LabWindows/CVI, VXIpnp driver history for the R&S® CLGD DOCSIS Cable Load Generator

Products:

- R&S®CLGD

Driver history for LabWindows/CVI and VXIplug&play Instrument Driver for C/C++, VEE, MATLAB® etc.

Miloslav Macko
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ROHDE&SCHWARZ

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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**
CLGD	1.2.2	

2 Getting Started

2.1 LabWindows/CVI driver

The Rohde & Schwarz rssmb Instrument driver can be used in LabWindows/CVI 6 and later. In order to be able to compile an application it is required to add following files to your LabWindows/CVI project:

- *rsclgd.c*
- *rsclgd.h*
- *rsclgd.fp*
- *rsclgd _utility.h*
- *rsclgd _utility.c*

2.2 VXIplug&play driver in C# and Visual Basic.NET

A C# or VB wrapper is necessary to enable a direct access to the driver DLL. The rssmb wrappers are automatically installed in the following folders:

32-bit driver
C:\Program Files (x86)\IVI Foundation\VISA\WinNT\include\rsclgd.cs
C:\Program Files (x86)\IVI Foundation\VISA\WinNT\include\rsclgd.vb

64-bit driver
C:\Program Files\IVI Foundation\VISA\Win64\Include\rsclgd64.cs
C:\Program Files\IVI Foundation\VISA\Win64\Include\rsclgd64.vb

2.3 Linux and Mac OS X

To be able to use Rohde & Schwarz rssmb Instrument driver in Linux or Mac OSX, the functioning VISA is required. Then, the process is the same as using LabWindows/CVI driver.

2.4 VXIplug&play driver in MATLAB

MATLAB instrument driver **rsclgd.mdd** can be found in:

32-bit driver
C:\Program Files (x86)\IVI Foundation\VISA\WinNT\rsclgd\rsclgd.mdd

64-bit driver
C:\Program Files\IVI Foundation\VISA\Win64\rsclgd\rsclgd.mdd

For detailed description on how to use the driver in MATLAB please refer to the Application Note 1MA171 - How to use R&S instrument in MATLAB

2.5 Additional Help

The LabWindows/CVI and VXIplug&play instrument driver contains in addition the instrument driver documentation in compressed HTML format (Windows CHM help file **rsclgd_vxi.chm**) and stored together with the driver sources or in the following folder:

32-bit driver
C:\Program Files (x86)\IVI Foundation\VISA\WinNT\rsclgd\rsclgd_vxi.chm

64-bit driver
C:\Program Files\IVI Foundation\VISA\Win64\rsclgd\rsclgd_vxi.chm

3 LabWindows/CVI and VXIplug&play driver history

rsclgd Instrument Driver		
Driver history for LabWindows/CVI and VXIplug&play Instrument Driver for, C/C++, VEE, MATLAB®, etc.		
Revision	Date	Note
1.3.0	06/2016	Update for the firmware 1.3.0 * New functions: - rsclgd_ConfigureRFTilt - rsclgd_ConfigureOutputPLCMode - rsclgd_ConfigureReferenceOscillator - rsclgd_SetReferenceOscillatorFrequencyToDefault - rsclgd_InitiateTrigger - rsclgd_QueryDOCSIS31DateRate - rsclgd_QueryDOCSIS31ProfileDateRate - rsclgd_QueryDOCSIS31ProfileSourceDataSource - rsclgd_ConfigureDownstreamTrigger - rsclgd_ConfigureOFDMAWidebandProbeSymbolInFrame - rsclgd_QueryUnitInformation - rsclgd_QueryUnitHardwareStatus - rsclgd_ClearStatus - rsclgd_IDQueryResponse - rsclgd_ProcessAllPreviousCommands - rsclgd_QueryOPC * Updated functions: - rsclgd_ConfigureMicroReflection - SCPI command fixed * Deleted functions: - rsclgd_QueryUnitStatus - use 'rsclgd_QueryUnitInformation' and 'rsclgd_QueryUnitHardwareStatus' * New attributes: - RSCLGD_ATTR_REFERENCE_OSCILLATOR_STATE (Reference Oscillator State) - RSCLGD_ATTR_REFERENCE_OSCILLATOR_FREQUENCY (Reference Oscillator Frequency) - RSCLGD_ATTR_DEFAULT_REFERENCE_OSCILLATOR_FREQUENCY (Default Reference Oscillator Frequency) - RSCLGD_ATTR_RF_TILT (RF Tilt) - RSCLGD_ATTR_OUTPUT_PLC_MODE (Output PLC Mode) - RSCLGD_ATTR_INITIATE_TRIGGER (Initiate Trigger) - RSCLGD_ATTR_DOCSIS31_DATA_RATE (DOCSIS 3.1 Data Rate) - RSCLGD_ATTR_DOCSIS31_PROFILE_DATA_RATE (DOCSIS 3.1 Profile Data Rate)

rsclgd Instrument Driver		
Driver history for LabWindows/CVI and VXIplug&play Instrument Driver for, C/C++, VEE, MATLAB®, etc.		
Revision	Date	Note
		- RSCLGD_ATTR_DOCSIS31_PROFILE_SOURCE_DATA_SOURCE (DOCSIS 3.1 Profile Source Data Source) - RSCLGD_ATTR_DOWNSTREAM_TRIGGER_SOURCE (Downstream Trigger Source) - RSCLGD_ATTR_DOWNSTREAM_TRIGGER_EDGE (Downstream Trigger Edge) - RSCLGD_ATTR_DOWNSTREAM_TRIGGER_TIMING_SYNCHRONIZATION (Downstream Trigger Timing Synchronization) - RSCLGD_ATTR_DOWNSTREAM_TRIGGER_TIMESTAMP (Downstream Trigger Timestamp) - RSCLGD_ATTR_OFDMA_WPR_SIFRAME (OFDMA Wideband Probe Symbol In Frame) * Modified attributes: - RSCLGD_ATTR_UPSTREAM_TRIGGER_EDGE (Upstream Trigger Edge) - SCPI command changed
1.1.0	11/2015	* New functions: - rsclgd_QueryUpstreamChannelConfiguration - rsclgd_ConfigureUpstreamWaveform - rsclgd_ConfigureDOCSIS31EncompassedSpectrum - rsclgd_ConfigureDOCSIS31ContinuousPilot - rsclgd_ImportExportDOCSIS31AdvancedConfiguration - rsclgd_ConfigureUpstreamTriggerLogic - rsclgd_ConfigureHUMUpstream - rsclgd_ConfigureNoiseAWGNUpstream - rsclgd_ConfigureNarrowbandInterfaceUpstream - rsclgd_ConfigurePhaseNoise - rsclgd_ConfigurePhaseNoiseUpstream - rsclgd_ConfigureMicroReflectionUpstream - rsclgd_ConfigureWaveformFile - rsclgd_GenerateUpstreamArbFile - rsclgd_ConfigureReferenceSource - rsclgd_ConfigureUpstreamTrigger - rsclgd_ConfigureATDMAMinislot - rsclgd_ConfigureATDMAModulationType - rsclgd_ConfigureATDMAPreamble - rsclgd_ConfigureATDMAFEC - rsclgd_ConfigureATDMAScrambler - rsclgd_ConfigureATDMADataFilename - rsclgd_ConfigureSCDMAMinislot - rsclgd_ConfigureSCDMAModulationType - rsclgd_ConfigureSCDMAPreamble - rsclgd_ConfigureSCDMAFEC - rsclgd_ConfigureSCDMAFramerSpreader - rsclgd_ConfigureSCDMAScrambler

rsclgd Instrument Driver		
Driver history for LabWindows/CVI and VXIplug&play Instrument Driver for, C/C++, VEE, MATLAB®, etc.		
Revision	Date	Note
		- rsclgd_ConfigureSCDMADataFilename - rsclgd_ConfigureOFDMABurstType - rsclgd_ConfigureOFDMA - rsclgd_ConfigureOFDMAAdvancedProfiles - rsclgd_ConfigureOFDMAExclusionBands - rsclgd_ConfigureOFDMADataMode - rsclgd_ConfigureOFDMAInitialRanging - rsclgd_ConfigureOFDMAFineRanging - rsclgd_ConfigureOFDMAWidebandProbe - rsclgd_ConfigureOFDMABandwidthRequestedMessage - rsclgd_ConfigureBasePort - rsclgd_ConfigureWiFi - rsclgd_ConfigureSFPPort * New attributes: - RSCLGD_ATTR_UPSTREAM_WAVEFORM - RSCLGD_ATTR_DOCSIS31_ESPECTRUM - RSCLGD_ATTR_DOCSIS31_CONT_PILOT_PARAM - RSCLGD_ATTR_DOCSIS31_CONT_PILOT - RSCLGD_ATTR_DOCSIS31_IMPORT_ADVANCED_CONFIGURATION - RSCLGD_ATTR_DOCSIS31_EXPORT_ADVANCED_CONFIGURATION - RSCLGD_ATTR_UPSTREAM_TRIGGER_MODE - RSCLGD_ATTR_UPSTREAM_OUTPUT_DELAY - RSCLGD_ATTR_UPSTREAM_IBGAP - RSCLGD_ATTR_HUM_UPSTREAM_STATE - RSCLGD_ATTR_HUM_UPSTREAM_FREQUENCY - RSCLGD_ATTR_HUM_UPSTREAM_DEPTH - RSCLGD_ATTR_NOISE_AWGN_UPSTREAM_MODE - RSCLGD_ATTR_NOISE_AWGN_UPSTREAM_AMPLITUDE - RSCLGD_ATTR_NINT_UPSTREAM_MODE - RSCLGD_ATTR_NINT_UPSTREAM_DURATION - RSCLGD_ATTR_NINT_UPSTREAM_BANDWIDTH - RSCLGD_ATTR_NINT_UPSTREAM_AMPLITUDE - RSCLGD_ATTR_NINT_UPSTREAM_OFFSET - RSCLGD_ATTR_NINT_UPSTREAM_DELAY - RSCLGD_ATTR_PHASE_NOISE_STATE - RSCLGD_ATTR_PHAS_UPSTREAM_STATE - RSCLGD_ATTR_MICRO_REFLECTION_UPSTREAM_MODE - RSCLGD_ATTR_MICRO_REFLECTION_UPSTREAM_AMPLITUDE - RSCLGD_ATTR_MICRO_REFLECTION_UPSTREAM_DELAY - RSCLGD_ATTR_AWG_SELECT_WAVEFORM

rsclgd Instrument Driver		
Driver history for LabWindows/CVI and VXIplug&play Instrument Driver for, C/C++, VEE, MATLAB®, etc.		
Revision	Date	Note
		- RSCLGD_ATTR_UPSTREAM_TRIGGER_SOURCE - RSCLGD_ATTR_UPSTREAM_TRIGGER_LEVEL - RSCLGD_ATTR_UPSTREAM_TRIGGER_EDGE - RSCLGD_ATTR_UPSTREAM_TRIGGER_DELAY - RSCLGD_ATTR_ATDMA_MINISLOT_SIZE - RSCLGD_ATTR_ATDMA_SYMBOL_RATE - RSCLGD_ATTR_ATDMA_NUMBER_OF_MINISLOTS - RSCLGD_ATTR_ATDMA_GUARD_TIME_SIZE - RSCLGD_ATTR_ATDMA_MODULATION_TYPE - RSCLGD_ATTR_ATDMA_PREAMBLE_PATTERN - RSCLGD_ATTR_ATDMA_PREAMBLE_LENGTH - RSCLGD_ATTR_ATDMA_PREAMBLE_VALUE_OFFSET - RSCLGD_ATTR_ATDMA_PREAMBLE_TYPE - RSCLGD_ATTR_ATDMA_FORWARD_ERROR_CORRECTION - RSCLGD_ATTR_ATDMA_FECK - RSCLGD_ATTR_ATDMA_LAST_CODEWORD_LENGTH - RSCLGD_ATTR_ATDMA_RS_INTERLEAVER_MODE - RSCLGD_ATTR_ATDMA_RS_INTERLEAVER_DEPTH - RSCLGD_ATTR_ATDMA_RS_INTERLEAVER_BLOCK_SIZE - RSCLGD_ATTR_ATDMA_SCRAMBLER_STATE - RSCLGD_ATTR_ATDMA_SCRAMBLER_SEED - RSCLGD_ATTR_ATDMA_DATA_FILENAME - RSCLGD_ATTR_SCDMA_SYMBOL_RATE - RSCLGD_ATTR_SCDMA_NUMBER_OF_MINISLOTS - RSCLGD_ATTR_SCDMA_START - RSCLGD_ATTR_SCDMA_CODES - RSCLGD_ATTR_SCDMA_SPREADING - RSCLGD_ATTR_SCDMA_ACTIVE_CODES - RSCLGD_ATTR_SCDMA_MODULATION_TYPE - RSCLGD_ATTR_SCDMA_PREAMBLE_PATTERN - RSCLGD_ATTR_SCDMA_PREAMBLE_LENGTH - RSCLGD_ATTR_SCDMA_PREAMBLE_VALUE_OFFSET - RSCLGD_ATTR_SCDMA_PREAMBLE_TYPE - RSCLGD_ATTR_SCDMA_FORWARD_ERROR_CORRECTION - RSCLGD_ATTR_SCDMA_FECK - RSCLGD_ATTR_SCDMA_LAST_CODEWORD_LENGTH - RSCLGD_ATTR_SCDMA_SYMBOL_INTERLEAVER_STEP_SIZE - RSCLGD_ATTR_SCDMA_CODE_HOPPING - RSCLGD_ATTR_SCDMA_SPREADER_STATE - RSCLGD_ATTR_SCDMA_CODES_PER_SUBFRAME

rsclgd Instrument Driver		
Driver history for LabWindows/CVI and VXIplug&play Instrument Driver for, C/C++, VEE, MATLAB®, etc.		
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		- RSCLGD_ATTR_SCDMA_CODE_HOPPING_SEED - RSCLGD_ATTR_SCDMA_SCRAMBLER_STATE - RSCLGD_ATTR_SCDMA_SCRAMBLER_SEED - RSCLGD_ATTR_SCDMA_DATA_FILENAME - RSCLGD_ATTR_OFDMA_BURST_TYPE - RSCLGD_ATTR_OFDMA_FFT_SIZE - RSCLGD_ATTR_OFDMA_FIRST_ACTIVE_SUBCARRIER - RSCLGD_ATTR_OFDMA_LAST_ACTIVE_SUBCARRIER - RSCLGD_ATTR_OFDMA_CYCLIC_PREFIX - RSCLGD_ATTR_OFDMA_WINDOW_ROLLOFF_PERIOD - RSCLGD_ATTR_OFDMA_SYMBOLS_PER_FRAME - RSCLGD_ATTR_OFDMA_PILOT_PATTERN - RSCLGD_ATTR_OFDMA_MODULATION_ORDER - RSCLGD_ATTR_OFDMA_SCRAMBLER_STATE - RSCLGD_ATTR_OFDMA_SCRAMBLER_SEED - RSCLGD_ATTR_OFDMA_ADVANCED_PROFILES - RSCLGD_ATTR_OFDMA_EXCLUSION_START - RSCLGD_ATTR_OFDMA_EXCLUSION_WIDTH - RSCLGD_ATTR_OFDMA_DMODE_NUMBER_OF_FRAMES - RSCLGD_ATTR_OFDMA_DMODE_STARTING_MINISLOT - RSCLGD_ATTR_OFDMA_DMODE_MINISLOTS_PER_FRAME - RSCLGD_ATTR_OFDMA_DMODE_DATA_FILENAME - RSCLGD_ATTR_OFDMA_DMODE_FILL_REMAINING_MINISLOTS - RSCLGD_ATTR_OFDMA_IRAN_NUMBER_OF_FRAMES - RSCLGD_ATTR_OFDMA_IRAN_STARTING_MINISLOT - RSCLGD_ATTR_OFDMA_IRAN_NUMBER_OF_MINISLOTS - RSCLGD_ATTR_OFDMA_IRAN_NUMBER_OF_SUBCARRIERS - RSCLGD_ATTR_OFDMA_IRAN_MAC_ADDRESS - RSCLGD_ATTR_OFDMA_IRAN_DOWNSTREAM_CHANNEL - RSCLGD_ATTR_OFDMA_IRAN_PREAMBLE_PATTERN - RSCLGD_ATTR_OFDMA_IRAN_PREAMBLE_LENGTH - RSCLGD_ATTR_OFDMA_IRAN_PREAMBLE_VALUE_OFFSET - RSCLGD_ATTR_OFDMA_IRAN_FILL_REMAINING_MINISLOTS - RSCLGD_ATTR_OFDMA_FRAN_NUMBER_OF_FRAMES - RSCLGD_ATTR_OFDMA_FRAN_STARTING_MINISLOT - RSCLGD_ATTR_OFDMA_FRAN_NUMBER_OF_MINISLOTS - RSCLGD_ATTR_OFDMA_FRAN_NUMBER_OF_SUBCARRIERS - RSCLGD_ATTR_OFDMA_FRAN_PREAMBLE_PATTERN - RSCLGD_ATTR_OFDMA_FRAN_PREAMBLE_VALUE_OFFSET - RSCLGD_ATTR_OFDMA_FRAN_DATA_FILENAME

rsclgd Instrument Driver		
Driver history for LabWindows/CVI and VXIplug&play Instrument Driver for, C/C++, VEE, MATLAB®, etc.		
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		- RSCLGD_ATTR_OFDMA_FRAN_FILL_REMAINING_MINISLOTS - RSCLGD_ATTR_OFDMA_WPR_NUMBER_OF_FRAMES - RSCLGD_ATTR_OFDMA_WPR_SUBCARRIER_START - RSCLGD_ATTR_OFDMA_WPR_SUBCARRIER_SKIP - RSCLGD_ATTR_OFDMA_WPR_STAGGER - RSCLGD_ATTR_OFDMA_BRM_NUMBER_OF_FRAMES - RSCLGD_ATTR_OFDMA_BRM_MINISLOT_IN_FRAME - RSCLGD_ATTR_OFDMA_BRM_SUBSLOT - RSCLGD_ATTR_OFDMA_BRM_NUMBER_OF_BYTES - RSCLGD_ATTR_OFDMA_BRM_SID - RSCLGD_ATTR_OFDMA_BRM_FILL_REMAINING_MINISLOTS - RSCLGD_ATTR_BASE_PORT - RSCLGD_ATTR_WIFI_NETWORK_NAME - RSCLGD_ATTR_WIFI_AUTO_CONNECT - RSCLGD_ATTR_WIFI_PROTOCOL - RSCLGD_ATTR_WIFI_SECURITY_KEY_MANAGEMENT - RSCLGD_ATTR_WIFI_PASSWORD - RSCLGD_ATTR_SFP_DATA_IP_ADDRESS - RSCLGD_ATTR_SFP_DATA_RATE * Updated functions: - rsclgd_ConfigureReferenceSource - rsclgd_ConfigureDOCSIS31CarrierDefinition - rsclgd_ConfigureDOCSIS31Profile * Updated attributes: - RSCLGD_ATTR_DOCSIS31_GUARD - RSCLGD_ATTR_REFERENCE_SOURCE * Removed functions: - rsclgd_ConfigureTiltPowerDifference - rsclgd_ConfigureDataCommunication - rsclgd_ConfigureDOCSIS30Profile * Removed attributes: - RSCLGD_ATTR_IP_ADDRESS_DATA - RSCLGD_ATTR_DOCSIS31_PROFILE_ID - RSCLGD_ATTR_DOCSIS30_PROFILE_SOURCE - RSCLGD_ATTR_DOCSIS30_PROFILE_PORT
1.0.0	05/2015	Initial release

Rohde & Schwarz

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Regional contact
Europe, Africa, Middle East
+49 89 4129 12345
customersupport@rohde-schwarz.com

North America
1-888-TEST-RSA (1-888-837-8772)
customer.support@rsa.rohde-schwarz.com

Latin America
+1-410-910-7988
customersupport.la@rohde-schwarz.com

Asia/Pacific
+65 65 13 04 88
customersupport.asia@rohde-schwarz.com

China
+86 800 810 82 28 |+86 400 650 58 96
customersupport.china@rohde-schwarz.com

Rohde & Schwarz GmbH & Co. KG
Mühldorfstraße 15 | D - 81671 München
Phone + 49 89 4129 - 0 | Fax + 49 89 4129 – 13777

www.rohde-schwarz.com