



VDI SAX Modules – Installation and Quick Start Guide



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Recommended Operating Procedures and Precautions

This document provides information on how to setup a Keysight Signal/Spectrum Analyzer for use with a VDI Spectrum Analyzer Extension (SAX) Module in Spectrum Analyzer Extension Mode.

Input power limitations, safety guidelines, general operating practices and recommendations for the SAX module are provided in the SAX Product Manual (VDI-731). Please review VDI-731 prior to reading this document.

This document is accurate as of October 23, 2018.

Signal/Spectrum Analyzer Compatibility

All VDI SAX Modules are compatible with the following Signal/Spectrum Analyzers:

- N9040B UXA Signal Analyzer
- N9030B PXA Signal Analyzer
- N9020B MXA Signal Analyzer
- N9010B EXA Signal Analyzer

External Mixing (EXM) Option is required for the above analyzers. This enables a 3.75-14.1 GHz LO signal that can accommodate the LO requirements for all standard VDI SAX Modules.

Other Signal/Spectrum Analyzers may be compatible with VDI SAX Modules. Please contact VDI for more information.





Switch from RF Input to External Mixer Mode

- Press [Input/Output]



- Navigate to [Select Input] > [External Mixer]

Spectrum Analy Swept SA	vzer 1	3					0	Input/Outpu	t v 👯
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Center 213.00 Res BW 3.0 Mi	GHz Hz		Video BW 3.0 MH	łz	Sp Sweep ~21.7 r	an 31.99 GHz ns (1001 pts)			
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Navigate to [External Mixer Setup]





Enter Harmonic Factor of VDI SAX into Keysight Analyzer

- Navigate to [Table Type] > [Harmonic Switching]
- Change from [Harmonic Switching] to [Single Row]



- Review SAX Label on top of SAX Module (See sample label for WR3.4SAX below)

Model No: SAX S/N: SAX 295								
LO (L) : N= 48 LO (H) : N= 12 RF Damage	10 0 >0	dBm dBm dBm						
DC Input: 9	V-4A							



- Enter appropriate harmonic factor into the Harmonic Table that corresponds to the appropriate configuration.
 - Configuration A (Spectrum Analyzer Extension Mode) of SAX uses LO (L). In this example, N=48 is the correct harmonic factor.

Spectrum Analy Swept SA	zer 1	,							0	Input/Outpu	t 🔻 🔆
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Harmonic *	•	~	\otimes	Enter			Mixer Prese	ns /	Custo	m xternal Mixer	Corrections
Harmonic 48	7	8	9		able Type	Single Row			Signa	Setup	Freq Ref Input
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									Inpu	t/Output Preset	
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Single Row vs. Doubler Switching

- After entering the harmonic factor into the Harmonic Table, review the Min Freq and Max Freq listed in the Harmonic Table.
- If the frequency range (Min Freq to Max Freq) does not cover the desired band, Doubler Switching is needed.
- In this case, switch from [Single Row] to [Doubler Switching]



- Navigate to [Close] on the External Mixer Setup

Spectrum Analy Swept SA	rzer 1	F					Input/Outpu	t v ∰
Keysight F	Input: Ext Mixer Signal ID: Off Align: Auto	Corrections: Off Freq Ref: Int (S)		PNO: Fast Gate: Off IF Gain: Low	Avg Type: Log-Power Trig: Free Run	123456 www.ww	Select Input External Mixer 🔻	Input
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Center 301.2 G Res BW 3.0 Mi	iHz Hz		Video BW 3.0 M	Hz	Sp Sweep ~34.6 i	an 251.4 GHz ns (1001 pts)		
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Signal ID

- Turn [ON] Signal ID
 - Signal Identification enables you to identify true signals and eliminate any image or harmonic signals.

Spectrum Analyzer 1 Swept SA	+				Input/Output	t 🔻 🎇
KEYSIGHT Input: Ext Mixer Signal ID: On Align: Auto	Corrections: Off Freq Ref: Int (S)	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off	Avg Type: Log-Power Trig: Free Run	123456 WWWWWW	Select Input External Mixer v	Input
1 Spectrum		Sig Hack, Oil			External Mixer Setup Summary:	Gain
Scale/Div 10 dB	Ref Level 0	.00 dBm			Custom	Corrections
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-30.0					Signal ID Mode Image Suppress v	Trigger Output
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Center 301.2 GHz Res BW 3.0 MHz	Video BW	3.0 MHz	Sp Sweep ~34.0	an 251.4 GHz ns (1001 pts)		
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Analyzer Functions

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- You may adjust any settings on the analyzer the same way you would without the VDI SAX Module
 - For example: Start Frequency, Stop Frequency, Number of Points, Amplitude, Resolution BW, Video BW, etc.



Load Correction File

To account for the loss from the RF Input Port to the IF Output Port of the SAX, a 'PXA Table' conversion loss file is provided on the USB flash drive that is included with the SAX module.

- Press [Recall]



- Navigate to [Correction] on the menu options.
- Select [Correction 1]
 - o If Correction 1 is already used for other measurements, please select another Correction #.
- Navigate to [Recall From]

Recall			Correction	ר ? X
State	Select Correction	Correction 1		Recall From
Trace + State				
Screen Config + State				
Measurement Data				
Limit				
Correction				
Complex Correction				
Correction Group				



- Insert USB Flash Drive into Analyzer
- Navigate to 'PXA Table' file that is located on the USB Flash Drive
 - Special Note: Each SAX Module has a unique 'PXA Table'. Verify that the SAX serial number in the 'PXA Table' file name matches the SAX serial number on the label on top of the SAX Module.

Recall	Correction	Recall from File	า c ? X
State	Computer G:		Mode Spectrum Analyzer 🔻
Trace + State	Name	∆ Date	Size Content
Screen Config + State	SAX 289	10/23/2018 7:58 AM	
Measurement Data	System Volume Information	9/20/2018 9:23 AM	
Limit	SAX xxx Conversion Loss.csv	8/28/2018 8:44 AM	5 KB Csv file
Correction	SAX xxx PXA Table.csv	8/28/2018 6:55 AM	2 KB Csv file
Complex Correction			
Correction Group			
	File name: SAX xxx Conversion Loss.csv		File type: Csv files (*.csv) Recall

- Press [Input/Output]
- Navigate to [Corrections] on from the list of menu options (see below)

Spectrum Analyze Swept SA	er 1 , 🕂	-					Input/Outpu	ut 🔻 👬
	iput: Ext Mixer ignal ID: On lign: Auto	Corrections: On Freq Ref: Int (S)		PNO: Fast Gate: Off IF Gain: Low Sig Track: Off	Avg Type: Log-F Trig: Free Run	tower 123456 WWWWWW PNNNNN	Select Correction Correction 1	Input External
1 Spectrum Scale/Div 10 dB	•		Ref Level 0.00 di	3m			Correction On Off	Gain
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Start 220.00 GHz Res BW 3.0 MHz			Video BW 3.0 M	Hz	Sweep	Stop 330.00 GHz ~15.2 ms (1001 pts)	Corrections	
100	≤ 🗖	Oct 23, 2018 8:41:59 AM						

- Select appropriate correction file (e.g. Correction 1)
- To verify if correction file was loaded correctly, navigate to [Edit Correction] to view the correction file data.

