

IVI.NET driver history for the R&S® RTB2000 / RTM3000 / RTA4000 Digital Oscilloscopes Driver Documentation

Products:

| R&S® RTB2000 / RTM3000 / RTA4000



Driver history for IVI.NET - C# and Visual Basic .NET

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1 Supported Instruments

In the following table, the supported R&S 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
RTB2000	2.000	
RTM2000	6.010	
RTM3000	1.100	First Release
RTA4000	1.100	First Release

2 Getting Started

For detailed description on how to use the driver please refer to the Application Note [1MA268 - How to use Rohde & Schwarz IVI.NET instrument drivers](#)

3 IVI.NET driver history

IVI.NET RsRtx Instrument Driver		
Driver history		
Revision	Date	Note
1.2.0	01/2018	- Added support for RTM3000 and RTA4000 instruments
1.1.0	10/2017	<ul style="list-style-type: none"> * First official release * Deleted properties/methods: <ul style="list-style-type: none"> - RsRtx.Acquisition.FilterFrequency - RsRtx.Acquisition.WaveformRate - RsRtx.Trigger.Edge.FilterLow - RsRtx.WaveformAcquisition.EnvelopeWaveform.DataPoints - RsRtx.Cursors.InverseDistanceHorizontal - RsRtx.Measurements.Main.ResultTriggerFrequency - RsRtx.Measurements.Main.ResultTriggerPeriod - RsRtx.Measurements.Main.ResultBTriggerFrequency - RsRtx.Measurements.Main.ResultBTriggerPeriod - RsRtx.Display.Persistence.TimeAuto - RsRtx.HardcopyandPrinter.IncludeMenuInScreenshot - RsRtx.UtilityFunctions.IDQueryResponse * New properties/methods: <ul style="list-style-type: none"> - RsRtx.Acquisition.RecordLengthAutomatic - RsRtx.Acquisition.RecordLength - RsRtx.Acquisition.AcquireMode - RsRtx.Acquisition.PeakDetect - RsRtx.Acquisition.HighResolution - RsRtx.Acquisition.NumberOfAveragesReset - RsRtx.Acquisition.WaveformRateMaximum - RsRtx.Probe.CMOffset - RsRtx.DigitalChannel.ProbeEnabled - RsRtx.DigitalChannel.PointSelection - RsRtx.Logic.LogicState - RsRtx.Logic.Type - RsRtx.Logic.Threshold - RsRtx.Logic.ThresholdUserLevel - RsRtx.Logic.Hysteresis - RsRtx.Logic.Arithmetics - RsRtx.Logic.CurrentMaximum - RsRtx.Logic.CurrentMinimum - RsRtx.Trigger.Edge.FilterHFReject - RsRtx.Trigger.Window.WindowRange - RsRtx.Trigger.Window.WindowWidth

IVI.NET RsRtx Instrument Driver		
Driver history		
Revision	Date	Note
		<ul style="list-style-type: none"> - RsRtx.Trigger.Window.WindowTimeRange - RsRtx.Trigger.Runt.Width - RsRtx.Trigger.Runt.Delta - RsRtx.Trigger.Runt.Range - RsRtx.Trigger.Timeout.Time - RsRtx.Trigger.Timeout.Range - RsRtx.Trigger.SPI.Source - RsRtx.Trigger.UART.Source - RsRtx.Trigger.MILSTD.Mode - RsRtx.Trigger.MILSTD.Frame - RsRtx.WaveformAcquisition.AcquisitionState - RsRtx.WaveformAcquisition.WaveformExport.ExportName - RsRtx.WaveformAcquisition.WaveformExport.Source - RsRtx.WaveformAcquisition.WaveformExport.Save - RsRtx.WaveformAcquisition.SimpleMathWaveform.ReadWaveform() - RsRtx.WaveformAcquisition.SimpleMathWaveform.FetchWaveform() - RsRtx.WaveformAcquisition.SimpleMathWaveform.FetchWaveformHeader() - RsRtx.WaveformAcquisition.SimpleMathWaveformConversion.XStart - RsRtx.WaveformAcquisition.SimpleMathWaveformConversion.XIncrement - RsRtx.WaveformAcquisition.SimpleMathWaveformConversion.YStart - RsRtx.WaveformAcquisition.SimpleMathWaveformConversion.YIncrement - RsRtx.WaveformAcquisition.SimpleMathWaveformConversion.YResolution - RsRtx.WaveformAcquisition.LogicData.Read() - RsRtx.WaveformAcquisition.LogicData.Fetch() - RsRtx.WaveformAcquisition.LogicData.Header() - RsRtx.WaveformAcquisition.LogicDataConversion.XStart - RsRtx.WaveformAcquisition.LogicDataConversion.XIncrement - RsRtx.WaveformAcquisition.LogicDataConversion.YStart - RsRtx.WaveformAcquisition.LogicDataConversion.YIncrement - RsRtx.WaveformAcquisition.LogicDataConversion.YResolution - RsRtx.WaveformAcquisition.DigitalData.Read() - RsRtx.WaveformAcquisition.DigitalData.Fetch() - RsRtx.WaveformAcquisition.DigitalData.Header() - RsRtx.WaveformAcquisition.DigitalDataConversion.XStart - RsRtx.WaveformAcquisition.DigitalDataConversion.XIncrement - RsRtx.WaveformAcquisition.DigitalDataConversion.YStart - RsRtx.WaveformAcquisition.DigitalDataConversion.YIncrement - RsRtx.WaveformAcquisition.DigitalDataConversion.YResolution - RsRtx.Cursors.CursorLine.NextPeak - RsRtx.Cursors.CursorLine.PreviousPeak - RsRtx.Measurements.General.QuickMeasurementState

IVI.NET RsRtx Instrument Driver		
Driver history		
Revision	Date	Note
		<ul style="list-style-type: none"> - RsRtx.SimpleMathematics.SimpleMathWaveformEnabled - RsRtx.SimpleMathematics.Position - RsRtx.SimpleMathematics.VerticalScale - RsRtx.SimpleMathematics.Operation - RsRtx.SimpleMathematics.Source.Source - RsRtx.Mask.ScreenshotDestination - RsRtx.Mask.SavesWaveformDestination - RsRtx.Mask.ActionAUXOutputEnabled - RsRtx.Search.WindowLevelLower - RsRtx.Search.WindowLevelUpper - RsRtx.Search.WindowDelta - RsRtx.Search.WindowPolarity - RsRtx.Search.WindowRange - RsRtx.Search.WindowTimeRange - RsRtx.Search.WindowWidth - RsRtx.Search.Export.ExportName - RsRtx.Search.Export.Save - RsRtx.Protocols.SPI.CSPolarity - RsRtx.Protocols.UART.FrameCount - RsRtx.Protocols.UART.WordCount - RsRtx.Protocols.UART.WordValue - RsRtx.Protocols.UART.WordStart - RsRtx.Protocols.UART.WordEnd - RsRtx.Protocols.UART.WordEnabled - RsRtx.Protocols.UART.WordSource - RsRtx.Protocols.MILSTD.InterMessageGapTimeInfinite - RsRtx.Protocols.MILSTD.InterMessageGapTimeMinimum - RsRtx.Protocols.MILSTD.InterMessageGapTimeMaximum - RsRtx.Protocols.MILSTD.ResponseTimeInfinite - RsRtx.Protocols.MILSTD.ResponseTimeMinimum - RsRtx.Protocols.MILSTD.ResponseTimeMaximum - RsRtx.PowerAnalysis.Autoset - RsRtx.PowerAnalysis.AutosetCurrent - RsRtx.PowerAnalysis.AutosetVoltage - RsRtx.PowerAnalysis.ConsumptionMeasurement.Results.ApparentPower - RsRtx.PowerAnalysis.ConsumptionMeasurement.Results.PowerFactor - RsRtx.PowerAnalysis.ConsumptionMeasurement.Results.Phase - RsRtx.PowerAnalysis.ConsumptionMeasurement.Results.ReactivePower - RsRtx.PowerAnalysis.CurrentHarmonicsMeasurement.MeasurementDuration - RsRtx.PowerAnalysis.CurrentHarmonicsMeasurement.RealPowerResults.Current - RsRtx.PowerAnalysis.SafeOperatingArea.Point.LinearCurrent

IVI.NET RsRtx Instrument Driver		
Driver history		
Revision	Date	Note
		<ul style="list-style-type: none"> - RsRtx.PowerAnalysis.SafeOperatingArea.Point.LogarithmicCurrent - RsRtx.PowerAnalysis.SafeOperatingArea.Results.Acquisition.Point.VoltageData.Read() - RsRtx.PowerAnalysis.SafeOperatingArea.Results.Acquisition.Point.VoltageData.Fetch() - RsRtx.PowerAnalysis.SafeOperatingArea.Results.Acquisition.Point.VoltageData.Header() - RsRtx.PowerAnalysis.SafeOperatingArea.Results.Acquisition.Point.VoltageDataConversion.XStart - RsRtx.PowerAnalysis.SafeOperatingArea.Results.Acquisition.Point.VoltageDataConversion.XIncrement - RsRtx.PowerAnalysis.SafeOperatingArea.Results.Acquisition.Point.VoltageDataConversion.YStart - RsRtx.PowerAnalysis.SafeOperatingArea.Results.Acquisition.Point.VoltageDataConversion.YIncrement - RsRtx.PowerAnalysis.SafeOperatingArea.Results.Acquisition.Point.VoltageDataConversion.YResolution - RsRtx.PowerAnalysis.SafeOperatingArea.Results.Acquisition.Point.CurrentData.Read() - RsRtx.PowerAnalysis.SafeOperatingArea.Results.Acquisition.Point.CurrentData.Fetch() - RsRtx.PowerAnalysis.SafeOperatingArea.Results.Acquisition.Point.CurrentData.Header() - RsRtx.PowerAnalysis.SafeOperatingArea.Results.Acquisition.Point.CurrentDataConversion.XStart - RsRtx.PowerAnalysis.SafeOperatingArea.Results.Acquisition.Point.CurrentDataConversion.XIncrement - RsRtx.PowerAnalysis.SafeOperatingArea.Results.Acquisition.Point.CurrentDataConversion.YStart - RsRtx.PowerAnalysis.SafeOperatingArea.Results.Acquisition.Point.CurrentDataConversion.YIncrement - RsRtx.PowerAnalysis.SafeOperatingArea.Results.Acquisition.Point.CurrentDataConversion.YResolution - RsRtx.SpectrumAnalysis.Mode - RsRtx.SpectrumAnalysis.Marker.SetupCenterScreen - RsRtx.SpectrumAnalysis.Marker.SetupRangeToPeak - RsRtx.SpectrumAnalysis.Marker.Results.ReferenceResults() - RsRtx.SpectrumAnalysis.Marker.Results.Results() - RsRtx.SpectrumAnalysis.Marker.Results.DeltaResults() - RsRtx.SpectrumAnalysis.Marker.Results.AllResults() - RsRtx.SpectrumAnalysis.Marker.Results.AllDeltaResults() - RsRtx.Generator.WaveformGenerator.FunctionGenerator.Type - RsRtx.Generator.WaveformGenerator.FunctionGenerator.Frequency - RsRtx.Generator.WaveformGenerator.FunctionGenerator.PulseDutyCycle - RsRtx.Generator.WaveformGenerator.FunctionGenerator.PulseEdgeTime - RsRtx.Generator.WaveformGenerator.FunctionGenerator.RampPolarity - RsRtx.Generator.WaveformGenerator.FunctionGenerator.ExponentialPolarity - RsRtx.Generator.WaveformGenerator.Modulation.Enabled - RsRtx.Generator.WaveformGenerator.Modulation.Type - RsRtx.Generator.WaveformGenerator.Modulation.FunctionType - RsRtx.Generator.WaveformGenerator.Modulation.RampPolarity - RsRtx.Generator.WaveformGenerator.Modulation.AM.Frequency - RsRtx.Generator.WaveformGenerator.Modulation.AM.Depth

IVI.NET RsRtx Instrument Driver		
Driver history		
Revision	Date	Note
		<ul style="list-style-type: none"> - RsRtx.Generator.WaveformGenerator.Modulation.FM.Frequency - RsRtx.Generator.WaveformGenerator.Modulation.FM.FrequencyDeviation - RsRtx.Generator.WaveformGenerator.Modulation.ASK.Frequency - RsRtx.Generator.WaveformGenerator.Modulation.ASK.Depth - RsRtx.Generator.WaveformGenerator.Modulation.FSK.HoppingFrequency - RsRtx.Generator.WaveformGenerator.Modulation.FSK.Rate - RsRtx.Generator.WaveformGenerator.Sweep.Enabled - RsRtx.Generator.WaveformGenerator.Sweep.Type - RsRtx.Generator.WaveformGenerator.Sweep.StartFrequency - RsRtx.Generator.WaveformGenerator.Sweep.StopFrequency - RsRtx.Generator.WaveformGenerator.Sweep.Time - RsRtx.Generator.WaveformGenerator.Arbitrary.FileName - RsRtx.Generator.WaveformGenerator.Arbitrary.OpenFile - RsRtx.Generator.WaveformGenerator.Arbitrary.Source - RsRtx.Generator.WaveformGenerator.Arbitrary.Update - RsRtx.Generator.WaveformGenerator.Output.Enabled - RsRtx.Generator.WaveformGenerator.Output.Amplitude - RsRtx.Generator.WaveformGenerator.Output.Offset - RsRtx.Generator.WaveformGenerator.Output.UserLoad - RsRtx.Generator.WaveformGenerator.Output.Destination - RsRtx.Generator.WaveformGenerator.Noise.LevelPercent - RsRtx.Generator.WaveformGenerator.Noise.AbsoluteLevel - RsRtx.Generator.PatternGenerator.Enabled - RsRtx.Generator.PatternGenerator.FunctionType - RsRtx.Generator.PatternGenerator.Frequency - RsRtx.Generator.PatternGenerator.Period - RsRtx.Generator.PatternGenerator.Polarity - RsRtx.Generator.PatternGenerator.DutyCycle - RsRtx.Generator.PatternGenerator.SampleTime - RsRtx.Generator.PatternGenerator.CounterDirection - RsRtx.Generator.PatternGenerator.CounterFrequency - RsRtx.Generator.PatternGenerator.BurstEnabled - RsRtx.Generator.PatternGenerator.BurstCycles - RsRtx.Generator.PatternGenerator.IdleTime - RsRtx.Generator.PatternGenerator.TriggerMode - RsRtx.Generator.PatternGenerator.TriggerRunSingle - RsRtx.Generator.PatternGenerator.ARB.PatternLength - RsRtx.Generator.PatternGenerator.ARB.Index - RsRtx.Generator.PatternGenerator.ARB.DataSet() - RsRtx.Generator.PatternGenerator.ARB.DataAppend() - RsRtx.Generator.PatternGenerator.ARB.DataAppendAND()

IVI.NET RsRtx Instrument Driver		
Driver history		
Revision	Date	Note
		<ul style="list-style-type: none"> - RsRtx.Generator.PatternGenerator.ARB.DataAppendOR() - RsRtx.Generator.PatternGenerator.Manual.State - RsRtx.Display.DiagramAnnotationEnabled - RsRtx.Display.DiagramAnnotationTrack - RsRtx.Display.ClearScreen - RsRtx.Display.Persistence.PersistenceType - RsRtx.Display.History.Channel.TableMode - RsRtx.Display.History.Channel.ExportName - RsRtx.Display.History.Channel.ExportSave - RsRtx.Display.History.Digital.ExportName - RsRtx.Display.History.Digital.ExportSave - RsRtx.Display.History.Math.ExportName - RsRtx.Display.History.Math.ExportSave - RsRtx.Display.History.Protocol.ExportName - RsRtx.Display.History.Protocol.ExportSave - RsRtx.Display.History.Logic.CurrentAcquisition - RsRtx.Display.History.Logic.Player - RsRtx.Display.History.Logic.StartAcquisition - RsRtx.Display.History.Logic.StopAcquisition - RsRtx.Display.History.Logic.PlayAll - RsRtx.Display.History.Logic.Speed - RsRtx.Display.History.Logic.Repeat - RsRtx.Display.History.Logic.AcquisitionRelativeTime - RsRtx.Display.History.Logic.AllDates - RsRtx.Display.History.Logic.AllTimeDifferences - RsRtx.Display.History.Logic.AllDaytimes - RsRtx.Display.History.Logic.ExportName - RsRtx.Display.History.Logic.ExportSave - RsRtx.Display.History.Logic.AbsoluteTime() - RsRtx.Display.History.Logic.AcquisitionDate() - RsRtx.Display.Segmentation.RecordMaximumSegments - RsRtx.DataManagement.CopyFile() - RsRtx.DataManagement.MoveFile() - RsRtx.DataManagement.FileCount() - RsRtx.DataManagement.FileDirectoryContent() - RsRtx.DataManagement.FileSubdirectoriesCount() - RsRtx.DataManagement.FileSubdirectories() - RsRtx.DataManagement.SaveInstrumentSettings() - RsRtx.DataManagement.RecallInstrumentsSettings() - RsRtx.HardcopyandPrinter.OutputFormat - RsRtx.HardcopyandPrinter.Data()

IVI.NET RsRtx Instrument Driver		
Driver history		
Revision	Date	Note
		<ul style="list-style-type: none"> - RsRtx.HardcopyandPrinter.PageSizeX - RsRtx.HardcopyandPrinter.PageSizeY - RsRtx.System.DeviceMode - RsRtx.System.InterfaceSelect - RsRtx.System.USBClass - RsRtx.System.EthernetDHCP - RsRtx.System.EthernetIPPort - RsRtx.System.EthernetVXI11Port - RsRtx.System.EthernetTransfer - RsRtx.System.EthernetMACAddress - RsRtx.System.EthernetIPAddress() - RsRtx.System.EthernetIPSubnetMask() - RsRtx.System.EthernetIPGateway() - RsRtx.System.PresetEducation - RsRtx.System.DeviceFootprint <p>* Modified properties/methods:</p> <ul style="list-style-type: none"> - RsRtx.Acquisition.Divisions - Data type changed. - RsRtx.Acquisition.HorizontalReference - Range - RsRtx.Channel.Coupling - Default changed. - RsRtx.DigitalChannel.Hysteresis - Changed range values. - RsRtx.DigitalChannel.VerticalChannelSize - Changed from enum to real. - RsRtx.Trigger.Channel.LevelB - Range table removed. - RsRtx.Trigger.Edge.Coupling - Command string changed - RsRtx.Trigger.AudioSignals.RightMinimum - Range table removed. - RsRtx.Trigger.AudioSignals.RightMaximum - Range table removed. - RsRtx.Trigger.AudioSignals.LeftMinimum - Range table removed. - RsRtx.Trigger.AudioSignals.LeftMaximum - Range table removed. - RsRtx.Trigger.AudioSignals.TrackChannel.Minimum - Range table removed. - RsRtx.Trigger.AudioSignals.TrackChannel.Maximum - Range table removed. - RsRtx.Cursors.Type - HorizontalVertical - RsRtx.Cursors.Source - QMA - RsRtx.Measurements.ConfigureMeasurementSource() - QMA - RsRtx.Mask.Scaling.VerticalOffset - removed range - RsRtx.Mask.Scaling.VerticalScaling - removed range - RsRtx.Mask.Scaling.VerticalWidth - Removed range - RsRtx.Mask.Scaling.HorizontalWidth - removed range. - RsRtx.Search.SearchResult() - Data type for Polarity and Result Type was changed. - RsRtx.Search.SearchResultAll() - Data type for Polarity and Result Type was changed. - RsRtx.Protocols.Display.Vertical - Default, range changed. - RsRtx.HardcopyandPrinter.ColorScheme - Short command modified.

IVI.NET RsRtx Instrument Driver		
Driver history		
Revision	Date	Note
		<p>* Deleted Repeated Capabilities:</p> <p>* Modified Repeated Capabilities:</p> <ul style="list-style-type: none"> - Counter - Identifiers ("Counter0,Counter1,Counter2", "Counter1,Counter2") - Counter - Command Values ("1,2", "1,2") <p>* Modified Range Tables:</p> <ul style="list-style-type: none"> - rsrtx_rngHorzReference - RSRTX_ATTR_HORZ_REFERENCE Range changed to <8.33;91.67> - rsrtx_rngLineNumber - RSRTX_ATTR_TV_TRIGGER_LINE_NUMBER Range changed to <1;1125> - CursorFunction - RSRTX_ATTR_CURSOR_MEASUREMENT_TYPE New items: HorizontalVertical - WfmParameter - RSRTX_ATTR_WAVEFORM_EXPORT_SOURCE, RSRTX_ATTR_CURSOR_SOURCE, RSRTX_ATTR_REFERENCE_WAVEFORM_SOURCE New items: QMA, XY1 - Language - RSRTX_ATTR_DISPLAY_LANGUAGE New items: Italian, Portuguese, Czech, Polish - HardcopyDeviceLang - RSRTX_ATTR_HARDCOPY_DEVICE_LANGUAGE_OUTPUT_FORMAT New items: Gdi, Gif - PageSize - RSRTX_ATTR_HARDCOPY_PAGE_SIZE New items: Legal, Letter - TriggerCoupling.HighFrequency - RSRTX_ATTR_TRIGGER_COUPLING Command changed ("LFR", "HF") - TriggerType - RSRTX_ATTR_TRIGGER_TYPE_A New items: Line - rsrtx_rngProtocolVertical - RSRTX_ATTR_PROTOCOL_DISPLAY_VERTICAL Range changed to <-5;5> - SearchCondition - RSRTX_ATTR_SEARCH_CONDITION New items: Window - SearchSource - RSRTX_ATTR_SEARCH_SOURCE, RSRTX_ATTR_SEARCH_TRIGGER_D2C_CLOCK_SOURCE New items: QMA - DigitalHysteresis - RSRTX_ATTR_DIGITAL_HYSTERESIS New items: Small, Medium, Large - DigitalHysteresis - RSRTX_ATTR_DIGITAL_HYSTERESIS Deleted items: Maximum, Robust, Normal - TriggerOutMode - RSRTX_ATTR_TRIGGER_OUT_MODE New items: Reference, Generator - MeasurementSource - New items: QMA

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		<ul style="list-style-type: none"> - MILSTDCodeType.Selftest - RSRTX_ATTR_MILSTD_TRIGGER_COMMAND_MODE_CODE, RSRTX_ATTR_MILSTD_SEARCH_COMMAND_MODE_CODE, RSRTX_ATTR_PROTOCOL_MILSTD_COMMAND_WORD_MODE_CODE_TYPE Command changed ("ISEL", "SEL") - MILSTDTriggerType - RSRTX_ATTR_MILSTD_TRIGGER_TYPE, RSRTX_ATTR_MILSTD_TRIGGER_MODE New items: CData - ProbelInputImpedance.Unknown - RSRTX_ATTR_PROBE_INPUT_IMPEDANCE Command changed ("UNKN", "UNKNown") - ProbelInputImpedance.FiftyOhm - RSRTX_ATTR_PROBE_INPUT_IMPEDANCE Command changed ("50OH", "50OHm") - ProbelInputImpedance.OneMOhm - RSRTX_ATTR_PROBE_INPUT_IMPEDANCE Command changed ("1MOH", "1MOHm")
1.0.0	02/2017	* First Beta Version created based on the RsRtm20xx driver

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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