

LabVIEW driver history for the R&S® Vector Network Analyzers Driver Documentation

Products:

| R&S®ZNA



| R&S®ZND



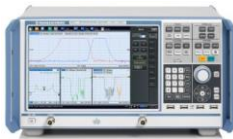
| R&S®ZNB



| R&S®ZNB1



| R&S®ZNC



Driver history for LabVIEW

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1 Supported Instruments

In the following table, the supported Rohde & Schwarz instruments and firmware versions are listed:

| Which instruments are supported? | | |
|---|--------------------|--|
| Current revision of instrument driver supports these instruments and firmware versions: | | |
| Instrument | Supported Firmware | Remarks |
| ZNA | 1.71 | 1 st Release, Compatibility support |
| ZNB | 2.56 | |
| ZNC | 2.54 | |
| ZND | 2.54 | |
| ZNBT | 2.56 | |

2 Installation of the LabVIEW driver

Before you start the installer, please close your LabVIEW application.

2.1 Installation on a Windows machine

The driver is distributed as a WinZip self-extracting executable file. Installer supported operation systems: WinXP, Win7, Win8, Win10.

Preconditions:

- LabVIEW 2010 or newer installed
- Any VISA installed – R&S VISA 5.5.4 or newer / NI VISA 5.4 or newer

When you start the driver WinZip installer, the following steps are being performed:

1. Unpacking of the driver's **instr.lib** and **user.lib** directories content as well as the **Installer.vi** into a temporary folder: **C:\temp\rsvna-iv-2.50.0**
The driver is compiled in LabVIEW 2010 32-bit. From there you can copy to another location or run the **Installer.vi** manually later. The content of the temporary folder is not deleted after the installation is finished. Starting the same installation again will overwrite the data in this temporary folder.
2. After unpacking, the **Installer.vi** is automatically started in the last opened version of LabVIEW.
In case you have more than one version of LabVIEW installed on your machine, make sure that the last opened LabVIEW version is the one in which you want to use the driver. If that is not the case, cancel the installation at this point, open and close your desired LabVIEW version and run the installer again. You can have the driver installed parallel for more LabVIEW versions by repeating the installation process for each desired version.
3. On the installer options page you have a choice to uncheck the **Mass-compiling** option (**not recommended, because of the driver's performance penalty as well as VIs opening times**) and you can change the location of the **instr.lib** part of the driver. **user.lib** part must be placed in the default location, otherwise the Express VI configuration will not function.
On this page, you also see the actual LabVIEW version.
Hitting **Next** button will first delete the old driver (if it existed), copy the new driver and mass-compile it.
4. The LabVIEW is closed and after starting it again, the driver is ready for use.

2.2 Installation on a non-Windows machine

In case you would like to install the driver on a non-Windows machine, use a Windows machine to start the driver's WinZip self-extracting executable file. **This machine does not need to have LabVIEW installed.**

After the **Step 1** from the previous chapter is finished, copy the content of the temporary folder to your target machine and start the **Installer.vi** manually. From that point onwards, the installation process is the same as described in the previous chapter Steps 2, 3, and 4.

3 LabVIEW driver history

| rsvna Instrument Driver | | |
|----------------------------|---------|---|
| Driver history for LabVIEW | | |
| Revision | Date | Note |
| 2.50.0 | 01/2019 | Added compatibility support for R&S ZNA Network Analyzer Modified: Added prefix '_' to all private VI names |
| 2.42.0 | 01/2018 | Modified: Changed "Block Data" array parameter to content of a "Touchstone File": Configure Virtual Network Balanced Data.vi Configure Virtual Network Differential Match Data.vi Configure Virtual Network Single Ended Data.vi Fixed conversion of data array to Single Float in: Write Calibration Data Port.vi Write Calibration Data.vi Write Memory Trace Data Extended.vi Write Switch Matrix Calibration Data Port.vi Write Switch Matrix Calibration Data.vi Fixed bug when sending SCPI commands with parameters in apostrophes e.g. in attribute RSVNA_ATTR_CHANNEL_NAME |
| 2.41.0 | 11/2017 | Modified: Initialize.vi, Initialize with Options.vi, Close.vi and Utility VIs have new VI icons changed all *.mnu palette file names from 'dir.mnu' to '.mnu' fixed data binary transfer in _Write Trace Data.vi for non-VX-11 interfaces. added rsvna_queryDataUnknownLengthString_ReadCallback: RSVNA_ATTR_FILE_RECALL_SET_CATALOG RSVNA_ATTR_TRACE_CHANNEL_CATALOG RSVNA_ATTR_TRACE_CHANNEL_CATALOG_BALANCED_PORTS RSVNA_ATTR_TRACE_CATALOG RSVNA_ATTR_TRACE_NAME_CATALOG RSVNA_ATTR_TRACE_RESPONSE_S_DATA_CATALOG RSVNA_ATTR_CALIBRATION_CONNECTOR_TYPE_CATALOG RSVNA_ATTR_CHANNEL_CATALOG RSVNA_ATTR_DISPLAY_DIAGRAM_AREA_CATALOG RSVNA_ATTR_DISPLAY_TRACE_DIAGRAM_AREA_CATALOG |
| 2.40.0 | 04/2017 | Exchanged Driver Core 6.7.0 that supports Simulation mode and Logging Changed Icons strip and Palette Icons Cleaned up all the Front Panels and Block Diagrams Fixed Option checking bug Analyzer port number extended from 8 to 24 New VIs: |

| rsvna Instrument Driver | | |
|----------------------------|---------|--|
| Driver history for LabVIEW | | |
| Revision | Date | Note |
| | | Trace Export Data Ports Variable.vi Write Command with OPC sync.vi Query with OPC sync.vi Breaking changes: Configure Calibration Standard.vi - deleted, replacement is Configure Calibration Standard Extended.vi |
| 2.30.1 | 12/2016 | Increased port count from 8 to 24 |
| 2.30.0 | 11/2016 | New instrument driver core with full Simulation support and no dynamically called VIs. Added more rigorous check for Repeated Capabilities New VIs: Clear Status.vi ID Query Response.vi Process All Previous Commands.vi Query OPC.vi Set Fast Sweep Mode.vi Breaking changes: Add Calibration Kit Auto.vi - added Timeout to API Calibration Auto Simplified.vi - added Timeout to API Calibration Auto Type Simplified.vi - added Timeout to API Calibration Auto Type.vi - added Timeout to API Calibration Auto.vi - added Timeout to API Configure Calibration Kit Auto.vi - added Timeout to API Modified VIs: Select Ratios.vi - SCPI command parameters corrected for Ratios 2 (b2/a2 Src Port 2) and 3 (b1/a2 Src Port 2) Recall Set Manager.vi - when loading Recall Set, dynamic repeated capabilities are synchronized with instrument's state |
| 2.22.0 | 09/2016 | New driver automatic installer All VISA resource name inputs are mandatory Improved error handling Changed allowed number of ports from 4 to 24 Changed Path Controls in Read To File From Instrument.vi and Write From File To Instrument.vi from Path to String |
| 2.21.0 | 10/2015 | New VIs: Select Power Sensor Measurement.vi Configure Frequency Min Max.vi Configure Display Update.vi Display Update Once.vi Write Instrument Data.vi Configure Marker State.vi Modified VIs: |

| rsvna Instrument Driver | | |
|----------------------------|---------|--|
| Driver history for LabVIEW | | |
| Revision | Date | Note |
| | | Select Ratios.vi - SCPI command parameter array corrected Line 3 (MM) Standard SCPI command parameter (value 9) corrected in these VI: Query Calibration Unit Characterization Data.vi Configure Calibration Standard.vi Configure Calibration Standard Ext.vi Load Calibration Kit.vi Configure Calibration Standard With Label.vi Load Calibration Kit With Label.vi Read Calibration Kit With Label S-Parameter Data.vi |
| 2.20.2 | 01/2015 | New: Express VI 3.0.1 with the support for QuickDrop SCPI command searcher Modified VIs: Activate Power Calibrations.vi - added Channel control to front panel Connector Types Catalog.vi - removed repeated capability from attribute Configure Source Power Calibration Slope.vi - fixed wrong attribute used Print.vi - bug fixed Configure User Defined Preset Calibration.vi - bug fixed |
| 2.20.1 | 12/2014 | Added support for ZND instrument Attribute Express VI version 2.50 |
| 2.20.0 | 07.2014 | Support for firmware version 2.20 Attribute Express VI version 1.10 New VIs: Configure Logical Port Reference Impedance Default.vi Delete Memory Trace All.vi Delete Memory Trace All Channel.vi Configure Calibration Standard Extended.vi Configure Calibration Delay Mode.vi Load Calibration Kit With Label.vi Read Calibration Kit With Label S-Parameter Data.vi Configure RFFE Settings.vi Configure RFFE Command.vi Configure GPIO.vi Query Sweep Sequencer Count.vi Delete All Sweep Sequencer Items.vi Configure Sweep Sequencer RFFE Command .vi Configure Sweep Sequencer GPIO Voltage.vi Configure Sweep Sequencer Delay Time.vi Define Parallel Measurement Port Group.vi Configure Parallel Measurement Port Group Name.vi |

| rsvna Instrument Driver | | |
|----------------------------|---------|---|
| Driver history for LabVIEW | | |
| Revision | Date | Note |
| | | Configure Parallel Measurement Number Of Ports.vi Configure Parallel Measurement DUT Port .vi Configure Offset Compensation.vi Define Virtual Network Port Set.vi Import Fixture Compensation.vi Export Fixture Compensation.vi Configure Remote Encoding.vi Query Program Return Value.vi Modified VIs: Removed range checking of attribute RSVNA_ATTR_STIMULUS_INTERNAL_SOURCE_POWER Trace Export Data Ports.vi - changed API Configure Calibration Standard With Label.vi Configure Virtual NetworkSingleEndedPort.vi Configure Virtual Network Single Ended Circuit Model.vi Configure Virtual Network Balanced Port.vi Configure Virtual Network Balanced Circuit Model.vi Configure Virtual Network Port Pair.vi Configure Virtual Network Port Pair Circuit Model.vi Configure Virtual Network Ground Loop.vi Configure Virtual Network Ground Loop Circuit Model.vi |
| 1.93.0 | 10/2013 | Support for firmware version 1.93 New VIs: Trace Import Data Auto Distribute.vi Query Calibration Data Parameters Specific.vi Query Calibration Data Parameters Port Specific.vi Query Source Power Calibration Data Parameters Switching Matrix.vi Define Virtual Network Port Pair.vi Delete Virtual Network Port Pair.vi Configure Virtual Network Port Pair State.vi Configure Virtual Network Port Pair.vi Configure Virtual Network Port Pair Circuit Model.vi Load Port Pair Circuit Model Data.vi Configure Virtual Network Ground Loop State.vi Configure Virtual Network Ground Loop.vi Configure Virtual Network Ground Loop Circuit Model.vi Load Ground Loop Circuit Model Data.vi Configure Virtual Network Differential Match State.vi Configure Virtual Network Differential Match.vi Configure Virtual Network Differential Match Data.vi Configure Virtual Network Differential Match Circuit Model.vi |

| rsvna Instrument Driver | | |
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| Driver history for LabVIEW | | |
| Revision | Date | Note |
| | | Load Differential Match Circuit Model Data.vi Configure Remote Preset.vi Modified VIs: Query Source Power Calibration Data Parameters.vi |
| 1.90.0 | 08/2013 | Support for firmware version 1.90 New VIs: Select Balanced Ports S-Parameters.vi Trace List Balanced Ports.vi Select Calibration Type Extended.vi Load Calibration Kit By Gender From File.vi Load Calibration Kit By Gender From Pool.vi Query Calibration Kit Data.vi Query Calibration Kit Info.vi Configure Virtual Network Balanced Data.vi Configure Virtual Network Single Ended Data.vi Query Switch Matrix Relay Count.vi Configure User Defined Physical Port.vi Delete User Defined Physical Ports.vi RSVNA_ATTR_INIT_WAIT_STATE RSVNA_ATTR_LOGICAL_PORT_ALIGNMENT Modified VIs: Select Calibration Type.vi Configure Virtual Network Single Ended Port.vi Configure Sweep Number Of Points.vi - range fixed |
| 1.80.0 | 03/2013 | Support for firmware version 1.80 New VIs: Add Calibration Kit Auto.vi Generate Default Calibration Auto Assignment With Detection.vi Configure Marker Target Format.vi Configure User Defined Preset Calibration.vi Query All Calibration Auto Assignment Count.vi Save AGC Learning Results.vi Start AGC Learning Sweep.vi Configure Calibration Auto Averaging.vi Modified VIs: Generate Default Calibration Auto Assignment.vi RSVNA_ATTR_CALIBRATION_CONNECTOR - bug fixed (affected VI Configure Connector.vi) Configure Virtual Network Single Ended Port.vi Configure Virtual Network Single Ended Circuit Model.vi Create Trace S-Parameters Group.vi |

| rsvna Instrument Driver | | |
|----------------------------|---------|--|
| Driver history for LabVIEW | | |
| Revision | Date | Note |
| 1.70.0 | 12/2012 | <p>Support for firmware version 1.70</p> <p>Switch Matrix Support</p> <p>Calibration Auto Assignment support</p> <p>Logical Ports</p> <p>Port Groups</p> <p>New VIs:</p> <p>Create Trace S-Parameters Group.vi</p> <p>Configure Time Gate Offset Activation.vi</p> <p>Clear Limit Check Results.vi</p> <p>Clear Ripple Limit Global Check Result.vi</p> <p>Clear Circle Limit Check Result.vi</p> <p>Query Sweep Segment Number.vi</p> <p>Query Calibration Ports State.vi</p> <p>Configure Port Connector Types.vi</p> <p>Query Calibration Data Parameters Count.vi</p> <p>Configure External Power S Parameter Correction.vi</p> <p>Configure Calibration Kit Auto.vi</p> <p>Query Source Power Calibration Data Parameters.vi</p> <p>Query Source Power Calibration Data Parameters Count.vi</p> <p>Configure Receiver Power Attenuation.vi</p> <p>Configure Receiver Frequency Conversion.vi</p> <p>Configure Mixer Input Signal.vi</p> <p>Configure Calibration Manager State.vi</p> <p>Configure UI Data Flow Direction.vi</p> <p>Configure UI Output Ports State.vi</p> <p>Configure UI Digital Signal.vi</p> <p>Modified VIs:</p> <p>Define Balanced Port.vi - calls into new VI Define Logical Port.vi</p> <p>Delete Balanced Port.vi - calls into new VI Delete Logical Port.vi</p> <p>Delete All Balanced Ports.vi - calls into new VI Delete All Logical Ports.vi</p> <p>Select Calibration Type.vi - added new calibration types</p> <p>Configure Mixer Power.vi</p> |
| 1.61.0 | 05/2012 | <p>Support for ZNB, ZNC firmware version 1.61</p> <p>New VIs:</p> <p>Show Circle Limits.vi</p> <p>Configure Circle Limit Check.vi</p> <p>Configure Circle Limit Line.vi</p> <p>Query Circle Limit Check Result.vi</p> <p>Configure Zoom Overview.vi</p> |

| rsvna Instrument Driver | | |
|----------------------------|---------|---|
| Driver history for LabVIEW | | |
| Revision | Date | Note |
| | | Configure Layout Simplified.vi Configure Layout.vi Join Layouts.vi Configure Calibration Standard With Labels.vi Configure Calibration Kit With Label.vi Configure Calibration Kit User Connector Type With Label.vi Calibration Kit Catalog With Label.vi Calibration Standards Catalog With Label.vi Configure Calibration Kit Label With Label.vi Delete Calibration Kit With Label.vi Export Kit With Label.vi Query Available Calibration Data Catalog.vi Query Available Calibration Data Catalog Port.vi Configure Sweep Meas Delay Insertion Point.vi Configure Intermodulation Cal Source Port.vi Temporary Disable Option.vi New Attributes Only: RSVNA_ATTR_CIRCLE_FAIL_BEEP RSVNA_ATTR_DISPLAY_TRACE_INFO_STATE RSVNA_ATTR_ADJUST_TIME_GATE Modified VIs: Configure AGC.vi Configure AGC Segment.vi |
| 1.50.0 | 04/2012 | Support for ZNB, ZNC firmware version 1.50 Support for firmware version 1.50 New subsystems: Mixer (option K4) Intermodulation Measurements (option K14) Fixture Compensation ENA support (AUX Trigger and Universal Interface) Automatic Gain Control Modified VIs: Start Calibration.vi - added Power Meter Configure Marker Bandfilter Search Mode.vi - added None search mode New VIs: Query Frequency Range.vi Configure Average Mode.vi Activate Power Calibrations.vi System Version.vi |

| rsvna Instrument Driver | | |
|----------------------------|---------|---|
| Driver history for LabVIEW | | |
| Revision | Date | Note |
| | | set Check Status.vi Configure Split Type.vi Configure Split Grid.vi |
| 1.40.0 | 01/2012 | Support for ZNB, ZNC firmware version 1.40 Modifications: New subsystems: Power Added Efficiency Source Power Calibration Receiver Power Calibration Power Meter Transmission Coefficients Port Config External Devices Modified functions Configure DC Range.vi - parameters changed Configure Acquisition.vi - attributeATTR_SWEEP_MODE_CONTINUOUS_ALL_CHANNEL added Select Calibration Type.vi - bug fixed Calibration Auto Type.vi - Parameters - Full N-port for SMARTerCal added Calibration Auto Type Simplified.vi - Parameters - Full N-port for SMARTerCal added Query Calibration Connection.vi - Channel ignored Configure Connector.vi - BNC added Save Calibration Kit.vi - repaired, delete changed to save New functions: Trace Delete All.vi Trace Delete All Channels.vi Trace Response Data All S-Data.vi Trace Response S-Data Catalog.vi Trace Response Single Sweep Data First Last.vi Configure Power Start Stop.vi Configure Sweep Stimulus Axis.vi Configure Sweep Segment X-Axis.vi Calibration Auto Power.vi Configure Calibration External Power Meter.vi Query Calibration Unit Characterizations Standards.vi Read Calibration Data Port.vi Write Calibration Data Port.vi Query Calibration Stimulus Frequencies Port.vi Query Calibration Data Parameters Port.vi Configure Calibration Kit Password.vi Save Calibration Kit.vi Configure Touchscreen Lock.vi |

| rsvna Instrument Driver | | |
|----------------------------|---------|--|
| Driver history for LabVIEW | | |
| Revision | Date | Note |
| | | Configure User Key Function.vi New Attribute only: RSVNA_ATTR_LOAD_MATCH_CORRECTION_STATE RSVNA_ATTR_CALIBRATION_ALL_CHANNELS_STATE RSVNA_ATTR_DISPLAY_TRACE_COLOR_FOR_LIMIT_LINES RSVNA_ATTR_DISPLAY_COLORIZE_FAILED_SEGMENTS RSVNA_ATTR_DISPLAY_SHOW_FAILED_SYMBOLS RSVNA_ATTR_CALIBRATION_AUTOMATIC_POWER_REDUCTION RSVNA_ATTR_STATISTICAL_COMPRESSION_POINT_RESULT_STATE RSVNA_ATTR_DISPLAY_FREQUENCY_INFO_STATE RSVNA_ATTR_DISPLAY_CHANNEL_INFO_STATE RSVNA_ATTR_DISPLAY_ALL_MARKERS_SAME_COLOR RSVNA_ATTR_DISPLAY_TRACE_COLORS_PER_DIAGRAM RSVNA_ATTR_DISPLAY_FONT_SIZE RSVNA_ATTR_NUMBER_OF_TEST_PORTS RSVNA_ATTR_SOURCE_POWER_CALIBRATION_OTHER_SOURCES RSVNA_ATTR_CALIBRATION_AUTOMATIC_MEMORY_STATE RSVNA_ATTR_DISPLAY_HARDKEY_PANEL_STATE RSVNA_ATTR_DISPLAY_MENU_BAR_STATE RSVNA_ATTR_DISPLAY_STATUS_BAR_STATE RSVNA_ATTR_DISPLAY_SOFTTOOL_PANEL_STATE RSVNA_ATTR_DISPLAY_TITLE_BAR_STATE RSVNA_ATTR_DISPLAY_TOOLBAR_STATE RSVNA_ATTR_REPEAT_PREVIOUS_CALIBRATION_CURRENT |
| 1.20.0 | 07/2011 | Support for ZNB, ZNC firmware version 1.20 |
| 1.0.0 | 06/2011 | Initial release |

About Rohde & Schwarz

Rohde & Schwarz is an independent group of companies specializing in electronics. It is a leading supplier of solutions in the fields of test and measurement, broadcasting, radiomonitoring and radiolocation, as well as secure communications. Established more than 80 years ago, Rohde & Schwarz has a global presence and a dedicated service network in over 70 countries. Company headquarters are in Munich, Germany.

Environmental commitment

- Energy-efficient products
- Continuous improvement in environmental sustainability
- ISO 14001-certified environmental management system



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