

R&S®RTA4000US Oscilloscope

Release Notes

Firmware Version 01.700

These Release Notes describe the following models and options:
R&S®RTA4004US, Digital Oscilloscope order no. 1335.7700K04

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The software makes use of several valuable open source software packages. For information, see the "Open Source Acknowledgment" provided with the product.

The following abbreviations are used throughout this document: R&S®RTA4000US is abbreviated as R&S RTA4000US.

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1 Information on the Current Version and History

1.1 New Functions

The following table lists the new functions and indicates the version in which the new function was introduced:

New Function of Firmware V01.700:

Version	Function
V01.700	Option RTA-B6: SCPI command for generator burst function.

New Function of Firmware V01.601:

Version	Function
V01.601	Configurable function 'Action on Trigger' added to the 'Trigger' menu.
V01.601	New Option RTA-K37: Spectrum Analysis and Spectrogram.
V01.601	Support of all modular probes with all measurement modes. R&S®RT-ZM15/-ZM30/-ZM60/-ZM90/-ZM130/-ZM160
V01.601	New measurement type 'Delay to Trigger'.
V01.601	Disable R&S logo in screenshot via 'Save/Load' dialog.

New Function of Firmware V01.550:

Version	Function
V01.550	None, this is a bugfix release.

New Function of Firmware V01.501:

Version	Function
V01.501	New math functions track: Period, frequency, pulse width and duty cycle.
V01.501	Option to disable date and time on screen. See 'Date & Time' setup.
V01.501	Option to close dialog when screenshot if saved via 'Save/Load' dialog.
V01.501	Second cursor source implemented.
V01.501	Individual color selection for each math waveform.
V01.501	New pattern types in option RTA-B6 pattern generator: PWM, PWM - RGB LED and PWM - Test Signals.
V01.501	Symmetry attribute in signal function 'Triangle' with option RTA-B6 function generator.
V01.501	Track setups in App menu.
V01.501	Track demos. See App menu tab 'Track'.

New Function of Firmware V01.200:

Version	Function
V01.200	Option RTA-K36: New Bode plot application allow the instrument to perform gain and phase testing.
V01.200	New 'Cut Waveform' feature for Option RTA-B6 Function generator allows user to select a portion of captured oscilloscope waveform in the arbitrary setup.
V01.200	New burst feature for option RTA-B6 Function generator allows user to specify a fixed number of waveform cycles.
V01.200	Oscilloscope simultaneously displays cursor results with measurement statistics.
V01.200	Enhanced FFT usability.
V01.200	Active probes with offset and ProbeMeter®: Possibility to copy probe meter value to probe offset in probe menu.
V01.200	Math waveform position and scale adjustment in math menu.
V01.200	Delete screenshot in internal memory.

New Function of Firmware V01.100:

Version	Function
V01.100	None, as this is a first release.

1.2 Modified Functions

The following table lists the modified functions and indicates the version in which the modification was carried out:

Modifications of Firmware V01.700:

Version	Function
V01.700	Increased FFT waveform update rate for low start frequencies and activated 'Automatic RBW'.
V01.700	Removed extra treatment of ADC clipping values in waveform arithmetic average. Clipping values are now processed as normal ADC values and not emphasized in waveform.

Modifications of Firmware V01.601:

Version	Function
V01.601	Additional configurations added to measurement type 'Delay'.
V01.601	Units As, A ² and V ² in math menu.
V01.601	Octal numbers marked as not editable in ARINC 429 trigger configuration window.
V01.601	External Trigger Input as trigger A/B source disabled.
V01.601	Selectable trigger hysteresis for External Trigger Input disabled.
V01.601	Various improvements in GUI and languages.

Modifications of Firmware V01.550:

Version	Function
V01.550	Modifications in selfalignment routine for channel offset.

Modifications of Firmware V01.501:

Version	Function
V01.501	Low pass and high pass function in math improved.
V01.501	Item 'Set To Screen' removed from cursor menu.
V01.501	Acquisition mode High Resolution in memory mode Auto improved. Higher sampling rates available.
V01.501	For measurements SCPI commands response significantly improved.
V01.501	In trigger type 'Timeout' range type 'Stays High Low' removed.
V01.501	For Bode Plot application, waveform generator load is set to 50 Ohm by default. CAUTION: Amplitude is doubled on DUT if there no 50 Ohm termination!
V01.501	Automatic line break in bus table if necessary.
V01.501	Grid annotation in FFT window stays on waveform color even if spectrum color is set to 'Rainbow' or 'Temp. Color'.
V01.501	Various improvements in GUI and languages.

Modifications of Firmware V01.200:

Version	Function
V01.200	Option RTA-K15: Exit button in history player added.
V01.200	Auto off time of annotation tool expanded to 30s if a color selected.
V01.200	Renaming ' σ -Deviation' to 'StdDev' in measure statistic table.
V01.200	Sample rate indicator in zoom window removed.
V01.200	FFT amplitude scale limit adapted to probe setting in vertical scale mode Veff.
V01.200	Number of decimal places for values in csv export depends on resolution now.
V01.200	Information text in zoom window if roll mode is running.
V01.200	Bus table displays data as defined in 'Display Setup'.
V01.200	Various improvements in GUI and languages.

Modifications of Firmware V01.100:

Version	Function
V01.100	None, as this is a first release.

1.3 Improvements

The following tables list the improvements and indicate since which version the issue could be observed:

Improvements of Firmware V01.700:

Version	Improvement
V01.700	Solved: Option RTA-K18/K37: Headline spectrum and spectrogram diagram could overlap with touch control.
V01.700	Solved: Connection lost during web server 'Livescreen' or 'Remote Front Panel' with latest Chrome or Edge browser.
V01.700	Solved: Rarely spikes in waveform after horizontal scaling in stop mode with activated roll mode.
V01.700	Solved: History export to USB did not work.
V01.700	Solved: Wrong measurement values after vertical scaling in stop mode with following zoom activation.
V01.700	Solved: Possible wrong vertical waveform scale in QuickMeas if the source of QuickMeas changed during QuickMeas.
V01.700	Solved: Statistic measurement values not actualized after closing zoom window in stop mode.
V01.700	Solved: Option RTA-K18/K37: Peak list could not save.
V01.700	Solved: Firmware blocker after interrupted SCPI waveform download.
V01.700	Solved: Option RTA-K36: No gain and phase waveform data if start and stop frequency close to each other.
V01.700	Solved: Window search function 'Stay Inside' and 'Stay Outside' did not work in stop mode with record length greater than 100kSa.

Improvements of Firmware V01.601:

Version	Improvement
V01.601	Solved: Trigger level knob has no function after using zoom or QuickMeas in roll mode and turn back to normal time base mode.
V01.601	Solved: Wrong waveform data in zoom window when zoom is activated in roll initial mode and then the acquisition is stopped before the waveform window is complete.
V01.601	Solved: Sweep type 'Triangle' does not work correctly with RTA-B6.
V01.601	Solved: Wrong clipping math waveforms, depending on history of math and source setup.
V01.601	Solved: Sporadic incorrect data in math waveform.
V01.601	Solved: Wrong value in numeric input keypad after clear and new input that starts with '-'.
V01.601	Solved: Display of decode format bus 1 in ARINC 429 configuration window even when bus 2 to 4 is selected.
V01.601	Solved: No function of 'Find Threshold' button in ARINC 429 configuration window.
V01.601	Solved: A few instruments may irregularly show spikes in waveforms, depending on selected time base.
V01.601	Solved: In option RTA-K31 Switching Loss position cursors 3, 4 and 5 did not change measurement values.
V01.601	Solved: In rare cases, trigger jitter with positive trigger time and trigger point not in acquisition.
V01.601	Solved: Amplitude measurements with amplitude less than 7mV did not work.
V01.601	Solved: Wrong function of 'Wait on Trigger' Bit in status operation register after Break followed by Single.

Improvements of Firmware V01.550:

Version	Improvement
V01.550	Solved: Overshoot calculated 0 % with more than one signal period.
V01.550	Solved: Sometimes Autoset sets wrong vertical scaling values with input frequencies lower than 500 Hz. It depends on control history.
V01.550	Solved: Wrong horizontal position zoom if zoom tool used when menu is open.

Improvements of Firmware V01.501:

Version	Improvement
V01.501	Solved: Universal rotary knob did not work in Horizontal menu on Zoom Scale.
V01.501	Solved: Zero Adjust value in channel menu was lost with preset.
V01.501	Solved: Wrong waveform offset in XY diagram with measurement and statistic table.
V01.501	Solved: Sometimes no trigger when roll mode switched off.

Improvements of Firmware V01.200:

Version	Improvement
V01.200	Solved: Probe Adjust Wizzard with RT-ZH03 causes an error message.
V01.200	Solved: Firmware blocker when waveform saving with 'Vis. Channels' or when saving bus table.
V01.200	Solved: Setting ZA15 option for active probe RT-ZDxx did not work.
V01.200	Solved: Measurement on math waveform with very small resolution in amplitude displayed a value with too little number of decimal points.

Improvements of Firmware V01.100:

Version	Improvement
V01.100	None, as this is a first release.

1.4 Known Issues

The following tables list the known issues and indicate since which version the issue could be observed:

Known issues of Firmware V01.601:

since	Issue
V01.100	Unit in search hysteresis level not changed with channel source unit.
V01.100	Demos FFT, Generator and UART defective and not working.
V01.200	Option RTA-K36: Wrong horizontal marker position via SCPI commands after horizontal shift of gain and phase waveform.

2 Modifications to the Documentation

The current documentation is up-to-date.

3 Firmware Update

3.1 Validity Information

Device	Order Number
RTA4004U.FWU	Firmware image for R&S®RTA4004US

3.2 Update Information

This firmware is a dedicated version for instruments in the US. The firmware can only be used for US-specific instruments with firmware version 1.100. These instruments display "RTA4000US" in the boot screen and "RTA4004US" in the device information window.

If you are located in the US and do not have a US-specific instrument with firmware version 1.100 yet, please contact your sales representative.

3.3 Updating the Firmware

3.3.1 Possibility 1: Update using a USB Drive

Please transfer the update file to a USB drive and follow these steps to update the instrument firmware via USB drive:

1. Insert the USB drive into the USB port on the front of the oscilloscope.
2. Touch on the R&S logo on the screen to open the main menu.
3. Scroll down the main menu until the “Setup” icon is visible.
4. Touch on the “Setup” icon to open the setup menu.
5. Select “Firmware Update”; the instrument will display the current version (“installed”) and the version on the USB drive (“new”) for both the device firmware and the front controller firmware.
6. Select “Execute” to start the update process for the device firmware.
7. Wait until the update process has completed. This may take up to one minute. The instrument automatically reboots once the update process is finished.
8. If there is a newer version of the front controller firmware too, select “Execute” once again to update this firmware as well. The front controller firmware update only takes seconds and does not require a reboot of the instrument after it has completed.



Interruption of the power during the update process can make the instrument unusable!

3.3.2 Possibility 2: Update using a PC with USB cable connection to the instrument

Follow these steps to update the instrument firmware via USB cable:

1. Setup the R&S®RTA4004US Interface settings to USB MTP. 'SETUP\INTERFACE\USB\PARAMETER' or touch on interface symbol below the date and time in the upper right corner.
2. Connect your PC to the R&S®RTA4004US with a USB cable. The PC's USB host port (type A) connects to the USB device port (type B) on the rear of the oscilloscope.
3. The PC will show a popup message asking if you would like to connect to the oscilloscope.
4. Click on "Open device to view files".
5. Then the primary directories (internal storage, live data and upload) appear.
6. Drag & drop the new version of the firmware to the upload directory.
7. Select 'EXECUTE' on the R&S®RTA4004US to start the update process.
8. Wait until the update process has completed. This may take up to one minute. The instrument automatically reboots once the update process is finished.
9. If there is a newer version of the front controller firmware too, select "Execute" once again to update this firmware as well. The front controller firmware update only takes seconds and does not require a reboot of the instrument after it has completed.



Interruption of the power during the update process can make the instrument unusable!

4 Customer Support

Technical support – where and when you need it

For quick, expert help with any Rohde & Schwarz equipment, contact one of our Customer Support Centers. A team of highly qualified engineers provides telephone support and will work with you to find a solution to your query on any aspect of the operation, programming or applications of Rohde & Schwarz equipment.

Up-to-date information and upgrades

To keep your instrument up-to-date and to be informed about new application notes related to your instrument, please send an e-mail to the Customer Support Center stating your instrument and your wish. We will take care that you will get the right information.

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