R&S®RTA4000 Oscilloscope
Release Notes
Firmware Version 01.700

These Release Notes describe the following models and options:
R&S®RTA4004, 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®RTA4000 is abbreviated as R&S RTA4000.

PAD-T-M: 3574.3288.02/03.00/CI/1/EN

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Contents

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 V01.600:

Version	Function
V01.600	Configurable function 'Action on Trigger' added to the 'Trigger' menu.
V01.600	New Option RTA-K37: Spectrum Analysis and Spectrogram.
V01.600	Support of all modular probes with all measurement modes. R&S®RT-ZM15/-ZM30/-ZM60/-ZM90/-ZM130/-ZM160
V01.600	New measurement type 'Delay to Trigger'.
V01.600	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 with 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	Auto Scale added to channel short menu. Auto Scale can be accessed by touching the channel icon in the signal bar at the bottom of the screen and only affects the active channel. This is in contrast to the autoset function that always affects all channels that are switched on.

New Function of Firmware V01.000:

Version	Function
V01.000	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 V01.600:

Version	Function
V01.600	Additional configurations added to measurement type 'Delay'.
V01.600	Units As, A^2 and V^2 in math menu.
V01.600	Octal numbers marked as not editable in ARINC 429 trigger configuration window.
V01.600	External Trigger Input as trigger A/B source disabled.
V01.600	Selectable trigger hysteresis for External Trigger Input disabled.
V01.600	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	First start of roll mode: Trace fills the screen from left to right.
V01.100	FFT start frequency value limited to 0Hz and stop frequency limited to sample rate/2.
V01.100	Option RTA-K18: When Spectrum Mode is switched on, the time domain window disappears.
V01.100	Information on frequency limitation is now displayed in the Meter application window.
V01.100	When a channel is off the channel information in the signal bar at the bottom of the screen is reduced to a minimum.
V01.100	Close button added to zoom mode.
V01.100	With 2.5GSa sampling rate and 1GHz signal on channel input: Sin(x)/x interpolation improved.
V01.100	When an active probe is plugged in, the probe menu opens automatically.
V01.100	With active probes (such as RT-ZD40) ProbeMeter® displays all available measurement values in a window at the bottom of the screen. This can be configured in the probe menu.
V01.100	Probe menu for high voltage probe RT-ZHD extended with all probe settings.
V01.100	Front panel firmware updated to version 01.011: RTC battery management improved.
V01.100	Various improvements in GUI and user languages.

Modifications of Firmware V01.000:

Version	Function
V01.000	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 V01.600:

Version	Improvement
V01.600	Solved: Trigger level knob has no function after using zoom or QuickMeas in roll mode and turn back to normal time base mode.
V01.600	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.
V01.600	Solved: Sweep type 'Triangle' does not work correctly with RTA-B6.
V01.600	Solved: Wrong clipping math waveforms, depending on history of math and source setup.
V01.600	Solved: Sporadic incorrect data in math waveform.
V01.600	Solved: Wrong value in numeric input keypad after clear and new input that starts with '-'.
V01.600	Solved: Display of decode format bus 1 in ARINC 429 configuration window even when bus 2 to 4 is selected.
V01.600	Solved: No function of 'Find Threshold' button in ARINC 429 configuration window.
V01.600	Solved: A few instruments may irregularly show spikes in waveforms, depending on selected time base.
V01.600	Solved: In option RTA-K31 Switching Loss position cursors 3, 4 and 5 did not change measurement values.
V01.600	Solved: In rare cases, trigger jitter with positive trigger time and trigger point not in acquisition.
V01.600	Solved: Amplitude measurements with amplitude less than 7mV did not work.
V01.600	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	Solved: MTP function with Windows 10: Windows prevents copying files to the instrument with file extensions unknown to Windows.

Improvements of Firmware V01.000:

Version	Improvement
V01.000	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 V01.200:

since	Issue
V01.000	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
RTA4004.FWU	Firmware image for R&S®RTA4004

3.2 Updating the Firmware

3.2.1 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!

3.2.2 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®RTA4000 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®RTA4000 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®RTA4000 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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