

SAX-HS (High Sensitivity Option) Datasheet

Virginia Diodes' (VDI) Spectrum/Signal Analyzer Extension Modules (SAXs) are used to extend the performance of modern spectrum and signal analyzers in the frequency range from 26 GHz through 1.5 THz, in frequency bands from WR28 (26-40 GHz) to WR0.65 (1,100-1,500 GHz). These modules use VDI's proprietary mixer technology, which achieves low-conversion loss and exceptional sensitivity. Standard features include direct extension of spectrum analyzers and block down-conversion for broadband signal analysis.



High Sensitivity Option:

Most VDI SAX modules have a -150dBm/Hz DANL (Displayed Average Noise Level) specification. For certain applications where improved sensitivity is required, VDI offers a High Sensitivity (-HS) option for improved DANL specification. The new DANL specification is listed in the table below. The IF bandwidth for down-conversion mode is limited to ~5 GHz with the -HS option. Contact VDI for more information about higher frequency SAX-HS modules.

VDI SAX-HS Specifications								
Description	WR28	WR19	WR15	WR12	WR10	WR8.0	WR6.5	WR5.1
RF Frequency Band (GHz)	26-40	40-60	50-75	60-90	75-110	90- 140	110-170	140-220
RF Power Limits (Compression / Damage, typ.) – Intrinsic Mixer*	-10 / 0	-10 / 0	-10 / 0	-10 / 0	-10 / 0	-10 / 0	-10 / 0	-10 / 0
System Conversion Gain (dB, typ.)**	13	13	13	12	12	12	12	11
Max. IF Frequency (GHz, typ.)	5	5	5	5	5	5	5	5
Displayed Average Noise Level (dBm/Hz, typ.)†	-160	-160	-160	-160	-160	-160	-160	-160
Description	WR4.3	WR3.4	WM710 (WR2.8)	WM570 (WR2.2)	WM380 (WR1.5)	WM250 (WR1.0)	WM164 (WR0.65)	
RF Frequency Band (GHz)	170-260	220-330	260- 400	325- 500	500- 750	750-1,100	1,100-1,500	
RF Power Limits (Compression / Damage, typ.) – Intrinsic Mixer*	-10 / 0							
System Conversion Gain (dB, typ.)**	11							
Max. IF Frequency (GHz, typ.)	5							
Displayed Average Noise Level (dBm/Hz, typ.)†	-160							

*Intrinsic Mixer Compression / Damage specification does not include any IF amplification and other external equipment. Review compression and damage levels of user Spectrum Analyzer prior to use. For some large RF signal conditions, the user Spectrum Analyzer may reach its compression / damage levels while the SAX-HS does not.

**System Conversion Gain includes Intrinsic Mixer Conversion Loss and IF Amplifier Gain (~22dB), in Configuration A.

†Displayed Average Noise Level (DANL) measurements are taken on a Keysight PXA.

For more information on VDI SAX Modules, please refer to VDI-731 (SAX Product Manual).