated to JEP201 specification for WBG devices

Miscellaneous

- 128b132b Protocol Decode and Search for the 7 Series DPO
- Composite Jitter Histograms (CJH) added to DJA Jitter Analysis. This provides detailed distribution of jitter components by overlaying histograms of Total, Periodic, Random-plus-BUJ, and Data-Dependent jitter, enabling simultaneous comparison and quicker root-cause identification.
- Mask Margin measurement and plot added to DJA, which determines how much the eye diagram mask can expand (or contract) before causing violations. This provides a clear measure of compliance margin and signal robustness.
- Reconstructed Clock plot added for PSIJ (Power Supply Induced Jitter) measurement
- Support for Windows 10 LTSC 2021, extending official Microsoft support for critical security services and updates through 2027. Order the standard Windows SSD option (X-WIN or SUPX-WIN) to get the latest OS version.

Defects fixed

- Switching AFG to Burst mode no longer generates noise on the output.
- Digital waveforms now properly display in inverted screen captures.
- Autoset now works as intended with TDP7700 Series probes.
- Using the 10 kHz filter for the TDP1000 Series probe no longer adds delay to the measured signal.
- The pass/fail limits for SSC Frequency Deviation Measurements now support negative values.

- Switching a TDP7700 Series probe from Differential Mode to A Mode could display an incorrect waveform. This transition now functions properly and the correct waveform is displayed.
- Channel Power measurements in Spectrum View now calculate correctly for spans beginning at 0 Hz.
- Navigation buttons for minimum and maximum measurement results now function correctly in History Mode.
- Measurements now correctly calculate results using digital waveforms with multiple transitions in one sample period in all cases.
- Issue resolved with CPHY symbol decode.
- Turning off HSI (High-Speed Interface) from the I/O menu no longer causes the system to hang.
- Results Tables now include user-added columns in CSV exports.
- Manual RBW settings now work as intended for Frequency Response Analysis (FRA) setups.
- Improvements to multiple user interface and menu elements.

Known issues

- LPD64 Aux-In-to-channels skew changes after restart in some environments.
- MASK:MASK<x>:LIST? PI query only returns data for Mask 1.
- Using the Trigger Set to 50% button resets Custom Hysteresis.
- 2 Series MSO instruments may take longer than usual to turn off.
- Querying Channel Power measurement results will always return a value in Watts.
- In SIM, if the ratio between the Source Sample Rate and Frequency Spacing in BLOCK models is too high, SIM will not create test point filters. To resolve this issue, try decreasing the Source Sample Rate or increasing the Frequency Spacing in BLOCK models to reduce the ratio between them.
- When recalling a calculated SIM that uses Global Bandwidth with maximum values of bandwidth or stopband, the SIM may fail to calculate at the end of the recall. As a result, Testpoint plots and Testpoint Math will not be generated. In these cases, triggering Calculate SIM after the recall will generate the Testpoint plots and Testpoint Math.
- Editing the SIM configuration requires the minimum Display be set to 1920 x 1080. Please ensure display resolution settings are set as 1920 x 1080 with the Scale value no greater than 125%.
- On the 7 Series DPO, SFP+ port does not work in Linux if it is not plugged into a network at boot time. **Workaround:** Plug instrument into network before turning it on.
- On the 7 Series DPO, Link Local addressing does not work on 10G SFP+ port with direct Ethernet connection. **Workaround:** Instead of a direct connection, use an Ethernet switch.
- On the 7 Series DPO, the user interface does not update the High Speed Interface (HSI) menu occasionally after switching between enabling and disabling LAN/SFP+ ports. **Workaround:** Exit I/O menu and reopen.

- On the 7 Series DPO, the HSI server is not ready after toggling the selected port (LAN or SFP) Off and On. **Workaround:** Toggle the HSI Enable button Off and On.
- On the 7 Series DPO, LAN uses SFP connection despite specifying to use LAN when both the LAN and SFP+ ports are connected simultaneously to two different hosts (i.e., two peer-to-peer connections). **Workaround:** Manually disable the SFP+ port from the I/O menu. Disabling the SFP+ port will force LAN to use the LAN connection.
- On the 7 Series DPO, if you run SPC while the oscilloscope application is running in Admin mode, SPC will fail in all subsequent runs if the oscilloscope application is running in User mode. **Workaround:** If you run SPC while the oscilloscope application is in Admin mode, subsequent SPC runs need to also be run in Admin mode.

Version 2.18

Last Revised

September 2025

Products:

This firmware version is intended for:

7 Series DPO: DPO714AX

For further details or assistance, please contact your regional Tektronix support team.

New features

Version 2.18 is the first firmware release that supports the DPO714AX oscilloscope.

Known issues

- SFP+ port does not work in Linux if it is not plugged into a network at boot time. **Workaround:** Plug instrument into network before turning it on.
- Link Local addressing does not work on 10G SFP+ port with direct Ethernet connection. **Workaround:** Instead of a direct connection, use an Ethernet switch.
- The user interface does not update the High Speed Interface (HSI) menu occasionally after switching between enabling and disabling LAN/SFP+ ports. **Workaround:** Exit I/O menu and reopen.
- The HSI server is not ready after toggling the selected port (LAN or SFP) Off and On. **Workaround:** Toggle the HSI Enable button Off and On.
- LAN uses SFP connection despite specifying to use LAN when both the LAN and SFP+ ports are connected simultaneously to two different hosts (i.e., two peer-to-peer connections). **Workaround:** Manually disable the SFP+ port from the I/O menu. Disabling the SFP+ port will force LAN to use the LAN connection.
- If you run SPC while the oscilloscope application is running in Admin mode, SPC will fail in all subsequent runs if the oscilloscope application is running in User mode. **Workaround:** If you run SPC while the oscilloscope application is in Admin mode, subsequent SPC runs need to also be run in Admin mode.
- For signals without high frequency attenuation, auto optimization for QC might not work correctly and could result in wrong QC setting selected and clipped signals.

Version 2.16.15

Last Revised

July 2025

Products:

This firmware version is intended for:

4 Series B MSO: MSO44B and MSO46B

5 Series B MSO: MSO54B, MSO56B, MSO58B, and MSO58LP

6 Series B MSO: MSO64B, MSO66B, MSO68B, and LPD64

NOTE: Please be advised that this version of the 2/4/5/6 Series MSO software is not available for specific oscilloscope models. Prior Tektronix oscilloscope models that are not supported by this version include: MSO44, MSO46, MSO54, MSO56, MSO58, and MSO64.

For further details or assistance, please contact your regional Tektronix support team.

New features

Probe firmware updater

- Added the ability to update the firmware on an active probe using probe firmware files (.pfw)
- The firmware files are available for download at tek.com/downloads. To update, copy the designated firmware file (.pfw) into the root folder of a USB flash drive.
  - On embedded OS instruments, the Probe Firmware Update menu opens automatically from a USB flash drive.
  - On Windows instruments, navigate to the firmware file and double click it from the USB drive to open the Probe Firmware Update menu.
- You cannot downgrade your probe firmware through this process. Contact Tektronix service if you need to downgrade your probe firmware.

Defects fixed

- Tomcat9 has been upgraded to version 9.0.106 to meet updated network security requirements
- Fixed an issue on MSO58LP where the LXI Web page did not display the instrument information

Known issues

- Digital waveforms do not appear correctly in screen captures with the Screen Capture Color set to Inverted and the Display Color set to Normal in User Preferences. A recommended workaround is to set the Display Color to Inverted before saving a screen capture.
- In rare cases where Digital Channel Thresholds detect multiple crossings within a single sample period (usually due to a noisy signal), automated measurements calculate incorrectly. A recommended workaround is to increase the sample rate or change the threshold to ensure clean edge crossing.
- LPD64 AUX-to-channel deskew values can change by one or more sample periods on reboot.

Version 2.16.9.2826

Last Revised

4-March-2025

Products:

This firmware version is intended for:

5 Series B MSO: MSO54B, MSO56B, MSO58B, and MSO58LP

6 Series B MSO: MSO64B, MSO66B, MSO68B, and LPD64

NOTE: Please be advised that this version of the 2/4/5/6 Series MSO software is not available for specific oscilloscope models. Prior Tektronix oscilloscope models that are not supported by this version include:

- 4 Series MSO: MSO44, and MSO46
- 5 Series MSO: MSO54, MSO56, and MSO58
- 6 Series MSO: MSO64

NOTE: For further details or assistance, please contact your regional Tektronix support team.

Firmware upgrade version 2.0 (Linux): Version 2.0 uses latest installation procedure and requires version 1.40 or higher. Refer to the installation instructions for the installation procedure. After version 2.0 is installed, you cannot revert to an older firmware version and firmware upgrades are not possible while the USB Device Port is disabled via the I/O.

New features

Wideband gap (WBG)

- Automatic Deskew is supported in Deskew panels of Switching Parameter Analysis and Switching Timing Analysis measurements. Automatic Deskew calculates and applies skew of Vds and Id for a given probe resistance.
- All WBG measurements support interpolated search level for accurate measurement results. Interpolation can be changed using Utility menu.
- Expanded the supported pulse range for the AFG31000 as generator. Pulses larger than 150 µs can now be configured in the Generator Setup menu.
- Power Preset will automatically calculate maximum acquisition time based on AFG31000 pulse settings in the Generator Setup menu.
- RDSon measurement should be performed using the wizard badge. RDSon measurement should be run with at least 8 burst cycle to average out the result. Pass/Fail triaging is not supported for RDSon measurement.

Advanced Jitter Analysis (DJA)

- Added a new Intersymbol Interference (ISI) measurement to the DJA option.
- The Data Dependent Jitter (DDJ) model has been updated to align with current industry standards.
- A new user-selectable time domain method for computing DDJ is now available.
- Sub-rate jitter components (F/2, F/4, F/8) are now displayed as non-zero values, even if they overlap with DDJ or DCD components, resolving previous reporting ambiguities.

Defects fixed

- Overwriting the saved setup (.set) files would not replace the original file
- SRDPHY: Unable to decode the initial command in DPHY LP (low power) mode
- SRDPHY: Improper edge detection for ECC bytes ends packets early
- WBG-DPT: Math channel is appearing as default Measurement source instead of hardware channels for second measurement badge instance
- WBG-DPT: Chinese language setting should not translate technical notation
- Long term automated test (hundreds of hours) with WBG-DPT measurements could overflow system memory
- Temporary measurement histogram plot display issue when measurement clipping warning thrown
- Polarity of pulse width measurements results on digital channels are invertered (Positive and Negative Pulse Width Measurement)
- AFG configuration is reset to default when recalling a setup or session with an arbitrary waveform file loaded
- Math sources with clipped signals and 2 M or greater record length are displayed incorrectly
- Programmatic command for **MEASUrement:MEAS<x>:FAILCount?** always returns 0
- Programmatic command for **MASK:MASK1:COUNT:HITS?** always returns 0
- Programmatic command for Channel Power query always returns overflow/NaN value (9.91e+37)

Known issues

- Windows 10 KB5046612 update may fail to install on certain OS builds
- Color-inverted screen captures do not display complete Digital waveforms
- LPD64 Aux-In-to-channels skew changes after reboot in some environments
- Logic Trigger using OR operator with Digital channels does not always trigger when expected
- When comparing RFvT and analog time domain traces as sources for an XY plot, the resulting visual will not display as expected
- Incorrect waveform displayed when first switching TDP7700 from Differential Mode to A Mode

Version 2.14.3.2248

Last Revised

21-November-2024

Products:

This firmware version is intended for:

2 Series MSO: MSO22, MSO24, MSO22-EDU, and MSO24-EDU

4 Series B MSO: MSO44B and MSO46B

5 Series B MSO: MSO54B, MSO56B, MSO58B, and MSO58LP

6 Series B MSO: MSO64B, MSO66B, MSO68B, and LPD64

NOTE: Please be advised that this version of the 2/4/5/6 Series MSO software is not available for specific oscilloscope models. Prior Tektronix oscilloscope models that are not supported by this version include:

- 4 Series MSO: MSO44, and MSO46
- 5 Series MSO: MSO54, MSO56, and MSO58
- 6 Series MSO: MSO64

  NOTE: For further details or assistance, please contact your regional Tektronix support team.

New features

2 Series MSO FastAcq™

To debug a design problem, first you must know it exists. Digital phosphor technology with FastAcq provides you with fast insight into the real operation of your device. Its fast waveform capture rate, greater that 4M waveforms per second typically, gives you a high probability of seeing the infrequent problems common in digital systems (runt pulses, glitches, timing issues, and more). To further enhance the visibility of infrequently occurring events, intensity grading indicates how often rare transients are occurring relative to normal signal characteristics. Simply put, the high waveform capture rate of FastAcq enables you to discover infrequent problems common in digital design.

- Enable FastAcq under the Horizontal context menu
- All palette types are available as on the 4/5/6 Series MSO: Temperature, Spectral, Normal, and Inverted
- Added support for programmatic interface commands ACQuire:FASTAcq:STATE and ACQuire:FASTAcq:PALEtte to enable automation

Wideband gap (WBG)

Dynamic RDS(on) measurement has been added to switching parameter analysis

PCIe Gen 3

- PCIe Gen 3 protocol decode is available under the PCIe speed option
  - Packet View On - 128b/130b descrambled control and data blocks and PCIe Gen 3 packets
  - Packet View Off - 128b/130b descrambled control and data blocks
- Available PCIe results table
- Available PCIe search options
  - Packet View On - Ordered Set, DLLP, TLP, Errors
  - Packet View Off - Sync Header, Ordered Set, Custom Pattern

Jitter measurements

- Two new measurements are added under DJA:
  - SSC SlewRate
  - Pattern Length
- Enhanced the eye diagram color gradient from 16 bit to 64 bit.
- Added DataRate, PatternLength, Rj and Dj measurements to the existing JitterSummary result badge.

Defects fixed

- Roll mode display issue with distorted waveform on 2 series MSO when the record length is set to >1M in High Res acquire mode
- FFT results would not be displayed in history mode if the sample rate is greater than 6.25 GS/s (IT mode)
- Pass/Fail tab in TDR was not functional

Known issues

- Using a low voltage (uV) signal and changing the Spectrum View units to Vrms can cause barely visible peaks in Spectrum View
- The Edge Search function on the 5 Series MSO can fail for some falling edge signals at negative threshold voltages
- PRO license bundle installation can fail due to file read issues; the recommended workaround is to try a different USB drive
- The WBG fall time measurement displays a wrong result for Auto levels if the gate waveform is too noisy
- Unable to decode initial command in DPhy LP mode

Version 2.12.8

Last Revised

14-August-2025

Products:

This firmware version is intended for:

4 Series MSO: MSO44 and MSO46

5 Series MSO: MSO54, MSO56, and MSO58

6 Series MSO: MSO64

New features

Signal Integrity Modeling (SIM)

The SIM analysis suite provides tools for analyzing extremely fast signals, even in challenging measurement scenarios. The complete circuit simulation environment can correct errors introduced by fixtures, cables, probes, or other components. This results in cleaner eye diagrams that accurately represent the true behavior of the circuit. SIM is available on 5 Series B MSO, 6 Series B MSO, and 7 Series DPO instruments only.

- Multi-block de-embed and embed environments (physical and simulation models)
- Virtual test points for moving measurement reference planes to hard-to-probe locations
- Simplified workflows for easy setup
- Time and frequency-domain plots of S-parameters and test points
- Touch-optimized drag-and-drop controls
- Save and export filter file results for use in Tektronix compliance software or third-party tools
- Scalable support for numerous simulations and test points
- Perform S-parameter transformations and comparisons for rapid validation
- Workflow integration with TekScope PC

Serial Standard Automated Compliance Solutions for the 7 Series DPO

- USB4v1 Transmitter Test (Tx)
- PCIe Gen1/Gen2/Gen3/Gen4 Transmitter Test (Tx)
- MIPI D-PHY 1.2 and 2.1 Transmitter Test (Tx)
- DDR5 System Transmitter Test (Tx)
- LPDDR5 and 5x System Transmitter Test (Tx)

Frequency Response Analysis (FRA)

Included in PWR software packages. For the 2 Series MSO, FRA requires 2-SOURCE or 2-ULTIMATE.

- FRA now supports 0.1 Hz start frequency with Spectrum View
- All FRA measurements are optimized for ~30% faster execution
- AWG5000/AWG70000 products now supported as signal sources with maximum 1 GHz frequency
- New Sweep Profile replaces Amplitude Mode. It supports 25 frequency ranges with manual Span and RBW settings

Wide-Bandgap, Double-Pulse Test (WBG-DPT)

- Time trend plot with a CSV results export enabled for all WBG measurements
- Dual-channel AFG31000 control with shoot-through warning and waveform preview
- Dynamic RDSon measurement auto-annotates waveform region
- Diode Recovery Analysis (DRA) updated to JEP201 specification for WBG devices

Miscellaneous

- 128b132b Protocol Decode and Search for the 7 Series DPO
- Composite Jitter Histograms (CJH) added to DJA Jitter Analysis. This provides detailed distribution of jitter components by overlaying histograms of Total, Periodic, Random-plus-BUJ, and Data-Dependent jitter, enabling simultaneous comparison and quicker root-cause identification.
- Mask Margin measurement and plot added to DJA, which determines how much the eye diagram mask can expand (or contract) before causing violations. This provides a clear measure of compliance margin and signal robustness.
- Reconstructed Clock plot added for PSIJ (Power Supply Induced Jitter) measurement
- Support for Windows 10 LTSC 2021, extending official Microsoft support for critical security services and updates through 2027. Order the standard Windows SSD option (X-WIN or SUPX-WIN) to get the latest OS version.

Defects fixed

- The Japanese version of the Help documentation is currently not accessible
- Tomcat upgrades to version 9.0.106

Version 2.12.5.2206

Last Revised

5-September-2024

Products:

This firmware version is intended for:

2 Series MSO: MSO22 and MSO24

4 Series MSO: MSO44, MSO44B, MSO46, and MSO46B

5 Series MSO: MSO54, MSO54B, MSO56, MSO56B, MSO58, MSO58B, and MSO58LP

6 Series MSO: MSO64, MSO64B, MSO66B, MSO68B, and LPD64

New features

User interface enhancements

- Easy access of language and font size controls in User Preferences panel
- Updated Demo panel with horizontal tabs for Misc, Serial, RF, and Power (not applicable for 2 Series MSO)

Digital Power Management (DPM)

- Replaced the FFT filtering method with the advanced TIE filtering algorithm for PSIJ
- PSIJ now supports multiple notch filters and accepts only a victim signal

USB 3 search support

Added support for USB 3.0, 3.1 Gen 1, and 3.2 Gen 1 custom pattern search

10BaseT1S

- 10BaseT1S protocol decode is available under the Auto Ethernet speed options
  - Packet View On - IPv4 packets and IPv6 packets of types of TCP, UDP and ICMP
  - Packet View Off - Special symbol and descrambled values grouped in 8 bits
- Available 10BaseT1S results table
- Available 10BaseT1S search options
  - Packet View On - Sync/Commit, Start of Stream Delimiter, MAC Address, Beacon, Ether Type, Payload, End of Stream Delimiter, End of Stream Delimiter OK, Errors
  - Packet View Off - Sync/Commit, Start of Stream Delimiter, Beacon, Data, End of Stream Delimiter, End of Stream Delimiter OK
- Available 10BaseT1S trigger options
  - Packet View On - Sync/Commit, Start of Stream Delimiter, Preamble, Beacon, End of Stream Delimiter, End of Stream Delimiter OK, Errors
  - Packet View Off - Sync/Commit, Start of Stream Delimiter, Beacon, End of Stream Delimiter, End of Stream Delimiter OK, Errors

Defects fixed

- Spectrum dBmA and dBuA calculated incorrectly on current probe channels
- Power SOA report always export results as failed even when the measurement is passed
- Switching Windows language to Chinese can cause crash or a NO HARDWARE FOUND error message
- Different TJ@BER measurements between 1.44 and 2.4.4
- Source information is lost when changing measurement type remotely (programmatic interface)

Known issues

- Oscilloscope loses reference to shared folder after about 20 minutes
- Failure to show warning message while waveform is clipped on 6 Series B MSO instruments
- 6 Series B MSO instruments and TDP1000 probe cause Delay and Peak to Peak measurement problem
- Trigger hold off does not work when the trigger source is AUX-IN on 4, 5, 6 Series MSO and low profile instruments
- FFT has wrong results or missing with (IT) and History mode.
- Firmware update causes loss of HostID and licenses from versions 1.44.3.433 to 2.8.1.2771
- Roll mode display issue with distorted waveform on 2 Series MSO instruments
- Firmware update deletes or corrupts licenses and unable to reinstall licenses
- Command MEASUrement:MEAS<x>:FAILCount? always returns 0

Version 2.10.5.1825

Last Revised

13-June-2024

Products:

This firmware version is intended for:

2 Series MSO: MSO22 and MSO24

4 Series MSO: MSO44, MSO44B, MSO46, and MSO46B

5 Series MSO: MSO54, MSO54B, MSO56, MSO56B, MSO58, MSO58B, and MSO58LP

6 Series MSO: MSO64, MSO64B, MSO66B, MSO68B, and LPD64

New features

Enhanced security features

Added remote access security option

- The remote access option can be password-protected
- Remote access is off by default for security
- When remote access is off, the following options are not available:
  - e*Scope / VNC (2 Series MSO)
  - Socket Server
  - VXI-11 Server
  - High Speed Interface

Oscilloscope security options (Linux platform only)

- Expanded the list of available security options

    - The LAN Disable switch is available on all instruments, except Low Profile models
    - The USB Host Ports switch is available on all instruments, except Low Profile models
    - The USB Device Port switch is available on all instruments
    - The Firmware Upgrade/Downgrade switch is available on all instruments, except Low Profile models
    - The Internal Storage switch is available on all instruments, except 5 Series B and 6 Series B MSO instruments.
- These security options can be password-protected

Enhanced TekSecure

- TekSecure now resets the security state and removes all passwords. After running TekSecure, the Remote Access Security option is set to off.
- TekSecure now has a confirmation prompt

Security Prompt on first boot

- After installing this update, you will be required to configure the security options on the first boot
- After initial configuration, settings can be accessed in the Utility > Security menu
- You will not be prompted to configure security options again unless you run TekSecure

I/O panel changes

- The VXI-11 server now has an on/off switch and the server ports can be configured without needing a restart
- The USB Device Port on/off switch has moved to the Security menu
- e*Scope and VNC (2 Series MSO) password options have moved to the Security menu and are managed by the Remote Access security option password

Power

- Frequency Response Analysis measurements support the wizard badge
- The record length limit for Power measurements in 4 Series B MSO has been removed

High Speed Interface (HSI)

- For faster analog or digital waveform data transfer rate, the TekHSI client can use the new HSI API
- To use HSI, enable the Remote Access Security option in the Utility > Security menu and enable the HSI server in the Utility > I/O > HSI panel
- HSI is supported on 4B/5B/6B Series MSO instruments (Windows and Linux)

French physical keyboard support

- To use a French language physical keyboard (or any keyboard layout), select French in Language drop-down in the Utility > User Preferences > Other menu
- Typing will output the French language characters in all the alpha-numeric input box fields in the UI, such as; Channel, Math, and Measurement label input box fields
- The French physical keyboard is supported on 4B/5B/6B Series MSO instruments (Windows and Linux)
- German and Italian language keyboards are also supported

USB

- USB 3.1 Gen 1 and USB 3.2 Gen 1 protocol decode
  - Packet View On - Data Packets, Header Packets, Transaction Packets, Link Management Packets, Training Sequence
  - Packet View Off - Descrambled values
- USB 3.1 Gen 1 and USB 3.2 Gen 1 Results table
- USB 3.1 Gen 1 and USB 3.2 Gen 1 Search options
  - Packet View On - Ordered Set, Control Character, Packet, Error
  - Packet View Off - Ordered Set, Control Character, Compliance Pattern, Custom, Error

TDR

Added TDR measurement under Standard Timing Measurement for all models, except 2 Series MSO instruments

- Single ended and Differential TDR
- Display of Rho and Z waveform
- One-click calibration

PCIe

- PCIe Gen1 and Gen2
  - Decode capability for all layers (Physical, Data Link, and Transaction), with an option to see both Phy and Packet data
  - Decode capability for training sequences
  - Search capability for Control characters, Data Link layer packets, Transaction layer packet, Ordered sets, and Errors
  - Results table that group various fields to show prime information
- PCIe Gen3
  - Decode capability for all layers (Physical, Data Link and Transaction), with an option to see both Phy and Packet data
  - Decode capability for all Ordered sets, including Training sequences
  - Results table that group various fields to show prime information

Defects fixed

- Corrupted firmware images could attempt to install
- Channel Power measurements could be off by 3 dB when the channel width is equal to span
- Device Clear does not clear output buffer on VXI-11
- Setup files do not retain RFvT as trigger source
- SOA mask shows wrong hits
- Unable to unmount USB on Windows
- Could not connect to TekVisa VXI-11 handle for more than 15 to 16 times
- Copy and paste in File chooser destroys the file saved date in a USB drive

Known issues

- Spectrogram from a Session File is not being recalled
- Procedure Entry Point Error associated with OneDrive on boot
- Instruments losing reference to shared folders after about 20 minutes
- Failure to show warning messages while a waveform is clipped on 6 Series B MSO instruments
- Save Data does not work for Spectrum View Normal trace
- Save Data does not work for Spectrum View Time Domain traces
- TDP1000 delay and pk2pk measurement problem on 6 Series B MSO instruments
- FFT has wrong results or missing with (IT) and History mode
- The report exported from a SOA measurement indicates the mask test as failed even when the measurement passed
- Cannot mount a network drive with a space in the file path
- Unable to detect the filter file in 4 Series MSO instrument (non-B)

Version 2.8.2.1747

Last Revised

29-May-2024

Products:

This firmware version is intended for:

2 Series MSO: MSO22 and MSO24

4 Series MSO: MSO44, MSO44B, MSO46, and MSO46B

5 Series MSO: MSO54, MSO54B, MSO56, MSO56B, MSO58, MSO58B, and MSO58LP

6 Series MSO: MSO64, MSO64B, MSO66B, MSO68B, and LPD64

New features

2 Series MSO LAN disable

- 2 Series MSO instruments have an updated Security menu with the option to disable the LAN port
- A password must be set in order to disable the LAN port

Language translations update

- Information and warning messages have been translated for the preferred language
- Message window titles (or severity level) have been updated

CANXL decode and trigger support

- Added decode and search support for Pure CANXL data packets
- Added decode and search support for Mixed mode packets: Base CAN, CANFD, CANXL
- Added support for error handling: CRC, Missing Ack, XL Form Error
- Trigger features: Start and End of frame
- Results table

USB 3.0 decode support

- Added decode and search support for USB 3.0 packets: LMP, TP, DP, ITP
- Added decode display for packet view: On or Off
- Added decode and search support Training mode: TSEQ, TS1, TS2
- Added support for search: Compliance Pattern, Custom Pattern, Control Characters, Ordered Set
- Added support for error handling: CRC, Disparity, Symbol
- Results table

WBG-DPT updates

- Supports Pass/Fail for switching parameter analysis and switching timing analysis
- Added the Tdt measurement to switching timing analysis

Defects fixed

- Oscilloscope response slows after many remote measurements
- Runtime error when generating filter plots on Windows oscilloscopes
- Error "firmware not supported" when upgrading to version 2.4.4
- Oscilloscope lockup after 16 orphaned VISA connections
- Absolute Reference Levels have no effect on Overshoot and Undershoot measurements
- USB drives that used to work in version 1.44.4 and 2.0 no longer work in version 2.4.4
- German special characters in file names will not save
- Freq and Mag v. Time triggers not working correctly
- 4 Series MSO: position knob + TCP0150 causes DC offset
- AFG Continuous Mode starts with noisy output
- Standard Eye Diagram does not work on non-DJA models
- The ":trigger:state?" return status of "ready" does not necessarily mean that the instrument is ready
- FFT badge shows wrong vertical unit "dBm/div"
- Power FRA measurements hangs when trigger mode is set to normal
- Improved memory usage when measurements are configured with “Time” gating and run repetitively over a long period of time
- For eSPI, fixes related to decode issuing a response when polarity is changed
- For eSPI, protocol decode issues for start and end events
- MIPI DPHY is unable to decode Low Power mode packets
- PSI 5 decode is not showing startbit properly

Known issues

- 5 Series B MSO instruments upgraded to version 2.x do not boot with message "FpgaImageConfig didnt run"
- Channel Power query respond always with overflow
- TJ@BER measurement gives different results between version 1.44 and 2.4.4
- Incorrect Math Waveform at high RL while Clipping
- Positive and negative pulse width values are switched
- Internal AFG Startup Noise in Burst Output
- Recalling Sessions Files does not Recall RFvT Triggers
- Cannot mount network drive with a space in the path
- Windows TekScope crashes when Switching Loss has CH1 or CH2 as Gate Voltage configuration and "Set On/Off Levels In" configuration is set to "Units"

Version 2.6.38.1348

Last Revised

02-November-2023

Products:

This firmware version is intended for:

2 Series MSO: MSO22 and MSO24

4 Series MSO: MSO44, MSO44B, MSO46, and MSO46B

5 Series MSO: MSO54, MSO54B, MSO56, MSO56B, MSO58, MSO58B, and MSO58LP

6 Series MSO: MSO64, MSO64B, MSO66B, MSO68B, and LPD64

New features

Eye diagram mask feature is enhanced to support relative mask type

- The Mask type is automatically detected as either absolute or relative
- If the mask type is Relative, then mask coordinates are computed based on unit interval and unit amplitude

I3C 1.1 Decode and Trigger support

- Added decode and search support for Direct Packets: Setgrpaddress, Datatransferendprocedurectrl, Slaverstaction, Resetgrpadd, MultilanedatatransferCtrl, Getoptionalfeaturecapabilities, Setroute, D2dtunnelingcontrol
- Added Decode and search support for Broadcast Packets: Setgrpaddress, Datatransferendprocedurectrl, Slaverstaction,Deflistofgrpadd, Resetgrpadd, MultilanedatatransferCtrl, Setbuscontext
- Support for Error Handling
- Result Table
- Trigger features:
  - SlaveReset
  - I3C 1.1 Packets: Direct/Broadcast
  - Errors: Missing Ack, T-Bit, Broadcast

Power

- All Frequency Response Analysis measurements now support TDP probe models
- Phase wrap is available for Control Loop Response measurement and Impedance measurement

Updated the EULA

Defects fixed

- "Set to 50%" button on Trigger Menu always uses full channel bandwidth
- TCP0020 settings get lost after reboot
- Saving large CSV waveforms are not complete to a flash drive
- For I2C, Incorrect display of Nack errors in decode and results table
- For SENT, protocol modified minimum clock tick time value to the expected new value
- Fixed navigation issues with DPM measurements

Known issues

- Special characters in file names won't save
- Pop-up warning when enabling act on trigger on run mode is ambiguous
- Data:Source:Available? command incorrectly includes PLOT data as possible curve source
- Save On Trigger saves incorrect data
- eSPI bus decode does not detect start event of the response and false start event detection for first packet

Version 2.4.4.1152

Last Revised

14-September-2023

Products:

This firmware version is intended for:

4 Series MSO: MSO44 and MSO46

5 Series MSO: MSO54, MSO54B, MSO56, MSO56B, MSO58, MSO58B and MSO58LP

6 Series MSO: MSO64, MSO64B, MSO66B, and MSO68B

NOTE: Version 2.4.4.1152 is not supported on LPD64 instruments.

New features

Advanced measurement annotations for Standard Time and Amplitude based measurements

- Display the Ref level values on the Ch, Math, and Ref waveforms as visual cues for Time based measurements
- Display the top and base levels on the Ch, Math, and Ref waveforms as visual cues for Amplitude based measurements
- Use vertical bars on the Ch, Math, and Ref traces to mark the start and end of taken measurements
- Display the annotations for the configured measurement range, population, and filter limits
- Display the annotations for all gating types, excluding Search and Logic types
- Display the annotations in measurement navigation mode (all and failure occurrences)
- Display the annotations for the configured measurement pass/fail limit testing parameters
- Matches (or similar to) the annotation style of the MSO/DPO70000 annotations

Secured e*Scope Authentication

- Configure e*Scope remote access (disabled by default)
- When enabled, remote access requires a password
- The password is masked when entered for authentication in the browser
- Passwords are restricted to a maximum of 64 characters

PI Command Logger

- Record incoming Programmable Interface commands to a text file for easy playback or debug
- Refer to the following commands in the programmer manual: PILOGger:FILEName, PILOGger:STATE

NFC: ISO/IEC 14443B standard decode support

- Decode capability for Command and Response packets
- Error Handling - CRC check
- Search capability for Command packets like SOS, AFI, Identifier,Command Code, EOS, and Errors - CRC
- Search capability for Response packets like SOS, PUPI, Response Code, EOS, and Errors - CRC
- Result Table

NFC: FeliCa standard decode support

- Decode capability for Command and Response packets
- Error Handling - CRC check
- Search capability for Command packets like SOS, SYNC, Payload, Command Code, EOS, and Errors - CRC
- Search capability for Response packets like SOS, SYNC, Payload, Response Code, EOS, and Errors - CRC
- Result Table

WBG-DPT

- Improved automatic level determination algorithm for Switching and Timing analysis
- Gate Stimulus functionality added in all measurement to control connected AFG
- Deskew functionality can control Gate Stimulus when AFG is connected using Generator Setup
- Generator Setup configurations are updated for a better experience

IMDA

- Speed measurement can now calculate once per rotation or every QEI sensor signal cycle
- Added TDD measurement into Harmonics
- Acquisition trend plot now supports THD-R and THD-F
- Harmonics supports the latest IEEE519-2022 standard
- DQ0 supports resolver sensor

DPM

- TIE spectrum plot accuracy is improved for DPM measurements
- Renamed PISI to Power Integrity Signal Integrity

Power

- Introduced transient analysis for Impedance measurement
- Phase response, Tg, and Q(Tg) plots are included with Impedance measurement
- Interpolate option is provided for SOA plot on log scale to match number of hits
- Improved user interface behavior in SOA table and FRA amplitude profile table

Miscellaneous

- Added option to select LSB/MSB order to decode RS232
- Text translations have been updated in a variety of languages

Defects fixed

- Runtime error in 4 Series MSO instruments for FRA measurements
- File not found error while applying filter in Math for 5 and 6 Series MSO instruments
- Crash on DPM Autoset through PI command
- PI Translator rejects commands with leading semicolons
- Windows USB TMC fails when USB cable is unplugged and reconnected
- Cursors lag and jump when rotating the A/B Knobs on 4 Series MSO instruments
- FastFrame timestamp trend file export does not contain enough precision
- Saved CSV file with digital waveform does not save label text
- Maintenance Expiration displays on every boot instead of once
- Setup Time and Hold Time measurements do not have navigation buttons
- Cursor measurement indicator (cross hair) is not shown when channels are grouped
- Intermittent SPC failures on 5 Series MSO Windows instruments

Known issues

- Spectrum View incorrectly interprets current input signals when the units are set to dBmA
- Recall setup for AFG with Arbitrary waveform will reset the AFG setting based on the waveform file
- Trigger hysteresis units are V when trigger source is frequency domain
- No warning when CSV waveform save fails to a USB drive with not enough space
- "Id" not correctly translated into Chinese for WBG-DPT measurements
- The History Mode badge reports "No Acqs Saved yet" when changing horizontal settings
- The DPM measurement results cannot be navigated using badge
- While decoding comm links using audio TDM option in MSO58, decode is not correct
- Annotations on measurements with a Time Trend source are slow. **Work around:** turn off annotations if you are analyzing measurement results.
- Sometimes, in FastFrame mode, the annotations do not align on top and base levels when switching from a time based measurements (like from Positive Duty Cycle to Amplitude). **Work around:** navigating to previous/next edges will correct the issue automatically.

Version 2.0.3.950

Last Revised

14-September-2023

Products:

This firmware version is intended for:

4 Series MSO: MSO44 and MSO46

5 Series MSO: MSO54, MSO54B, MSO56, MSO56B, MSO58, MSO58B and MSO58LP

6 Series MSO: MSO64, MSO64B, MSO66B, and MSO68B

NOTE: Version 2.0.3.950 is not supported on LPD64 instruments.

Firmware upgrade (Linux)

Upgrade to Version 2.0 uses the latest installation procedure and requires V1.40 or higher. Once V2.0 is installed, you cannot revert to an older firmware version. Refer to the installation instructions for the installation procedure.

After installing V2.0 on a Linux instrument, firmware upgrades will not be possible while the USB Device Port is disabled via the I/O menu.

New features

Waveform histogram and measurements

- Horizontal and vertical histograms
- Draw multiple waveform histogram boxes and accumulate histogram distribution and measurement statistics on Ch/Math/Ref sources simultaneously
- Touch-friendly to resize and move the histogram boxes around the waveform graticule
- The following measurements are available for histograms:
  - Waveform Count
  - Hits in Box
  - Peak Hits
  - Maximum
  - Minimum
  - Peak-to-Peak
  - Mean
  - Median
  - Mode

    - Standard Deviation
    - One Sigma
    - Two Sigma
    - Three Sigma
- View histogram measurement results in the badge/table format
- Waveform histograms supported in history/fast frame mode
- Export histograms to .csv file

Save/Recall waveform tolerance limits as mask files

TekDrive enhancements

- Copy/paste from and to TekDrive files or folders (like local drives)
    - Support for all Tek files (includes screen capture/session/setup/waveform files)
- Auto-increment of files while saving screen captures/setups/waveforms into TekDrive (like local drives)
    - Support for all Tek files (includes screen capture/session/setup/waveform files)
- In TekScope, files can be opened as sessions or waveforms

NFC – ISO/IEC 15693 standard decode support

- Decode capability for command packets
- Decode capability for response packets
- Decode capability for CRC
- Search capability for command packets like SOF, Data, UID, Command Code, EOF, Errors - CRC
- Search capability for response packets like SOF, Data, UID, EOF, Errors – CRC
- Result table

NFC – ISO/IEC 14443A standard decode support

- Decode capability for command packets
- Decode capability for response packets
- Decode capability for CRC
- Search capability for command packets like SOC, UID, Command Code, EOC, Errors – Parity, CRC
- Search capability for response packets like SOC, UID, Response Code, EOC, Errors – CRC, Parity
- Result table

WBG-DPT updates

- Q_{oss} measurement under capacitance analysis for measuring the gate charge
- AFG automation: remote control of AFG 31000 Series from WBG-DPT solution
- Measure I_{Peak} and V_{Peak} in the specified ON/OFF region

- Configure V_{gs} start and stop levels for finding the region
- Added WBG Deskew demo file
- WBG Deskew improvements
  - Update WBG measurement results when Deskew is performed on reference signal
  - Auto-created V_{ds} mathematic model and acquired V_{ds} signal should have the same vertical scale

IMDA updates

- Mechanical power formula update for torque sensor
- In power quality, set calculate over fundamental frequency to **All Frequencies** as the default selection

DPM updates

- Added Power Supply Induced Jitter (PSIJ) measurement to remove the jitter induced by power rail signals on high-speed signals

5/6-PWR updates

- History mode support for Phasor diagram, Ivs, IntV, and Impedance plots

Defects fixed

- The UIs annotation on Eye diagram plot is not updated on every acquisition
- The digital source acquisition data is incorrect in history mode
- **MEASUrement:MEAS<x>:HIGHREFVoltage** and **MEASUrement:MEAS<x>:LOWREFVoltage** do not accept values > 100 or < -100
- On Linux oscilloscopes, timestamp on saved files does not match when copied
- CC-Jitter measurement always produces positive results, whereas DPOJET produces both positive and negative results.
- Low decimal precision is returned when **:HOR:DEL:TIM** PI command is queried
- On 4 Series MSO, setting the time to **24:xx:xx** will change the date to the next day
- Save Screen Capture with opposite colors of display fails
- Oscilloscope autoset does not ever go below 1mW/Div for low amplitude signals
- **CURVE?** query resets FRAMESTOP to the same value as FRAMESTART resulting in only one frame being transferred in the **CURVE?** query rather than all of the frames
- Math FFT is not calculated on clipped live signal
- Disabling and re-enabling USBTMC interface via I/O menu breaks USBTMC connection on Linux
- Oscilloscope crashes after connecting to socket server, toggling socket server off and back on, then sending ***OPC?** on socket server
- On Windows 5 and 6 Series MSO, when the USB cable is hot-plugged more than once, the oscilloscope no longer communicates over USBTMC
- Spectrogram data is not cleared when **Clear** button on front panel is pressed
- When an empty USB drive is mounted on a Linux oscilloscope, the oscilloscope does not recognize the drive
- 4 Series MSO crashes when cursor is moved quickly with multiple channels ON
- When mounting network drives, the oscilloscope pings the server before sending an SMB request over TCP in a non-standard network behavior

- dBm/Hz cursor marker readout is missing on Spectrum view
- On Windows oscilloscopes, connecting an external monitor through DisplayPort or VGA breaks the touchscreen calibration
- On Linux oscilloscopes, if a network directory is successfully mounted and then the network connection is lost, the drive letter becomes a phantom drive and cannot be unmounted
- When issuing command **CH<x>:LABel:XPOS**, the label on the screen does not move
- Lower limit is above the higher limit in Pulse Width Search configuration panel
- While displaying channel offset in the waveform view, the unit is always Volts (or mV, uV, etc) regardless of the channel units

Known issues

- Bode Plot GM measurement produces only positive results
- Cursor measurement indicator not displayed when channels are grouped
- TCP0020 probe unit setting is lost after restart of oscilloscope
- In history mode, while changing the horizontal/vertical scale, history mode badge on the right column pops back and forth with temporary message **No Acqs Saved yet**
- **MEASUrement:MEAS<n>:RESUlts:CURRentacq:MEAN?** does not work on Spectrum source measurements
- When recalling a setup where the trigger was based on R_f vs Time, the trigger settings do not recall correctly and instead default to standard edge trigger
- When NRZ is used for triggering, the bus decode is not synced to where the decode data actually matches the trigger condition
- When the eye diagram interpolation is enabled, the plot is burry and low-resolution
- SSC Freq Dev measurement pass fail limits do not allow negative values
- When using the **Set to 50%** feature in the trigger menu, the channel bandwidth setting is ignored
- When history mode is enabled and timestamp results table is enabled, the timestamps shown in the table are system time and not oscilloscope app time
- Low memory message displayed when you send not valid PI commands using eScope/talker/listener
- On 5 Series MSO oscilloscopes, when the sample rate is 12.5 MS/s and the record length is 30 Mpts, the oscilloscope acquisition freezes
- While using the oscilloscope built-in help files, when trying to zoom in/out on pages with images, the images do not scale
- When display colors are inverted, 100% graticule intensity makes the grid disappear and 0% intensity makes the grid most visible
- If TekDrive folder contains multiple files with same name, on copy paste from TekDrive to local storage, only the last downloaded file will remain in the local folder
- Changing waveform histogram's transparency does not display the waveform behind
- Translations for the UI strings are incomplete

Version 1.44

Version 1.44.4.811

Last revised

22-Dec-2022

Products:

This firmware version is intended with the Linux operating system for:

5 Series MSO: MSO58LP

6 Series MSO: LPD64

Version 1.44.3.433

Last revised

22-Aug-2022

Products:

This firmware version is intended with the Windows operating system for:

5 Series MSO: MSO54, MSO54B, MSO56, MSO56, MSO56B, MSO58 and MSO58B

6 Series MSO: MSO64, MSO64B, MSO66B, MSO68B and LPD64

Products:

This firmware version is intended with the Linux operating system for:

4 Series MSO: MSO44 and MSO46

5 Series MSO: MSO54, MSO54B, MSO56, MSO56, MSO56B, MSO58 and MSO58B

6 Series MSO: MSO64, MSO64B, MSO66B and MSO68B

Firmware upgrade (Linux)

Upgrade to Version 2.0 uses the latest installation procedure and requires V1.40 or higher. Once V2.0 is installed, you cannot revert to an older firmware version. Refer to the installation instructions for the installation procedure.

After installing V2.0 on a Linux instrument, firmware upgrades will not be possible while the USB Device Port is disabled via the I/O menu.

New features

- Enhanced waveview mask hits feature with consecutive waveform hits. When the consecutive failures setting is greater than one, then the oscilloscope tracks consecutive waveform mask hits and reports pass/fail
- Multi source cursor readouts are shown in waveview or on cursor badge. Configure cursor type as waveform and cursor source as All. This will display signal voltage and delta cursor values of all active sources
- Display vertical offset in the waveview channel handles. Configure channel offset from the channel vertical settings page. This will display the offset (if any) directly in the waveview without opening the channel context panel
- Display spectrogram for the active channel Spectrum view
- Show measurement annotations on Spectrum view measurements
- Wide Band Gap - Double Pulse Test (WBG-DPT)
  - New measurements added
    - Switching d/dt for voltage and current source
    - Diode d/dt
    - I_{rr} - Reverse Recovery Current statistics
  - Overlayed plot added in Reverse Recovery Time (T_{rr}) measurement. User can view T_{rr} results in single or overlay mode based on the selected pulse region
  - Search direction feature extended to backward in addition to forward direction
  - WBG-DPT specific Deskew added to adjust the skew between double pulse switching signals. WBG Deskew calculates the skew between Drain to Source Voltage (V_{ds}) and Drain Current (I_d) or Collector to Emitter Voltage (V_{ce}) and Collector Current (I_c) when power device is MOSFET or IGBT, respectively. The skew value is then applied on to the source to which V_{ds} or V_{ce} signal is configured on the oscilloscope.

IMDA updates

- Acq trend plot added for mechanical power and system efficiency measurements
- Measure speed, angle, mechanical power, and system efficiency using esolver sensor

5/6-PWR updates

- Enable history mode on power measurements except single sequence and FRA measurements
- Power, IMDA and DPM demo files using reference waveform
- New column is added in FRA results table to show input and output linear voltage values
- Spectrogram is a visual representation of signal strength over time at various frequencies. It is a two dimensional graph with third dimension indicating signal strength
- Cursor A/B support helps to compare Spectrums in up to three different locations on a single source in a single view
- Zoom support enables spectrogram to be drawn for given zoom window in waveview
- Color scale helps to set the colors for minimum and maximum dB units

New RF Measurements

- Channel power measures the total RF power within the bandwidth defined by the channel width
- ACPR measures the signal power leaking from the main channel into adjacent channels up to five channels
- OBW measures the occupied bandwidth

Defects fixed

- When signal amplitude is low then cycle RMS measurement shows zero population with no error message
- Plugging TPP1000 on CH2 of 6B Series MSO breaks CH1 termination
- Trigger setup and hold image is incorrect
- Cursor delta value unit on R_f vs Time magnitude trace shows in dBm instead of dB
- Integration operation at higher record length on math waveform returns incorrect result
- At slow horizontal sweep speed (like 10 sec/div), the gated measurements display **No data in range** message even when the waveform exists within the gated region
- No programmable interface command exists to query the success/failure of probe AutoZero
- AutoZero status cannot be queried through *ESR? and :ALLEV?
- After changing the Spectrum view vertical scale, save and recall session file does not recall Spectrum view vertical scale
- 5 Series MSO shuts down from not valid temperature reading
- On 4 Series MSO, Setup a search, then zoom on one event and try to navigate to the next event using navigate button, after some movement the zoom window starts to move on its own
- On 4 Series MSO with Linux, Files saved are timestamped with the GMT time instead of the set time zone
- User manual does not show the complete list of help topics in the contents tab
- Value returned by :wfmoutpre:pt_order? is incorrect when FastAcq PIXMAP mode is enabled
- Trigger B event is being reflected as trigger A event
- Fast frame and saving images/data have sync errors. Sometimes the measurement results displayed in the badges for the selected fast frame may not match in the saved screen capture
- Scrolling through Bus decode or Math make the screen flicker
- When using the control loop response with amplitude profile mode, plot generated is not smooth
- Vertical scale displayed as dB_/div instead of dB/div when Spectrum view is ON
- Branch queries does not always return results in a fixed order
- MAV bit is not cleared after oscilloscope output is read

Known issues

- Cannot change the time zone from PST to JST through PI command
- When network directory is successfully mounted, and when the network connection is lost, the drive later becomes a phantom drive and cannot be unmounted
- AFG settings cannot be recalled from setup or session files
- On 6 Series MSO with FastAcq on, inserting a 4 GHz TDP7704 hangs the oscilloscope
- Autoset restricts the channel vertical scale to 1 mW/Div
- SPI BUS trigger does not trigger on the defined Data
- TDP77 probes should not be supported on 4 or 5 Series MSO
- RS232 bus decode can not search for multiple bytes
- External monitor causes touchscreen to not work properly

- Linux oscilloscopes have issues with unmounting completely blank drives.

  The similar issue is seen with the network drives as well.

  The workaround is to add some files before unmounting the drives.

  Sometimes the network drive unmount is seen when network connection is lost
- \n newline character in **FILES: MKD** PI command crashes oscilloscope.

  Workaround is to use the escape character **** before the **\n**
- NFS mounts cannot be programmatically set as CWD on 4 Series MSO
- Save screen capture with opposite colors of display colors fails.

  The workaround is to go with displayed color settings (either normal/inverted) rather than the screen capture colors while saving the screen captures
- Spectrum view is turning off when I turn off the CH1 display. This issue happens only when the channel display is turned off from the short-cut right click **menu**. The workaround is to use the context panel display on/off toggle switch.
- Horizontal scroll bar not available for tab based results table similar to measurement results table. Since the scroll bar is not shown, the user has to use the touchscreen swipe gestures to scroll horizontally in tables.
- With history mode ON and higher record length (i.e. >1M), some of the computation intensive power measurements like magnetic property, harmonics and switching loss are expected to run slowly
- Reference signals with modified skew value are not supported in WBG-DPT

Version 1.40

Version 1.40.2.181

Last revised

01-Mar-2022 [Windows]

Version 1.40.3.236

Last revised

30-Mar-2022 [Linux]

Products:

This firmware version is intended for:

4 Series MSO: MSO44 and MSO46

5 Series MSO: MSO54, MSO54B, MSO56, MSO56B, MSO58, MSO58B and MSO58LP

6 Series MSO: MSO64, MSO64B, MSO66B, MSO68B and LPD64

Firmware upgrade (Linux)

Upgrade to Version 2.0 uses the latest installation procedure and requires V1.40 or higher. Once V2.0 is installed, you cannot revert to an older firmware version. Refer to the installation instructions for the installation procedure.

After installing V2.0 on a Linux instrument, firmware upgrades will not be possible while the USB Device Port is disabled via the I/O menu.

New features

- History mode
  - Visual trigger
  - Save only the current history acq in .csv and recall
  - Save only the current history acq in .wfm and recall
  - Time stamp time trend table view and plot view
- Splash screen loading bar during oscilloscope startup
- Saving fast acq pixmap data using Save UI
- Import fast acq pixmap data using PI
- Act on event timer to log measurement results, screen captures and waveforms for run/stop mode
- Show red-dot/gray-dot notifiers for about to expire/expired licenses
- Hide red-dot/gray-dot notifiers from the app menu after opening the about menu
- UI string translations for multiple languages
- Education settings for cursors and measurements
- Cycle to cycle jitter measurement under jitter tab
- Horizontal mask movement within the user specified range
- Wide Band Gap - Double Pulse Test (WBG-DPT)
  - New measurements
    - Switching parameter analysis
    - Turn On Energy - E_{on}
    - Turn Off Energy - E_{off}
    - Voltage Peak - V_{dsPk}/V_{cePk}
    - Current Peak - I_{dPk}/I_{cPk}
    - Switching Timing Analysis
    - Turn On Delay Time - $T_{d(on)}$
    - Turn Off Delay Time - $T_{d(off)}$
    - Rise Time - T_r
    - Fall Time - T_f
    - Turn On Time - T_{on}
    - Turn Off Time - T_{off}
    - Diode Reverse Recovery Analysis

    - Reverse Recovery Time - T_{rr} (Ta, Tb and RSF)
    - Reverse Recovery Charge - Q_{rr}
    - Reverse Recovery Energy - E_{rr}
  - Measurement start and stops levels calculated with reference to IEC 60747-8, JESD24-10 and IEC 60747-9 standards
  - Annotation and Navigation supported on all the measurements
  - Apply edge conditioning on gate signal to smoothen the glitches

IMDA updates

- Mechanical power and system efficiency measurements under mechanical analysis
- New demo file for analyzing motor startup response
- Offset angle configuration in DQO when there is no sensor input
- DQO navigation on resultant vector using cursors
- Calculate over fundamental vs all frequencies supported on all the sub results of power quality measurement

5/6-PWR updates

- In FRA measurements, user can configure Spectrum averaging or single sequence when Spectrum method is selected
- FRA measurements can now run up to the maximum frequency supported by internal AFG

SVID protocol trigger support

- Trigger capability for Start, Slave Address
- Trigger capability for Get/Set commands
- Trigger capability for Master/Slave payload
- Trigger capability for Errors - Nack, Mixed, Reject, Parity

Defects fixed

- Visa USBTMC connection would be lost and unrecoverable on Linux instruments if disconnected during query and would hang the application if toggled
- Visa USBTMC connection to Windows instruments would be lost when the user sent an invalid header
- Low memory message appears when digital channel and parallel bus are added. The message causes the oscilloscope to freeze and only a reboot would bring it back to a usable state
- When multiple Spectrum view channels are turned on and switch between each of them, the front panel vertical knob color locked with the last analog channel that was selected
- Installation instructions for firmware install on 6B Series MSO oscilloscope is incorrect
- 5 Series MSO crashes after creating and deleting Math channel 1800 times
- Error reporting to different destinations like Console logs
- UI/PI is broken for mount / unmount and Eye mask scenarios
- Save/Recall session file fails when saving with .isf waveforms
- All TekExpress apps are either failing to launch or not finding the appropriate license on 5/6/6B Series MSO with Windows OS

- Scrolling via touch not happening in the Drive tree view in file choosers
- Time trend with auto scale leading to high opc timeout
- Mounted Drive is not listed in FileUtilities unless the panel is closed and reopened
- Callout Bookmark/Crosshair - Long press via touch on the line connecting crosshair and textbox doesn't open right click panel
- Pressing and holding the mouse right/left button opens the right click panel even before we release either of the buttons and the bookmark can be dragged around with the right click panel being open
- Callout Rectangle/Textbox - Right click panel opens well before we release the mouse right button and rectangle/textbox can be dragged around with the right click panel being open
- Focus switched to jitter category page while setting the source for AC common mode (Pk-Pk) measurement
- Message Popup not shown for Overlay acquisitions when history mode is ON and acquisitions are Run
- Unmount is not functional when LAN is disconnected
- Resolution factor for rounding off Bitrate is not same as DPOJET
- **:ref:ref1:label:font:bold?** times out on digital refs
- Fast Frame search marks don't appear until different frame is selected
- Fastframe selected frame is not blue when overlay mode is first turned ON
- Mouse left button pressed and held behaves as right click on Result table
- On and after 1.34.8 version, inserting probes on a 6B Series MSO oscilloscope produces error messages and fails calibration
- TDP77XX TriMode probes when coupled with a 6 Series MSO does not apply the DSP correctly which reduces the combined bandwidth of the probe and oscilloscope

Known issues

- RS232 bus decode can not search for multiple bytes
- Trigger level line overlays with the waveform on screen capture
- Setup and hold triggers at the wrong time on 5 Series MSO
- External monitor causes touchscreen to not work properly configuring the Trigger B edge trigger results in changing Trigger A and not Trigger B
- Incorrect calculation process for LIN protocol checksum
- Delta markers on a mag vs time trace are in dBm instead of dB
- When a measurement is applied on mag vs time trace source in dBm, the reference levels are in V
- In pulse width search menu, the lower limit is above the upper limit
- On 6 Series MSO, oscilloscope came up with a bad hostID on a boot
- When Spectrum view vertical units are set to V_{rms}, vertical scaling is very difficult
- OPC not returning 1 for **RECALL:SESSION** but does for **RECALL:SETUP**
- In the math equation editor, when you add a measurement, filter or variable, they show up in the wrong columns of the sources
- Sometimes, auto-measurement fails when using slow sweep rate in 5 Series MSO with Linux OS
- No query form PI exists for AutoZero

- Trigger B Event is being reflected as Trigger A Event
- FastFrame and saving images/data sync error
- Scrolling through bus decode or math makes the screen flicker
- In roll mode, the data may have severe aberrations until the screen is filled
- Data rate and unit interval measurements do not work on digital sources

Version 1.38

Version 1.38.1.2189

Last revised

14-Oct-2021

Products:

This firmware version is intended with the Linux operating system for:

5 Series MSO: MSO54, MSO54B, MSO56, MSO56B, MSO58, MSO58B and MSO58LP

6 Series MSO: MSO64, MSO64B, MSO66B, MSO68B and LPD64

Version 1.38.2.2498

Last revised

26-Nov-2021

Products:

This firmware version is intended for:

4 Series MSO: MSO44 and MSO46

Version 1.38.3.2924

Last revised

21-Jan-2022

Products:

This firmware version is intended with the Windows operating system for:

5 Series MSO: MSO54, MSO54B, MSO56, MSO56B, MSO58 and MSO58B

6 Series MSO: MSO64, MSO64B, MSO66B, MSO68B and LPD64

Firmware upgrade (Linux)

Upgrade to Version 2.0 uses the latest installation procedure and requires V1.40 or higher. Once V2.0 is installed, you cannot revert to an older firmware version. Refer to the installation instructions for the installation procedure.

After installing V2.0 on a Linux instrument, firmware upgrades will not be possible while the USB Device Port is disabled via the I/O menu.

New features

- History mode
  - History acquisition mode allows the last N acquisitions to be viewed and analyzed
    (where N = maximum record length / current record length)
  - The acquisitions are stored in a FIFO (first-in, first-out) queue such that when acquisitions are stopped, the most recent N are in memory
  - Acquisitions may be acquired using run/stop and single/sequence modes and will continue to accumulate as long as no acquisition parameters are changed
  - As the selected acquisition is changed through navigation, the acquired data from the history is shown in the waveform view along with the corresponding analysis results for math, measurements, plots and searches
  - Supports play/pause/rewind capability
- 5B Series MSO models support
  - Aux-in trigger
  - Doubled frequency range on the AFG
  - Ability to determine what processor is installed in the instrument
- I3C protocol trigger support
  - Trigger capability for SDR mode
  - Trigger capability for start, repeated start, stop, HDR restart, HDR exit
  - Trigger capability for Hot-Join
  - Trigger capability for SDR - Direct and Broadcast packets
  - Trigger capability for errors - Missing Ack, T-Bit
- Digital data to analog conversion
  - Added support for data plot for below buses
    - I2C, PSI5, I3C, CAN, LIN, RS232, Ethernet, AutoEthernet, SPMI, SVID, SENT, eUSB, USB, ARinc, eSPI, SPI, SpaceWire, MDIO, SDLC, Flexray, 1-Wire, ETherCAT, Audio, Mil-Std-1553
- IMDA
  - Support of speed, acceleration and direction measurements as part of mechanical group using Quadrature Encoder Interface (QEI)
  - QEI comes with or without index option for speed and direction but not for angle measurement
  - Support of angle measurement using hall sensors
  - Support of torque measurement using two methods that is Armature Current and Load cell
  - Time trend for direction measurement
  - DQ0 improvements - Display of Resultant vector and QEI/Hall Sensor type configuration to integrate theta. This is available with mechanical license

- FRA improvements: (5/6-PWR)
  - Set to Spectral Averaging (SV) as default in autoRBW mode
  - Support of SV RBW profile as part of FRA measurements configuration
- Added new programmatic interface commands to support hardware assisted averaging
- Added Spectrum view peak markers results table
- Added report viewing capability (like image viewer) with in the TekScope application
- Added phase noise smoothing filter
- Added analog view of digital data (supported only for data fields)
- Added application activate PI command
- Added trigger sensitivity user interface for Edge Trigger level and Noise Reject

Defects fixed

- Power quality measurement in 5/6-PWR fails to detect edges
- FRA measurement does not guarantee that the measurement is computed on current acquired waveform
- SOA mask on log scale appears bend
- On 6B Series MSO, acquisition system error occurs when BUS trigger is selected
- Mounted drives which do not exist are not cleared
- Save all does not work for IQ channels
- Invert saving image doesn't work for SV markers and graticule lines
- PI command SAVE:WAVEFORM is broken for _SV_BASEBAND_IQ into Matlab (.mat)
- 5 Series MSO oscilloscopes do not save screen capture with mouse operation
- The Y-axis scale in X-Y Plot does not match with the scale of the waveform
- Fix multi file selection in the file utilities file chooser
- Confirmation message is saved in screen capture
- Spectrum view x-axis units disappear in log mode
- Channel labels are not saved in the exportable CSV files
- **DATa:SOUrce:AVAILable?** PI command returns false positive when channel is enabled and acquisition is stopped
- On 4 Series MSO, USBTMC issue with register returning incorrectly
- On 6B Series MSO, BW in channel badge is incorrect sometimes after setup file recall

Known issues

- IMDA

    - QEI with or with out index Z pulse option is not available for angle and DQ0 measurements
    - Torque autoset does not work. User have to set this manually
    - The low pass filter is not supported for mechanical measurement with digital sources
    - IMDA Autoset will not set the threshold level in case of digital sources, user has to set this manually
- UDF tool
    - Sometimes Custom/RC/RRC filters initial magnitude or phase response may not be readable at higher sample rates
- Custom filter length is limited to 15K and Root cosine/Root Raised cosine filters are limited to 64K length
- UDF filters are designed using oscilloscope horizontal sample rate. If Ref waveforms are recalled on 5/6 Series MSO that are captured from 5K/7K/70K oscilloscopes will not work due to sample rate incompatibility
- Report viewer is not available on 4 Series MSO oscilloscopes
- Digital to analog waveforms are not possible for all the available bus fields
- Sometimes TekDrive do not unmount from file utilities
- Verbose in file utilities does not show messages for wrong passwords
- Sometimes display flickers during Math AutoScale
- TekScope flickers when we recall one of the demo files for a serial decode like I2C and scrolling with the MPK (A knob) in the bus table
- Loading multiple ArbFIt to math expression gives **File Not Found** error
- On 5 Series MSO oscilloscopes, when firmware is updated to v1.36, it might result in HOSTID changes making the licenses disappear. The work around to this is to downgrade the firmware to 1.16 with

  USB drive plugged in at oscilloscope's startup, this recovers the HOSTID and then upgrade to 1.24.9 followed by 1.36 upgrade
- On 5 Series MSO, Recall setup file with certain configuration crashes TekScope after running for two hours
- With fast frame turned ON, saving images/data has sync error
- WHEA-Logger Event 17 warning PCI express root port
- Incorrect Spectrum view's vertical scale after session recall
- On 4 Series MSO, the cursor line lags & jumps when rotating the Multipurpose knob
- When using the oscilloscopes remotely, the command **Search:Search<x>:Navigate {min,max}** do not work and returns 32 when *ESR? is run after them
- On 5 Series MSO, screen flickers when switching loss or BH curve measurement is added
- On 5 Series MSO and 6B Series MSO, false pulse width trigger occurs sometimes
- Scrolling through Bus decode or Math makes the screen flicker
- Changing TDP77 input mode via GUI results in incorrect measurements
- Inability to save a single FastFrame of data
- Installing 1.36 on Linux with a forceinstall.txt file on the USB drive will cause a hang during install. Customers should delete the forceinstall.txt file and try again.

  The oscilloscope will appear to be installing and warn the user not to remove the USB drive, but will never finish installing. It is safe to power cycle the instrument and take out the drive in this case.

Version 1.36.2.1356

Last revised

25-July-2021

Products:

This firmware version is intended for:

4 Series MSO: MSO44 and MSO46

5 Series MSO: MSO54, MSO56 and MSO56LP

6 Series MSO: MSO64, MSO64B, MSO66B, MSO68B and LPD64

Firmware upgrade (Linux)

Upgrade to Version 2.0 uses the latest installation procedure and requires V1.40 or higher. Once V2.0 is installed, you cannot revert to an older firmware version. Refer to the installation instructions for the installation procedure.

After installing V2.0 on a Linux instrument, firmware upgrades will not be possible while the USB Device Port is disabled via the I/O menu.

New features

- IMDA
  - Added speed, acceleration and direction measurements as part of mechanical measurements using hall sensors
  - Enhancement made to Power Quality (PQ) measurement by providing fundamental frequency and all frequencies as configuration
- Power (5/6-PWR)
  - Support custom limits for harmonics measurement
- User Defined Filter (UDFLT)
  - FIR Filters - Added Raised cosine, root raised cosine and custom filters
  - Added generate button to the math filters. User can now design the filter and view the filter response. User can apply the filter co-efficients and see the filtered waveform on the Math
  - Support of demo session files with examples of new filters
- EtherCAT protocol solution
  - Decode in single ended/differential mode
  - Decode basic EtherCAT frame/basic EtherCAT frame with VLAN tag
  - Decode EtherCAT frame in UDPIP frame / EtherCAT frame in UDPIP frame with VLAN tag
  - Decode CRC/manchester errors

    - Search start of frame/end of packet/protocol/address/tag control information/EtherCAT header length
    - Search UDP/IP header/datagram/network variable/mailbox
    - Search errors like FCS/manchester errors
- SMBus protocol solution
    - Decode with and without PEC byte
    - Decode read/host notify/block read/block write/read64/write64/read32/write32/read word/ read byte/write word/write byte/send byte/receive byte/quick command
    - Decode address resolution protocol
    - Decode errors like NAck/PEC Errors
    - Search start/repeat start/address/host address/device address/command code/data/stop
    - Search errors like Ack/Nack/PEC
- Updated simplified Chinese user manual

Defects fixed

- 5 Series MSO shuts down after not valid temperature reading
- Negative Pass/Fail Limit value is not allowed for **Falling Slew Rate** measurement
- Optical probes using autoset stop responding to oscilloscope
- Waveform label is not getting recalled from .wfm file
- Vertical offset is incorrect when alternative units with very small ratio are used
- DDC can not be deskewed between channels
- Cursors readout unit does not display J (i.e. Joule) for s*W (i.e. seconds * Watt)
- Call out feature does not work on invert image save
- Self-cal and degauss error message popups prevent user from taking screen capture
- Restoring a session file with multiple mask segments has missing segments
- When the 4 Series MSO is used with a second display using the HDMI connector the screenshot contains both the display and a second image of the splash screen
- Save As and recall have different default folders
- SQRT function causes offset in Math waveform in time
- In 5 Series MSO, .mat file save as function overwrites without warning message
- Confirmation message is saved in screen capture
- When using the search function for a parallel bus event, the navigate arrow buttons of the front panel and **<>** icon in Search budge do not work sometimes
- Setting AFG arb waveform via PI does not update until UI badge is tapped
- Cursor readout goes off screen with many channels and zoom enabled
- Mouse pointer is visible in screen captures on 4 Series MSO
- Button Title mistakes exists with Traditional Chinese Language Option
- Channel badge unit is incorrect when power quality demo session file is recalled
- Custom limits on harmonic measurement for pass/fail status do not exist

- FRA measurement maximum amplitude exceeds oscilloscope internal AFG maximum amplitude
- FRA measurement do not support up to maximum frequency value as available in external AFG
- IMDA DQ0 measurement does not show clipping error in the results badge when waveforms are clipped
- DPhy decode issues found on a particular DUT waveforms

Known issues

- IMDA
  - The low pass filter is not supported for mechanical measurement with digital sources
  - IMDA Autoset will not set the threshold level in case of digital sources and hence user has to set this manually
- User defined filter (UDF) tool
  - In some cases, the Custom/RC/RRC filters initial magnitude or phase response may not be readable at higher sample rates
  - Custom filter length is limited to 15k and Root cosine/Root raised cosine filters are limited to 64k length
  - UDF filters are designed using oscilloscope horizontal sample rate. If Ref waveforms are recalled on MSO 5/6 Series that were captured from 5K/7K/70K oscilloscopes, then UDF filters will not work due to sample rate incompatibility
- Scroll bars do not work with touch interaction in file choosers and measurement tables.

  Work around is to use the swipe gesture on the context panel rather than the scroll bar.

  The other workaround is to use the Mouse interaction
- Work around is to use the Alt key by attaching a keyboard to the oscilloscope instrument
- Autoset clips sinewave signal of frequency >= 9 GHz
- 5 Series MSO crashes when a saving file is larger than the available free space of USB media
- Wrong BW in channel badge occurs from a setup file recall on 6B Series MSO
- Video Trigger option is missing in 4-ULTIMTATE-PER license on 4 Series MSO
- 100BASE-TX trigger position is incorrect
- USB buffer times out in specific settings on 6B Series MSO
- Warning message popup window appears after firmware update
- Oscilloscope autoset is not functioning properly with probe TDP7704
- 6B Series MSO does not reliably detect P77BRWSR accessory
- 4 Series MSO date/time badge takes two seconds to respond
- Search Mark-on Missing for MIL-STD-1553 protocol

Version 1.34.8.1084

Last revised

23-May-2021

Products:

This firmware version is intended for:

4 Series MSO: MSO44 and MSO46

5 Series MSO: MSO54, MSO56, MSO58 and MSO58LP

6 Series MSO: MSO64, MSO64B, MSO66B, MSO68B and LPD64

NOTE: If you are updating the oscilloscope firmware from a version number lower than 1.24, please download and install version 1.24.9, available at the links below, before installing the most recent version. This does NOT APPLY to MSO64B or MSO68B.

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4 Series MSO: https://www.tek.com/oscilloscope/mso44-software/4-series-mso-firmware--v1249

5 Series MSO: https://www.tek.com/oscilloscope/mso56-software/5-series-mso-nonwindows-firmware--v1249 (for non-Windows) and https://www.tek.com/oscilloscope/mso56-software/5-series-mso-windows-os-firmware--v1249 (for Windows)

6 Series MSO: https://www.tek.com/oscilloscope/mso64-software/6-series-mso-nonwindows-firmware--v1249 (for non-Windows) and https://www.tek.com/oscilloscope/mso64-software/6-series-mso-windows-os-firmware--v1249 (for Windows)

Firmware upgrade (Linux)

Upgrade to Version 2.0 uses the latest installation procedure and requires V1.40 or higher. Once V2.0 is installed, you cannot revert to an older firmware version. Refer to the installation instructions for the installation procedure.

After installing V2.0 on a Linux instrument, firmware upgrades will not be possible while the USB Device Port is disabled via the I/O menu.

New features

- Added new curve stream programmatic interface query to support acquisition data streaming

  See the 4/5/6 Series MSO programmer manual for details
- User-defined trigger hysteresis allows the user to select a custom trigger hysteresis value instead of using the default value (auto-calibrated)
- Virtual keyboard support added for German, French and Italian languages
- Added image viewer for viewing images in the oscilloscope application. The supported files for viewing are all the image types (like .png, .bmp, .jpg) and session file (.tss)
- Save/recall waveform/setup/session to the cloud using TekDrive supported on 4 Series MSO
- Enabled users to abort the save/recall operations when saving/recalling files to/from TekDrives
- CXPI protocol solution
  - Decode in event trigger/polling method
  - Decode for normal/sleep/long/polling normal/polling long frames
  - Decode in UART format
  - Decode for CRC/parity/IBS/frame error

    - Search for packets like PTYPE/DLC/data/frameID/ExtDLC/network management
    - Search for parity/CRC/IBS/frame errors
    - Search for normal/sleep/long/polling normal/polling long frames
- eSPI protocol solution
    - Decode in single and dual I/O mode
    - Decode for channel independent commands
    - Decode for posted and non-posted peripheral commands
    - Decode for virtual wire channel commands
    - Decode for OOB message channel commands
    - Decode for flash access channel commands
    - Decode for CRC/Invalid command Opcode/Invalid cycle type
    - Search for start/end
    - Search for LTR, interrupt, WAIT_STATE
    - Search for channel independent commands
    - Search for posted and non-posted peripheral commands
    - Search for virtual wire channel commands
    - Search for OOB message channel commands
    - Search for flash access channel commands
    - Search for CRC/Invalid command Opcode/Invalid cycle type
- User Defined Filter (UDF)
    - Supported on MSO5, MSO6/6B and TekScope offline platforms
    - UDF can be invoked from oscilloscope math and is different from legacy MATH arbitrary filter
    - Design low pass, high pass, band pass and band stop filters for a given cutoff frequency and filter order
    - Supports both IIR and FIR filters. Design butterworth, Chebyshev I and II, Elliptical, Bessel Thomson IIR Filter responses and Gaussian Window
    - Design Hilbert, Differentiator, All Pass FIR filters
    - View magnitude, phase, impulse and step responses in filter creator window for the designed filters
    - Filtered signal can be viewed as math waveform in wave view
    - Save and load filter file from filter creator window

      User also has an option to save and load magnitude, phase, impulse and step responses
    - Filter file is in .flt format and is unique to Tektronix

      User can use this as MATH arbitrary filter file on MSO 5/6 Series and it is not compatible with DSO 5K/7K/70K Series
    - For standard filters, normalized cut off frequency in the range of 0.05 to 0.45 times sample rate is supported

- IMDA updates
  - Updated power quality demo file with math autoscale on time trend plot turned ON
- PWR updates
  - Improvements to AutoRBW configuration in control loop response, PSRR and Impedance measurements for handling spikes in plots and ensure results are stable over multiple runs
  - In FRA measurements, make sure stop frequency is always greater than start frequency
- On 6 Series MSO, CALibrate:INTERNal:STATus? (Query Only) returns two additional status
  - TEMPDRIFT indicates that a signal path calibration is recommended due to a temperature drift since the last signal path calibration.
  - WARMUP indicates that the oscilloscope has been powered on for less than 20 minutes and has not reached a stable temperature yet.

Defects fixed

- Unexpected glitch/violation in eye diagram when clock recovery method is either **Explicit Clock Edge** or **Explicit Clock PLL**
- **:FILESystem:READFile** PI command does not work for raw socket connection
- Math FFT on MSO6B Series and 10GHz BW model limits the maximum frequency to 6GHz
- Iteratively querying **CURVE?** PI command with fast frame acquisition ON for more than eight hours could lead to oscilloscope crash
- On 4 Series MSO with eOscilloscope, ***OPC?** command does not work sometimes on raw socket connection
- On 4 Series MSO, AUTO DIMM does not work
- ***OPC?** query times out over raw socket. The raw socket session becomes inaccessible.

  It can only be fully recovered with a reboot.
- On 6 Series B MSO running windows, removed sleep mode
- 4 Series MSO crashes for specific Spectrum view settings
- On Windows oscilloscopes, USB VISA connection could become unresponsive after failed PI command
- Math FFT magnitude now displays V_{rms} instead of $V_{peak\text{-}peak}$
- Spectrum view trace now displays V_{rms} instead of $V_{peak\text{-}peak}$
- Rf vs time magnitude trace now displays V_{rms} instead of $V_{peak\text{-}peak}$
- Spectral density value is incorrect when the Spectrum view unit is set to V
- Spectrum view average trace computation is incorrect
- Rf vs time magnitude waveform is empty when the Spectrum view unit is V
- Help file updated by removing the frame column in bus decode table section
- Oscilloscope app stops responding for three mins if network drive host is disconnected
- Mask/limit test shows incorrect failures
- XY plot grid values are corrupted after zoom
- XY Plot cursor readouts display unexpected values at some settings
- Oscilloscope stops responding when search results table is turned on and then off and then cursor moved using multipurpose knobs

- Error shown is misleading when user tries to save to the root directory of TekDrive path
- Default font size is set to 15 instead of 18 on 4 Series MSO
- Copying the file path after selecting a file in the list view of the file browser crashes the oscilloscope
- Programmatic Interface Backward Compatibility (PI Translator) settings reset after reboot
- PSI5 decode does not work with current input
- Corrected source details shown on phasor diagram to match source chip with DQO results badge
- Error message is shown on math badge when arbitrary filter coefficients are empty
- Clock recovery pattern files are not saved as part of setup and session files

Known issues

- On 4 Series MSO, act on event for screen capture does not save specified number of screenshots
- The session files created on 4 Series MSO carry an empty screen capture of the oscilloscope
- Confirmation message or mouse cursor appear in screen captures on 4 Series MSO in some cases
- Call Outs are not drawn properly when screen capture is set to inverted colors
- eSPI - When searching for virtual wire packet response without header, it searches for OOB packet response
- Sometimes MATH error comes up due to filter blanking time

  Increase the horizontal duration, until the MATH output is displayed
- Delay measurement using backward direction wraps first source on left side of display to end of second source on right side of display
- Cursors readout unit should indicate J (Joule) for s*W
- Multiple UI text mistakes on Traditional Chinese language option
- Cursors remembers wrong scroll speed after using zoom
- Vertical offset is broken when alternative units are used
- On MSO46 if you setup a search, then zoom on one event and try to navigate to the next event using navigate button, after some movement the zoom window will start to move on its own
- On 5 Series MSO, save as function overwrites without warning message using .mat
- Double quote is missing after Sample mode in the responses to :WFMO and :WFMO:WFID queries
- The Spectrum view slices when in Linear mode show the horizontal units, but for LOG mode it only displays for one slice at a time
- Sometimes when saving a screen capture on the MSO46, the save confirmation message is visible
- Restoring a session file with multiple mask segments has missing segments
- DDC can't be deskewed between channels
- Capability of eOscilloscope on the 4 Series MSO is slow and choppy
- Querying wfmo:nr_pT? too quickly gets wrong results
- When using the search function for a parallel bus event, the navigate arrow buttons of the front panel and '<' '>' icon in search badge don't work well.

  After tapping the icon, the instrument jumps to the next event, but immediately jumps back to the first event.
- Missing results and spike in impedance measurement results
- Ripple measurement gives the SEVERE ERROR when 1 Gpts RL is used

- AWG .wfmx file longer than 8k pts causes read issues
- *ddt command returns an error
- DDR decode on long record lengths have memory issues
- P6247 + TPA-BNC does not show proper bandwidth (1 GHz)
- Copy and paste in file utility modifies file saved date
- Accessing mounted drive can lock up oscilloscope on bad networks
- Touch screen of the 5 Series MSO intermittently locks up
- Oscilloscopes stop between long acquisitions when a new channel is turned on, even though the new channel does not have data
- 6B Series MSO oscilloscopes should not have sleep mode available.

Version 1.32.1.306

Last revised

04-Jan-2021

Products:

This firmware version is intended for:

4 Series MSO: MSO44 and MSO46

5 Series MSO: MSO54, MSO56, MSO58 and MSO58LP

6 Series MSO: MSO64, MSO64B, MSO66B, MSO68B and LPD64

Firmware upgrade (Linux)

Upgrade to Version 2.0 uses the latest installation procedure and requires V1.40 or higher. Once V2.0 is installed, you cannot revert to an older firmware version. Refer to the installation instructions for the installation procedure.

After installing V2.0 on a Linux instrument, firmware upgrades will not be possible while the USB Device Port is disabled via the I/O menu.

New features

- AFG burst mode
  - The AFG now supports burst as well as continuous output
  - The number of cycles in a burst is configurable
- Eye mask autofit displaces the mask horizontally on an eye-diagram to a location where the mask hits are minimum or zero
- Option bundles
  - Option bundles enable customers to fully outfit/future-proof their oscilloscopes at dramatically lower prices than before
  - Option bundles are now available on 6 Series B MSO oscilloscopes
- Network drive improvements
  - Enhanced debugging of network mount issues with verbose mode
  - Mounted and disconnected drives have different icon indicators
- New Spectrum view readouts
  - Indicating when negative frequencies are included in RF vs. time waveforms
  - Indicating RF vs. time waveform span shown when the user expands the Spectrum view badge
- IMDA measurement enhancements
  - Support 1V1I DC wiring on output side of the drive
  - Save ACQ Trend plot with sub-measurement name in the CSV file
  - Updates to context sensitive help (F1) for IMDA measurements
  - Updates to refresh source setup panel on 4 Series MSO oscilloscopes
- 5/6-PWR measurement enhancements
  - Spectrum view is the default analysis method for all FRA measurements
  - In FRA Spectrum view method, auto-adjust RBW and span based on the signal frequency
  - User selection for auto or constant RBW
  - Measure DC signals in power quality measurement
  - Renamed custom results table to harmonics/FRA results table
  - Improvements to power autoset for multiple efficiency measurements with DC sources
- CPHY protocol solution
  - Decode CSI/DSI protocols in HS/LP mode
  - Decode display in word/symbol formats
  - Decode single ended and differential with bitrate maximum of 10 Gbps
  - Search for events: SoT, EoT, Escape Mode, Stop
  - Search for packets: Symbol, Word, Short, Long
  - Search for errors: CRC in HS mode, CRC/ECC in LP mode
- 1-Wire protocol solution

    - Decode 1-wire in standard and overdrive modes
    - Decode standard ROM commands: ReadROM, MatchROM, SkipROM, SearchROM, AlarmSearch
    - Decode overdrive ROM commands: OverdriveSkipROM, OverdriveMatchROM
    - Search for pulse reset and presence pulse
    - Search for ROM commands in standard and overdrive modes
    - Search for errors like CRC
- RS232 - Added support for Tx and Rx modes
- SVID v1.9 support to add VR14 decode/search capability

Defects fixed

- When TekDrives, sometimes file sizes > 2 GB show incorrectly as 0 KB in the size column
- Tapping on **Export Log Files** button in the self test menu crashes the oscilloscope
- Reports may now be saved to TekDrive for Linux oscilloscopes
- The network drives are automatically shown in file utilities menu once the LAN is restored.
  But sometimes the mounted drives are missing in the file utilities menu (after reopening)
- Removed Auto Dim controls for 4 Series MSO, since auto dim is not supported
- System Acq Error with SPI bus, Fast Acq, and infinite persistence in overnight runs
- Appending a report causes all previous screen captures to be replaced with the current screen capture
- Switching loss measurement throws warning when Ton or Toff region is not found in a switching cycle
- Modified LL-LN conversion equation for 3 phase motor waveforms
- Bus handle support for buses with more than one lane
- Cannot copy files >6 MB from internal storage to USB on 4 Series MSO scopes
- When using a TPP0850 on 6 Series MSO, the leading edge of a step has way too much overshoot
- Current acquisition statistics are incorrect on fast frames
- CSV file write speed is very slow, especially to external USB drives on 4 Series MSO oscilloscopes
- Copying large files from MSO4 Series to USB drive failed/timed out

Known issues

- In FRA Spectrum view, auto RBW value can go higher as frequency increases. Workaround is to uncheck auto RBW and configure manually
- CPHY sample rate should be >2.5 times the Bitrate to avoid performance issues decoding LP
- CPHY word decode displays payload in LSB order
- Save confirmation message sometimes appears in screen captures
- On Windows oscilloscopes, saved .csv file has an extra line break
- Mask/Limit test on MSO5 sometimes shows incorrect failures
- Memory leak can cause oscilloscope to stop acquiring data after 1.5M acquisitions
- **FILESystem:READFile** command does not work for raw socket connection

- FFT on MSO6B 10 GHz model limited to 6 GHz
- When a setup file from MSO64 is loaded to MSO68B using Linux drive, the active channels can not be turned off completely
- Waveform not saved with setup when using a 1s delay
- MSO64 can't decode more than 64M record length for Parallel Bus
- *OPC? command does not work for raw sockets on 4 Series MSO with escope
- Trigger offset value in .wfm file is incorrect
- With a current probe, save/recall of session file shows units of V instead of A in channel badge
- Can't use keyboard navigation in Browse window from Save As
- Setting AFG arb waveform via PI does not update until UI badge is tapped
- Turning on fast frame sets trigger holdoff time to 0
- Save/recall doesn't work via PI commands when path is TekDrive
- Linux oscilloscope sometimes takes five to seven minutes to acquire the DHCP IP address, when scope is rebooted with ethernet cable disconnected and connected back after the restart
- Save screen capture to a TekDrive and restarting the Linux oscilloscope would crash the application

  The work around is to restart the scope again

Version 1.30.5.215

Last revised

04-Dec-2020

Products

This firmware version is intended for:

5 Series MSO: MSO54, MSO56, MSO58 and MSO58LP

6 Series MSO: MSO64 and LPD64

Firmware upgrade (Linux)

Upgrade to Version 2.0 uses the latest installation procedure and requires V1.40 or higher. Once V2.0 is installed, you cannot revert to an older firmware version. Refer to the installation instructions for the installation procedure.

After installing V2.0 on a Linux instrument, firmware upgrades will not be possible while the USB Device Port is disabled via the I/O menu.

New features

- TekDrive file storage

- QR code authentication to connect to TekDrives
- Mount/unmount the TekDrives
- Save/recall waveform, setup, report, session, mask to/from TekDrives
- Save screen capture, and table data to TekDrives

Defects fixed

None

Known issues

- Sometimes if the file sizes > 2 GB then the size column in the file chooser shows incorrectly as 0 KB
- In the waveform tab in file choosers, the file filters do not refresh (workaround is to use the prev/next/up navigation buttons and come back)
- Sometimes while saving files you may face errors (work around is to try saving the file using the browser- https://drive.tekcloud.com/#/)
- When network is disconnected and if oscilloscope app is restarted TekDrive is not present in file utilities (workaround is to connect to internet and restart the oscilloscope instrument)
- In the reports tab in file choosers, the reports do not get generated if TekDrive is chosen in Linux
- The save auto-increment in file choosers is not supported
- Loading TekDrive files from following menus is not supported - install license, add filter in math advanced, CDR pattern files, AFG arbitrary waveform files, and SOA masks
- Tapping on **Export Log Files** button in self test menu crashes the oscilloscope

Version 1.30

Version 1.30.1.8359

Last revised

30-Sep-2020

Products:

This firmware version is intended for:

4 Series MSO: MSO44 and MSO46

Version 1.30.2.8421

Last revised

23-Oct-2020

Products:

This firmware version is intended for:

5 Series MSO: MSO54, MSO56, MSO58 and MSO58LP

6 Series MSO: MSO64 and LPD64

Firmware upgrade (Linux)

Upgrade to Version 2.0 uses the latest installation procedure and requires V1.40 or higher. Once V2.0 is installed, you cannot revert to an older firmware version. Refer to the installation instructions for the installation procedure.

After installing V2.0 on a Linux instrument, firmware upgrades will not be possible while the USB Device Port is disabled via the I/O menu.

New features

- Programmatic interface backward compatibility
  - Control 5/6 Series MSO with previously unsupported earlier commands
  - Flexible and customizable XML definition of compatibility commands
  - Enhanced query support
- Connected oscilloscope preferences:

  Improves user experience and more effectively detects and resolves software issues by sending anonymized usage data to Tektronix
- New view license options window, available from the help menu, shows details about all available options
- Spectrum view is included on 4 Series MSO without a license
- RF vs. time waveforms can be chosen as sources in the advanced math equation editor
- Act on event works in run mode and single sequence mode
- New option bundles enable customers to fully outfit/future-proof their oscilloscopes at dramatically lower prices than before
- New time-to-max and time-to-min timing measurements calculate the time from the maximum/minimum measured value relative to the trigger point
- Show I/Q sample rate when the Spectrum view badge is single tapped
- Delete all measurements from the right click menu or PI command to clear all active measurements in the results bar
- Delete all searches from the right click menu or PI command to clear all active searches in the results bar
- Removal of user interface tutorial from help menu
- DPHY protocol solution
  - Decode for CSI2.0/DSI2.0 protocols, including escape mode, high speed burst mode, LP mode, and 8b9b line encoding in LPDT and HS mode
  - Search for SoT/EoT, long and short packets, escape mode, and errors
- Manchester protocol solution
  - Decode by setting the **Transitions for 0** to falling/rising
  - Decode for packets by allowing the user to define the packet view
  - Decode with sync pattern, start index, tolerance, and idle bits
  - Search for sync, packets, and errors

- SDLC protocol solution
  - Decode for SDLC frames, control fields, and FCS errors
  - Decode of modulo 8/128 frames
  - Decode of frames in NRZ and NRZi modes
  - Search for packets, frames, and frame sequences
- eUSB protocol solution
  - RAP (Register Access Protocol) support
  - Fix for EOP detecting early in SOP
  - Additional search options for EOP Bits/Sync Bits using comparators
  - Selection for host and peripheral repeater mode
  - Differential mode for HS
- SPI protocol solution enhancements
  - Support for MISO and MOSI data lines in a single decode Bus
- IMDA measurement enhancements
  - DQO control logic analysis measurement
  - Time trend plot for power quality measurements
  - Acquisition trend plot for power quality and phasor diagram measurements
  - Saving of ACQ trend plot with timestamp
  - Measure power quality per cycle or per record
  - IMDA measurements are now known as 3-Phase on the 4 Series MSO
  - Simplified setup of IMDA measurements
    - Input/output/ripple analysis setup combined into electrical analysis
    - Global and local source configuration
    - Separate input and output wiring selections
    - Input power, phasor diagram, input voltage and input current merged into power quality
    - Additional wiring options for the efficiency measurement
    - 1 Phase-2 wire DC (1V1I) wiring for Inverter (DC-AC) systems
    - Line ripple and switching ripple consolidated into ripple measurement
- 5/6-PWR measurement enhancements
  - FRA measurements support both FFT and Spectrum view analysis methods
  - Magnetic property computes hysteresis and total loss components
  - Magnetic property supports secondary voltage sources

Defects fixed

- 4 Series MSO fails in some cases when USB drive removed after saving waveforms
- 4 Series MSO fails with multiple Math FFTs
- Curve query of 1M points fails oscilloscope when output data width does not match native data width
- File Menu appears in some saved screenshots

- Set to Unity button in vertical settings menu does not function correctly
- Search results table CSV save file does not include search select data
- Japanese translation for **Configure View...** is incorrect
- Act on trigger button is missing language translations
- Measurement histograms erroneously have only one bin under some settings
- Double-tapping the zoom factor field does not open the virtual keyboard
- Spectrum view phase vs. time cursor reference does not work properly
- Support of save/recall session for FRA measurements
- Sum of true powers considers polarity at each phase (2V2I)
- FRA measurements with Spectrum view sometimes report acquisition subsystem error
- Display sum of true power, apparent power and reactive power results for both LL and LN wirings
- Toff correction in switching loss for flyback type
- RMS value uses FFT approach for line ripple and switching ripple measurements
- When saving, the file name auto-increment function does not work correctly in some instances
- On the 4 Series MSO, overwriting a screen capture file does not work
- Probe termination is not always reported correctly in the channel badge
- Pressing **Enter** on USB keyboard or return on touch keyboard produces not valid character in save file names
- The auto increment function does not work correctly when you save a waveform file in .MAT format and you have source as **ALL**

Known issues

- When moved to another computer, files saved in Linux show GMT timestamps instead of the local time zone of the oscilloscope
- The TMDP0200 probe does not remember voltage range settings after a oscilloscope restart
- The 4 Series MSO may unexpectedly timeout on VISA queries over USB
- When using digital channels as sources for parallel bus, some users have reported receiving an out of memory warning from the oscilloscope which requires a restart to restore the oscilloscope to a usable state
- Screen capture issues
  - The mouse pointer is sometimes visible in screen captures.
  - Saving a screen capture from the right-click menu sometimes results in the menu appearing in the screen capture.
- DPHY protocol support: LP ECC error handling is currently not supported
- When connecting a non-touch external monitor and setting the display to extended mode, the oscilloscope touch screen may no longer respond to touch

  Solution: Open Windows tablet PC settings and then select **Setup**. Follow instructions to calibrate Windows for the new configuration
- TekScope does not operate correctly when switching between Windows accounts

  Solution: Avoid Windows fast switch of user accounts. Sign out of one account before logging into another one

- CSV write speed is very slow on the 4 Series MSO, especially to external USB drives
- Oscilloscope hangs for three minutes if the network drive host is disconnected before unmounting the drive

  Workaround:

  1. If the host is in a sleep/hibernate state, wake it up and the oscilloscope will connect
  2. If the host is disconnected, the oscilloscope will come back after 3 minutes with an error message about save failure
- DPM ripple autoset does not work as expected for ripple frequencies above 50 MHz
- The reference voltage level must be entered manually for DPM Overshoot and undershoot measurements. The default value is 0 V
- Channel clipping error is seen on recall of a DPM demo session if the power rail probe is not connected to the oscilloscope during recall.
- ACQ trend plots do not support save/recall session
- Rogowski probes may unexpectedly display an **input source mismatch** error.

  Solution: Update the **Vertical Channel**→ **Probe setup** to Other and set as A
- NRZ protocol does not decode on 4 Series MSO with record lengths greater than 10 M
- Three phase autoset may fail for DC voltages over 200V. It may be necessary to manually adjust the horizontal scale, vertical scale, and vertical offset to get a properly scaled waveform for power measurements
- **WFMOUTPRE:WFID?** PI Command may return incorrect vertical scale number when set to 10 mV/div
- Oscilloscope stops responding when all the sources are saved in .csv waveform with gating set to resample
- Append report replaces all images with most recent screen capture
- Index tab is not available in TekScope help
- When perpetual license is loaded, license type in about window is displayed as floating instead of node locked

Version 1.26.5.7750

Last revised

26-Mar-2020

Products:

This firmware version is intended for:

4 Series MSO: MSO44 and MSO46

5 Series MSO: MSO54, MSO56, MSO58 and MSO58LP

6 Series MSO: MSO64 and LPD64

Firmware upgrade (Linux)

Upgrade to Version 2.0 uses the latest installation procedure and requires V1.40 or higher. Once V2.0 is installed, you cannot revert to an older firmware version. Refer to the installation instructions for the installation procedure.

After installing V2.0 on a Linux instrument, firmware upgrades will not be possible while the USB Device Port is disabled via the I/O menu.

New features

- 1 Gpts and 500 Mpts record length options for 6 Series MSO
- 500 Mpts and 250 Mpts record length options for 5 Series MSO
- RF vs. time triggering (magnitude vs. time, frequency vs. time)
- Measurement limits pass/fail testing improvements:
  - Badge navigation in the pass/fail testing page
  - Show measurement failures and status for accumulated acqs in badge
  - Show pass/fail status and failures for current and accumulated acqs in table
  - Failure navigation from measurement badge and front panel
  - Failure navigation on fast frames
- Resampling capability for programmatic interface CURVE query
- Restart option in the file menu
- Coordination between search table and waveview navigation
- SVID protocol solution (decode and search)
- MDIO protocol solution (decode and search)
- eUSB2 protocol solution (decode and search)
- 8B10B symbol search added choice of either/positive/negative
- Inverter(DC-AC) technology added for IMDA measurements
  - Input voltage
  - Input current
  - Input power
  - Ripple
  - Phasor diagram
  - Efficiency
- Inverter measurements for single phase DC input and three phase AC output drives
- Single phase support added to IMDA with new wiring
  - One phase two wire (half bridge)
  - One phase three wire (full bridge)
  - Display PWM filtered signal
  - Control loop response, PSRR, impedance and magnetics measurements for 4 Series MSO

Defects fixed

- Delete and back button not working in Save As window in Japanese
- Utility keys do not work for non-English touch keyboard
- Fixed act on event for Bus search
- Eye diagram mask not rendering when waveview mask is present
- Add measurement pass/fail test results to saved reports
- Plots are not present in saved reports in different languages
- Screen captures: Badge and color chips not the same color as waveforms
- Fixed save/recall handling for filenames with multiple periods
- Reset vertical scale & position when zooming due to meas/search navigation
- Tolerance mask does not always extend all the way to the left/right of screen
- Busy indicator restricts interaction with other applications/windows
- FastAcq and mask testing should not be enabled at the same time
- Hide limit results On/Off button for measurements that always use it
- Recalling a setup with large font and 7 measurements adds scroll arrows

Known issues

- When connecting a non-touch external monitor and setting to extended mode, the oscilloscope touch screen may no longer respond to touch

  Solution: Open Windows tablet PC settings and then select **Setup**. Follow instructions to calibrate Windows for the new configuration
- TekScope not operating correctly if switching between Windows accounts

  Solution: avoid use of Windows fast switch user accounts. Sign out of one account before logging into another user account
- CSV write speed is very slow on 4 Series MSO, especially to external USB drives
- Oscilloscope app hangs for three mins if the network drive host is disconnected

  Work around
  - If the host is in sleep/hibernate state, please wake it up or make it online
  - Oscilloscope will come online after three minutes, with the error pop up related to save failure if the host is disconnected.
- For power FRA measurement, ensure valid signals are present before performing oscilloscope autoset on the FRA measurements
- Impedance measurement takes longer as we increase the decade points
- It is recommended to use BNC cables for Impedance measurement when the frequency of interest is below 100 KHz, due to the 50 ohm termination
- DPM Ripple Autoset does not work as expected for Ripple frequencies above 50 MHz
- The reference voltage level has to be entered manually for DPM overshoot and undershoot measurements. The default value set is 0 V

- Channel clipping error is seen on recall of a DPM demo session if the power rail probe is not connected to the oscilloscope during recall
- If you get an **input source mismatched** error when using a Rogowski probe, update the **Vertical Channel→ Probe setup** to Other and set as A
- NRZ protocol does not decode on 4 Series MSO with record lengths greater than 10 M
- Three phase autoset may fail for DC voltages over 200 V. It may be necessary to manually adjust the horizontal scale, vertical scale, and vertical offset to get a properly scaled waveform for lower measurements

Version 1.24.6.7572

Last revised

27-Feb-2020

Products:

This firmware version is intended for:

4 Series MSO: MSO44 and MSO46

5 Series MSO: MSO54, MSO56, MSO58 and MSO58LP

6 Series MSO: MSO64 and LPD64

Firmware upgrade (Linux)

Upgrade to Version 2.0 uses the latest installation procedure and requires V1.40 or higher. Once V2.0 is installed, you cannot revert to an older firmware version. Refer to the installation instructions for the installation procedure.

After installing V2.0 on a Linux instrument, firmware upgrades will not be possible while the USB Device Port is disabled via the I/O menu.

New features

- Dynamic table paging to display more than 1000 records in results table
- Wide RRB
- Callouts
- Limit testing
- SV log horizontal scaling
- Phase noise plot
- Act on event-limit acq on event Save As
- Probe overrange restart
- AOE SRQ
- PMU update
- Selectable CSV line ending

- PI command to query a range of fast frames
- Video trigger
- Inverters Motors Drives Analysis (IMDA) application on MSO56 and MSO58 Series oscilloscopes with three phase phasor diagram and harmonics bar graph
- PSI5 (peripheral sensor interface) protocol solution(decode only)

Defects fixed

- Oscilloscope stops responding if the bus result table is active, the fast frame is enabled and the summary frame is turned on
- Network mount appears to be creating security risk by using SMB1
- Act on event should be not available in roll mode
- Can't delete or rename files in the file system when oscilloscope is in languages other then English
- No save notification when save any type of file from **File→ Save menu**
- Firmware updates erase the manual static IP address that was setup before hand
- Spacewire decoder improvements

Known issues

- When connecting a non-touch external monitor and setting to extended mode, the oscilloscope touch screen may no longer respond to touch

  Solution: Open Windows tablet PC settings and then select **Setup**. Follow instructions to calibrate Windows for the new configuration
- TekScope not operating correctly if switching between Windows accounts

  Solution: Avoid use of Windows fast switch user accounts. Sign out of one account before logging into another user account
- CSV write speed is very slow on 4 Series , especially to external USB drives
- Oscilloscope app install for three mins if network drive host is disconnected

  Work around:
  - If the host is in sleep/hibernate state, please wake it up or make it online
  - Oscilloscope will come online after 3 minutes, with the error pop up related to save failure if the host is disconnected
- For Power FRA measurement, ensure valid signals are present before performing oscilloscope autoset on the FRA measurements
- Impedance measurement takes longer as we increase the decade points
- It is recommended to use BNC cables for impedance measurement when the frequency of interest is below 100 KHz, due to the 50 ohm termination
- DPM ripple autoset does not work as expected for ripple frequencies above 50 MHz
- The reference voltage level has to be entered manually for DPM overshoot and undershoot measurements. The default value set is 0 V

- Channel clipping error is seen on recall of a DPM demo session if the power rail probe is not connected to the oscilloscope during recall
- If you get an **input source mismatched** error when using a Rogowski probe, update the **Vertical Channel**→ **Probe setup** to Other and set as A
- Double clicking on the results badge while efficiency configuration tab is open could cause the oscilloscope to hang

  Work around: Single tap anywhere on the oscilloscope screen to hide the efficiency configuration before double click

Version 1.22.4.7207

Last revised

09-Oct-2019

Firmware upgrade (Linux)

Upgrade to Version 2.0 uses the latest installation procedure and requires V1.40 or higher. Once V2.0 is installed, you cannot revert to an older firmware version. Refer to the installation instructions for the installation procedure.

After installing V2.0 on a Linux instrument, firmware upgrades will not be possible while the USB Device Port is disabled via the I/O menu.

New features

- Mask testing
- S/M/L font sizes
- Performance eye rendering
- Flick gesture on badges can be used for delete
- Resample gating
- Setting date/time via PI
- Measurement limits with accurate on failure
- Save waveforms to .Mat format
- Polar cursor readouts for XY/XYZ mode
- Save search event results (PI and/or export table)
- 8b10b protocol solution
  - Decode capability for control/data symbols
  - Decode capability for disparity/symbol errors
  - Search capability for symbol 8-bit and 10-bit word
  - Search capability for symbol/disparity errors

    - Decode capability with bit rate of up-to 1Tbps for offline and 2.5Gbps for live signals
    - Result table
    - Supported on MSO 5/6 Series
- NRZ protocol solution
    - Decode capability with bit rate of up-to 1Gbps
    - Supports differential NRZ and NRZ(Inverted polarity) encoding with Bit order MSB first or LSB first
    - Decode and search capability for data
    - Result table
    - Supported on MSO 4/5/6 Series
- Jitter analysis measurements added in the DPM application
- Sin(x)/x interpolation added for control loop and PSRR measurements
- Support for active splitter in impedance measurement
- Reference levels for global and per source appear in a new table in the report

Defects fixed

- Mean measurement returns higher value than Max
- Options was lost on one of Titans demo unit
- **HORIZONTAL:[Mode]:RECORDLENGTH** can return out-of-bounds results
- Advance math equation editor scrolling behavior improvement
- Cannot set 35A offset in 5 A/div
- Test copied from Save As menu is not retained after clicking Browse
- Horizontal scale in Eye Diagram is incorrect
- Mil1553 trigger on command - event may occur on status
- Randomly get wrong phase result for frequency response analysis at low frequencies
- Impedance results are not correct at 380 Hz
- SPMI not decoding customer waveform

Known issues

- When connecting a non-touch external monitor and setting to extended mode, the oscilloscope touch screen may no longer respond to touch

  Solution: Open Windows tablet PC settings and then select **Setup**. Follow instructions to calibrate Windows for the new configuration
- TekScope not operating correctly if switching between Windows accounts

  Solution: Avoid use of Windows fast switch user accounts. Sign out of one account before logging into another user account
- For power FRA measurement, ensure valid signals are present before performing oscilloscope autoset on the FRA measurements

- Search and mark navigation can sometimes fail to proceed on long record length due to multiple hits within same display pixel
- Impedance measurement takes longer as we increase the decade points
- DPM ripple autoset does not work as expected for ripple frequencies above 50 MHz
- It is recommended to use BNC cables for impedance measurement when the frequency of interest is below 100 KHz, due to the 50 ohm termination
- The reference voltage level has to be entered manually for DPM overshoot and undershoot measurements. The default value set is 0 V
- Channel clipping error is seen on recall of a DPM demo session if the power rail probe is not connected to the oscilloscope during recall
- Once the DPM jitter demo file is recalled, reports generated do not include measurement result details

  Solution: Recalling any other demo file, reports generated after this will include all the details

Version 1.20.7.6859

Last revised

26-Jul-2019

Firmware upgrade (Linux)

Upgrade to Version 2.0 uses the latest installation procedure and requires V1.40 or higher. Once V2.0 is installed, you cannot revert to an older firmware version. Refer to the installation instructions for the installation procedure.

After installing V2.0 on a Linux instrument, firmware upgrades will not be possible while the USB Device Port is disabled via the I/O menu.

New features

- Rf vs time traces
- Measurement limits for DDR measurements
- Cursor and cursor readout improvements
- Additional local language UI (Simplified Chinese, Traditional Chinese, Japanese, French, German, Italian, Spanish, Portuguese, Russian)
- Spectrum view includes math operations using absolute log
- PI curve query support for Spectrum view RF and I/Q data
- Spectrum view span increases
- Export time trend data
- Backward compatible PI timestamp query
- Spacewire protocol solution (decode only)
- Automotive ethernet product solution (decode only)

Defects fixed

- Probe comp may fail on certain channels with TPP probe on 4 Series
- Default setup fails to clear measurement plots on 4 Series
- Last setup is not recalled after restart or powerup
- TDP1000 fails to trigger with certain V/div settings, range modes and BW filters
- Bus search gating not working for jitter/eye diagrams
- File names limited to 38 characters
- Autoset does not turn on CH1 if no channels active
- Save On trigger sometimes fails to capture new measurement values
- Fast Frame math channel *.wfms cannot be recalled
- Shut down could install if detaching network cable while network drives mounted
- Improved notes recall/save formatting and text wrapping behavior
- Cannot autozero P5205A probes

Known issues

- When connecting a non-touch external monitor and setting to Extended mode, the oscilloscope touch screen may no longer respond to touch

  Solution: Open Windows tablet PC settings and then select **Setup**. Follow instructions to calibrate Windows for the new configuration
- TekScope not operating correctly if switching between Windows accounts

  Solution: Avoid use of Windows fast switch user accounts. Sign out of one account before logging into another user account
- For Power FRA measurement, ensure valid signals are present before performing oscilloscope autoset on the FRA measurements
- Search and mark navigation can sometimes fail to proceed on long record length due to multiple hits within same display pixel
- With TPR1000/TPR4000 probes, autoset may not find offset and amplitude correctly on signals outside the +/- 1V dynamic range of the probe
- Impedance measurement takes longer as we increase the decade points
- DPM ripple autoset does not work as expected for Ripple frequencies above 50 MHz
- The reference voltage level has to be entered manually for DPM overshoot and undershoot measurements. The default value set is 0 V
- Channel clipping error is seen on recall of a DPM demo session if the power rail probe is not connected to the oscilloscope during recall

Version 1.16.6.6557

Last revised

14-May-2019

Firmware upgrade (Linux)

Upgrade to Version 2.0 uses the latest installation procedure and requires V1.40 or higher. Once V2.0 is installed, you cannot revert to an older firmware version. Refer to the installation instructions for the installation procedure.

After installing V2.0 on a Linux instrument, firmware upgrades will not be possible while the USB Device Port is disabled via the I/O menu.

Version 1

New features

- Time gating per measurement
- Invert channel
- Local language UI (Simplified Chinese, Japanese)
- Noise density and phase noise cursor readouts in spectrum view
- Impedance measurement under frequency response analysis in Power

  NOTE: Recommend using passive 50 Ohm power splitter for the measurement

- The Digital Power Management and Analysis (DPM) application provides automated power rail measurements using TPR1000/TPR4000 probes

  NOTE: Recommend using passive probes for DPM turn-on time and turn-off time measurements

Defects fixed

- 50 ohm probe signal integrity issue during probe comp
- Fix fail when changing search direction on delay measurement
- Fix SPI, 2-wire rising edge polarity issue
- Save all channels setting changes setting when different channels selected
- TPP0500 probe compensation affects other channels
- Problems using high capacity (> 4TB) USB drives
- USB drive listing remains and warning message appears if USB device removed while recall/save windows opened

Known issues

- When connecting a non-touch external monitor and setting to extended mode, the oscilloscope touch screen may no longer respond to touch

  Solution: Open Windows tablet PC settings and then select **Setup**. Follow instructions to calibrate Windows for the new configuration
- TekScope not operating correctly if switching between Windows accounts

  Solution: Avoid use of Windows fast switch user accounts. Sign out of one account before logging into another user account
- For power FRA measurement, ensure valid signals are present before performing oscilloscope autoset on the FRA measurements
- Search and mark navigation can sometimes fail to proceed on long record length due to multiple hits within same display pixel
- Default notes text wrapping not working
- With TPR1000/TPR4000 probes, autoset may not find offset and amplitude correctly on signals outside the +/- 1V dynamic range of the probe
- TPR1000/TPR4000 probe dynamic range indicators do not correctly follow offset but stay on the 0V baseline
- Impedance measurement takes longer as we increase the decade points
- DPM ripple autoset does not work as expected for ripple frequencies above 50 MHz
- The reference voltage level has to be entered manually for DPM overshoot and undershoot measurements. The default value set is 0V
- Channel clipping error is seen on recall of a DPM demo session if the power rail probe is not connected to the oscilloscope during recall

Version 1.14.13.6144

Last revised

18-Mar-2019

Firmware upgrade (Linux)

Upgrade to Version 2.0 uses the latest installation procedure and requires V1.40 or higher. Once V2.0 is installed, you cannot revert to an older firmware version. Refer to the installation instructions for the installation procedure.

After installing V2.0 on a Linux instrument, firmware upgrades will not be possible while the USB Device Port is disabled via the I/O menu.

New features

- Spectrum view
- User selectable waveform colors
- Fixed display graticule
- I3C bus decode
- CAN.DBC symbolic bus support
- New DDR3/LPDDR3 measurements (tCMD-CMD, tCKSRE, tCKSRX)
- New DDR3/LPDDR3 search methods (Chip Select, Latency, Logic)

Defects fixed

- Flexray bus decode supports truncated TSS
- Requesting a fast frame from PI curve query times out
- Bode plot measurements returns negative polarity
- Magnetic cross section units does not properly reflect area scaling (m2)
- Quickly saving screen images can occasionally catch the save confirmation message in the image
- Save As screen capture occasionally captures the Save As dialog box in the image
- 100Base-T decoder not handling decode properly when incorrect preamble is present
- Save on trigger, selecting all sources can later get changed by selecting new channel in waveform view display
- MSO 5-Series with Windows 10 reports serial number instead of model number as the USB identifier

Known issues

- When connecting a non-touch external monitor and setting to extended mode, the oscilloscope touch screen may no longer respond to touch

  Solution: Open Windows tablet PC settings and then select **Setup**. Follow instructions to calibrate Windows for the new configuration
- TekScope not operating correctly if switching between Windows accounts

  Solution: Avoid use of Windows fast switch user accounts. Sign out of one account before logging into another user account
- When a TDP770x probe is attached there is a **Compensate Probe** button in the vertical/probe setup menu that is non-functional
- When using the internal arbitrary/function generator, the output and offset entry fields for sine wave are tied together
- For power FRA measurement, ensure valid signals are present before performing oscilloscope autoset on the FRA measurements
- Problems recognizing certain high capacity (4TB) USB drives
- TPP0500 probe compensation can affect other channels

- Search and mark navigation can sometimes fail to proceed on long record length due to multiple hits within same display pixel
- Default notes text wrapping not working
- USB mass storage directory can persist in save-recall dialogues after device is unplugged
- With TPR1000/TPR4000 probes, autoset may not find offset and amplitude correctly on signals outside the +/- 1V dynamic range of the probe
- TPR1000/TPR4000 probe dynamic range indicators do not correctly follow offset but stay on the 0V baseline

Version 1.12.6.5888

Last revised

18-Jan-2019

Firmware upgrade (Linux)

Upgrade to Version 2.0 uses the latest installation procedure and requires V1.40 or higher. Once V2.0 is installed, you cannot revert to an older firmware version. Refer to the installation instructions for the installation procedure.

After installing V2.0 on a Linux instrument, firmware upgrades will not be possible while the USB Device Port is disabled via the I/O menu.

Defects fixed

Patch to fix security vulnerability

Version 1.12.5.5575

Last revised

09-Oct-2018

Firmware upgrade (Linux)

Upgrade to Version 2.0 uses the latest installation procedure and requires V1.40 or higher. Once V2.0 is installed, you cannot revert to an older firmware version. Refer to the installation instructions for the installation procedure.

After installing V2.0 on a Linux instrument, firmware upgrades will not be possible while the USB Device Port is disabled via the I/O menu.

New features

- Eye diagram mask testing
- Stacked/overlay mix & match
- User adjustable aux-out pulse width
- DDR essentials
- ET3 ethernet compliance support
- Power bode plot and PSRR

Defects fixed

- Cannot compensate TPxxxx probes on 6 Series MSO under Windows
- TAP1500 autozero not working when run under Windows
- Probes attached to a TPA-BNC can not be autozeroed
- Cannot use PI command **FILES:CWD** to change to mapped network drive
- Save on trigger misses signal display on long acquisitions
- Harmonics measurement not working with one source
- Smaller resolution needed for power cross section and magnetic length fields
- **SENT** protocol decode not handling polarity correctly
- Save on trigger failures at slow timebase settings
- Recalled note has incorrect font size
- Vertical scale of digital channels in overlay mode not recalled properly

Known issues

- When connecting a non-touch external monitor and setting to extended mode, the oscilloscope touch screen may no longer respond to touch

  Solution: Open Windows tablet PC Settings and then select **Setup**. Follow instructions to calibrate Windows for the new configuration
- TekScope not operating correctly if switching between Windows accounts

  Solution: Avoid use of windows fast switch user accounts. Sign out of one account before logging into another user account
- When a TDP770x probe is attached there is a **Compensate Probe** button in the vertical/probe setup menu that is non-functional
- When using the internal arbitrary/function generator, the output and offset entry fields for sine wave are tied together
- For Power FRA measurement, ensure valid signals are present before performing oscilloscope autoset on the FRA measurements

Version 1.10.7.5425

Last revised

29-Aug-2018

Firmware upgrade (Linux)

Upgrade to Version 2.0 uses the latest installation procedure and requires V1.40 or higher. Once V2.0 is installed, you cannot revert to an older firmware version. Refer to the installation instructions for the installation procedure.

After installing V2.0 on a Linux instrument, firmware upgrades will not be possible while the USB Device Port is disabled via the I/O menu.

New features

- 25 GS/s acquisitions
- Bandwidths of 1 GHz, 2.5 GHz, 4 GHz, 6 GHz, and 8 GHz
- Support for TDP770x probes
- Support for TAP/TDP4000 probes
- 250M sample records
- Frequency response filter shape control (optimized for flatness or step response)

Known issues

- In extended mode, the oscilloscope touch screen may not respond to touch when connected to an external non-touch monitor

  Solution: Open Windows tablet PC settings and select **Setup**.
- TekScope not operating correctly if switching between windows accounts

  Solution: Avoid use of Windows fast switch user accounts. Sign out of one account before logging into another user account
- When a TDP770x probe is attached there is a **Compensate Probe** button in the vertical/probe setup menu that is non-functional
- When using the internal arbitrary/function generator, the output and offset entry fields for sine wave are tied together
- On very rare occasions, a not valid temperature reading internally to the instrument may cause an inadvertent shutdown of the instrument

Version 1.8.7

Last revised

16-Jul-2018

Firmware upgrade (Linux)

Upgrade to Version 2.0 uses the latest installation procedure and requires V1.40 or higher. Once V2.0 is installed, you cannot revert to an older firmware version. Refer to the installation instructions for the installation procedure.

After installing V2.0 on a Linux instrument, firmware upgrades will not be possible while the USB Device Port is disabled via the I/O menu.

New features

- Visual trigger
- Power:

  Includes support for new power measurements; TOn, TOff, InRush, Input Capacitance and D0160 standard for harmonics

  Improve annotations for power measurements
- Additional bus decode and trigger support for SPMI bus and enhanced slow channel protocol trigger for SENT bus.
- Mount network drives
- User access to log files
- Radix specific keypads added for IP address entry
- eOscilloscope for Windows supported (requires additional installation of VNC)
- Re-arrange badges in the results and settings bar. Change bus and power table ordering by changing measurement order in results bar
- Save all channels to a single CSV
- Addition of bus trigger/search for data inside/outside range for SENT bus

Defects fixed

- Saving large CSV file to USB may fail if USB drive ejected early
- TIVH probe offset range not handled correctly when exceeds oscilloscope range limits
- Cascading two filters in math expression may not yield expected results
- Screenshot in .tss file has the progress ring included when using "save as"
- RDSon allow steps of 1mOhm
- Fast Frame trigger out not working with Fast Frame single sequence

- Parallel bus not showing all bus waveform inputs when used with multiple digital probes
- Improved SPI bus decode performance on large data captures
- Duplicate Jitter Summary plots are created when using the PI to change measurement type

Known issues

- Power mask files created with oscilloscope firmware version 1.4.x cannot be used in firmware version 1.6.x. Use version 1.6.x and later to create and recall mask files.
- P5205A probe not recognized by 5 Series
- When connecting an non-touch external monitor and setting to extended mode, the oscilloscope touch screen may no longer respond to touch

  Solution: Open Windows tablet PC settings and then select **Setup**. Follow instructions to calibrate Windows for the new configuration
- TekScope not operating correctly if switching between Windows accounts

  Solution: Avoid use of Windows fast switch user accounts. Sign out of one account before logging into another user account

Version 1.6.5

Last revised

02-Mar-2018

Firmware upgrade (Linux)

Upgrade to Version 2.0 uses the latest installation procedure and requires V1.40 or higher. Once V2.0 is installed, you cannot revert to an older firmware version. Refer to the installation instructions for the installation procedure.

After installing V2.0 on a Linux instrument, firmware upgrades will not be possible while the USB Device Port is disabled via the I/O menu.

New features

- **Autoset improvements**

  Optimize vertical ADC range, optimize for visibility in overlay mode, provide user-selectable options for what autoset changes, optimize autoset to use trigger source
- **Power**

  Includes support for magnetics, power efficiency and RDS on measurement and plots
- **Search event table**

  Display search results in table view
- Stop acquisition on found search event

- Radix specific keypads added for serial bus
- Measurements on trend plots
- Re-arrange badges in the results and settings bar. Change ordering of waveform slices in stacked mode by changing badge order in Settings Bar. Change measurement table ordering by changing measurement order in results bar
- **Gated save**

  Save regions defined by cursors or screen gating
- **Floating license**

  Provide support for floating licenses
- Inverted screen shot
- **Sample point highlight**

  Displays sampled acquisition points when waveform style is dot mode and display is interpolating
- **Enable press and hold for front panel navigation**

  provides auto repeat of navigation steps on hold
- Improved configuration and labelling for digital bits and channels
- **5-SEC power up**

  When 5-SEC option is installed system no longer restores instrument settings on power up
- Updates and improvements to Jitter measurements
- Additional bus decode and trigger support for SENT bus

Defects fixed

- ADA400A probe displays wrong attenuation
- Resolve 1A (TIVH) probe with 2500x tip causes oscilloscope app to crash
- Rising slew rate measurement requires more than one edge on screen
- Channel BW filters not working correctly
- Attaching TAP1500 probe causes POST to fail
- Math FFT does not display custom label
- SPI decode found to crash with certain signal inputs with noise on longer record lengths
- Roll mode not working correctly in single acquisition mode

Known issues

- Mask files created with oscilloscope firmware version 1.4.x cannot be used in firmware version 1.6.x. Use version 1.6.x and later to create and recall mask files.
- TIVH probe offset range not handled correctly when exceeds oscilloscope range limits
- Saving large CSV file to USB may fail if USB drive ejected early
- Cascading two filters in math expression may not yield expected results

- P5205A probe not recognized by 5 Series
- When connecting an non-touch external monitor and setting to extended mode, the oscilloscope touch screen may no longer respond to touch

  Solution: Open Windows tablet PC settings and then select **Setup**. Follow instructions to calibrate Windows for the new configuration
- TekScope not operating correctly if switching between Windows accounts

  Solution: Avoid use of Windows fast switch user accounts. Sign out of one account before logging into another user account

Version 1.4.9

Last revised

07-Nov-2017

Products:

This firmware version supports for all 5 Series MSO oscilloscopes

Firmware upgrade (Linux)

Upgrade to Version 2.0 uses the latest installation procedure and requires V1.40 or higher. Once V2.0 is installed, you cannot revert to an older firmware version. Refer to the installation instructions for the installation procedure.

After installing V2.0 on a Linux instrument, firmware upgrades will not be possible while the USB Device Port is disabled via the I/O menu.

New features

- The 5 Series MSO oscilloscopes operates with Windows 10 operating system (5-WIN and SUP5-WIN)
  - **Fast Frame**

    Use the Fast Frame control Windows to capture and view a Series of triggered acquisitions without wasting acquisition memory.
  - **Roll Mode**

    lets you see acquired data without waiting for the acquisition of a complete waveform record
- TekExpress Automotive Ethernet available on Windows 10, 5 Series oscilloscopes
  - **Power**

    Includes support for Power Quality, Harmonics, Switching Loss, SOA, Line Ripple and Switching Ripple measurements and associated plots
  - **Security option**

Supports ability to ensure secure storage of user data, enable/disable USB devices, Ethernet ports and firmware upgrade/downgrade

- Updates and improvements to Jitter measurements
- Additional bus decode and trigger support including ARINC429, Mil-Std-1553 and CAN-FD

Defects fixed

- Edge configuration not recalled correctly for skew and phase measurements
- Saving screen images too quickly results in the Save Confirmation message appearing in the next image
- Parallel bus trigger data value not restored from setup file
- File modified time/date value does not match oscilloscope time/date display
- TCP0030A Probe range displays incorrection when attempting to change the range while range mode set to Auto
- Pressing default setup while TCP0030 probe attached to CH1 changes the trigger unit from A back to V
- Save on trigger limited to 100 files
- Need to be able to set separate reference levels for same channel when used in delay measurement
- Zooming by pan/zoom from a non-zoomed state improvements
- Comment text field in Report tab doesn't support pop-up keyboard
- Scale ratio not included with saved setups

Known issues

- When connecting an non-touch external monitor and setting to extended mode, the oscilloscope touch screen may no longer respond to touch

  Solution: Open Windows tablet PC settings and then select **Setup**. Follow instructions to calibrate Windows for the new configuration
- TekScope not operating correctly if switching between Windows accounts

  Solution: Avoid use of Windows fast switch user accounts. Sign out of one account before logging into another user account

Version 1.2.0

Last revised

23-Jun-2017

Operating system

Windows

Products:

This firmware version supports for all 5 Series MSO oscilloscopes

Firmware upgrade (Linux)

Upgrade to Version 2.0 uses the latest installation procedure and requires V1.40 or higher. Once V2.0 is installed, you cannot revert to an older firmware version. Refer to the installation instructions for the installation procedure.

After installing V2.0 on a Linux instrument, firmware upgrades will not be possible while the USB Device Port is disabled via the I/O menu.

New features

- The oscilloscope now contains 17 demo sessions that can be recalled from the **Utility→ Demo menu**. These demos operate without the need for probes or signal sources.
- The instrument displays a dialog box menu informing the user when the internal temperature is approaching a critical juncture.
- FFT phase wrap can be adjusted beyond 180 degrees
- AFG arbitrary waveforms support CSV data format

Defects fixed

- Recalling saved setups now restore window size and position
- Miscellaneous settings now restored after recall of saved setups
- Notes now restored after power cycle
- Certain probe settings now restored after power cycle
- Fixes related to installing and removing option licenses
- Fixes related to save/recall menu operations
- Various fails involving concurrent time-consuming operations
- Jitter measurement summary while acquiring
- Corrections to the online help
- Recalling setups/sessions when probe configuration has changed
- Issue using DVM and frequency counter simultaneously
- Math and cursor calculations on peak detect data
- Infinite persistence no longer cleared on certain settings changes
- Persistence now works on plot data
- Various minor issues related to USB bus decode
- Various minor issues related to LIN bus decode
- Spectrum plot of digital channel data now working correctly
- Various corner-case issues with cursors, primarily in plots
- Acquisition system error possible on 6-channel models and runt trigger
- Save on trigger now indicates operation complete
- Save on trigger may terminate prematurely
- Various issues related to the programmatic interface

- Various issues related to undo/redo
- Various issues related to auto scale on time trend waveforms
- Graticule scale labels for FFT
- Audio bus decode and trigger can become out of sync
- The limited bandwidth icon may appear when operating at full bandwidth
- Pushing Set to 50% sets vertical position incorrectly if non-zero
- Pinch-to-zoom doesn't expand at correct location
- Probes with alarm settings may be out of sync with the probe menu
- Ethernet bus and search may become out of sync
- FFT auto scale doesn't always set horizontal scale correctly
- Busy indicator is missing during save setup
- XY/XYZ plot labels off by factor of 2 if zoom is ON
- DVM resolution may show more or less resolution, depending on scale
- Fixed limitations on amount of data shown in USB bus tables
- SS active triggers and SPI bus triggers are now in the correct position
- Flexray trigger no longer limited to 40 Mbps
- Cursor gating now works with V bars (in addition to waveform cursors)
- Various issues with auto increment file name count in Save As menu
- The number of powerups in the self test menu may double-count
- Various cosmetic improvements in various menus

Version 1.0.5

Last revised

29-May-2017

Firmware upgrade (Linux)

Upgrade to Version 2.0 uses the latest installation procedure and requires V1.40 or higher. Once V2.0 is installed, you cannot revert to an older firmware version. Refer to the installation instructions for the installation procedure.

After installing V2.0 on a Linux instrument, firmware upgrades will not be possible while the USB Device Port is disabled via the I/O menu.

Defects fixed

This is the initial release