IMAGEVK-74
INSTALLER & API COMMANDS GUIDE

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Important Notice

Trademarks

Mini-Circuits

13 Neptune Avenue
Brooklyn, NY 11235
Phone: 1-718-934-4500
Email: apps@minicircuits.com
Web: www.minicircuits.com

Supported Platforms

• Windows 7 or later is supported by the SW. 64 bit only.

Supported Environments

The API supports the following environments:

• Python®
• MATLAB®

API is compatible with Python® versions 2.7, 3.5, 3.6, & 3.7
For python users, we recommend installing the latest Anaconda Distribution. Anaconda includes several packages and applications that simplify software development in data science applications. All Python® scripts are developed and tested using the Anaconda Prompt command line interface and the Spyder integrated development environment.

The installer is available for download at: https://www.minicircuits.com/WebStore/vtrig_software_download.html
In order to download the installer, you will need to provide the product serial number printed on the box.

You can run the Demo which is located at:

Python: C:\Program Files\Vayyar\imagevk\python\example
MATLAB: C:\Program Files\Vayyar\imagevk\matlab

Warnings and Notices:

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Below is the description and synthaxis of the API commands for Python or MATLAB Environmnets.

	Description	Matlab Syntax	Python Syntax
Load Module	Load API module	NET.addAssembly([getenv('programfiles'), '\Vayyar\imagevk\bin\imagevk.CSharp.dll']); import imagevk.*;	import imagevk
Init	Initialize the library; connect to device.	imagevk.Init();	imagevk.Init()
Init (non-default config)	Variant init -- allows change from default configuration; can be necessary for debugging or non-default install location	imagevk.SetConfigFile(path);	imagevk. Init(configPath=myConfigPath)
ApplySettings	Provide recording parameters, consisting of: - Frequency Range (start-stop MHz, number of points) - RBW - TxMode: -- High Framerate; Low Resolution (4 Tx antennas) -- Medium Framerate; Medium Resolution (10 Tx antennas) -- Low Framerate; High Resolution (20 Tx antennas)	imagevk.ApplySettings(freqStart_MHz, freqStop_MHz, numFreqPoints, rbw_KHz, txMode);	settings = imagevk.RecordingSettings(imagevk.FrequencyRange (65.0*1000, 66.0*1000, 21), # 101 points, from 65.0-66.0 GHz 30.0, # RBW imagevk.IMAGEVK_TXMODE__LOW_RATE) imagevk.ApplySettings(settings)
Record	Make one recording, using current settings. No return value -- result is stored by the module.	imagevk.Record();	imagevk.Record()
GetRecordingResult	Returns the most recent result from a Record() call.	recording = imagevk.GetRecordingResult(); SMat = reshape(double(recording), nFrequencies*2,nPairs);	recording = imagevk.GetRecordingResult() phasor_ij = recording[imagevk.GetPairId(i,j)]
GetFreqVector_MHz	Returns list of frequency points, as described by FrequencyRange in current settings	Freqs_MHz = double(imagevk.GetActualFreqVector())	actual_freqs = imagevk.GetFreqVector_MHz()
GetAntennaPairs	Returns list of antenna pairs for a given mode	pairs = imagevk.GetAntennaPairs(txMode)	pair_list = imagevk.GetAntennaPairs() lowFR_pairs = imagevk.GetAntennaPairs(imagevk.IMAGEVK_TXMODE__LOW_RATE

	Description	Matlab Syntax	Python Syntax
GetSettings	Retrieves the currently assigned settings in formatted structure	settings = imagevk.GetSettings();	current = imagevk.GetSettings()
ValidateSettings	Checks that provided settings are valid and within program limits	imagevk. ValidateSettings(freqStart_MHz, freqStop_MHz, numFreqPoints, rbw_KHz, txMode);	imagevk.ValidateSettings(settings) # raises informative error if invalid
GetFrequencyLimits	Limits for frequency range: - min_MHz - max_MHZ - nPointsMin - nPointsMax - minRangeLen_MHz # minimal value for (freqStopMHz - freqStartMHz)	freqLimits = imagevk.GetFrequencyLimits()	freqLimits = imagevk.GetFrequencyLimits()
GetRbwLimits	Limits for RBW: - min_KHz - max_KHz	rbwLimits = imagevk.GetRbwLimits()	rbwLimits = imagevk.GetRbwLimits()

nMaxPointsForRbw	Input: Given RBW, in KHz.
	Output: Maximum number of frequency points permissable for given RBW.
		# set nPoints to maximum RBW allows:
		numFreqPoints = imagevk.nMaxPointsForRbw(rbw)
			# set nPoints to maximum RBW allows:
			settings.freqRange.numFreqPoints = imagevk.nMaxPointsForRbw(settings.rbw)

MinRbwKHzForNPoints	Input: Given number of frequency points.
	Output: Minimal RBW (in KHz) required to support given number of points
		# set RBW to minimum that #freqPoints requires:
		rbw = imagevk.MinRbwKHzForNPoints(numFreqPoints)
			# set RBW to minimum that #freqPoints requires:
			settings.rbw = imagevk.MinRbwKHzForNPoints(settings.freqRange.numFreqPoints)

Additional Notes:

A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.

B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.

C. The EVK covered by this specification document shall be subject to Mini-Circuits' standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of the EVK are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms/jsp.

D. The EVK and the API shall be subject to and used only in accordance with the EULA. For a full statement of the EULA, please visit Mini-Circuits' website at https://www.minicircuits.com/WebStore/vtrig_74.html