



## SAV364X VNA Extension Module

(40GHz-60GHz / 50GHz-75GHz / 60GHz-90GHz / 75GHz-110GHz / 90GHz-140GHz / 110GHz-170GHz / 170GHz-220GHz /  
140GHz-220GHz / 170GHz-260GHz / 220GHz-325GHz / 325GHz – 500GHz)

### Data Sheet



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## 1. Overview

SAV364X series VNA Extension Module has reached the international level in measuring speed, dynamic range and measuring stability. In terms of hardware, this module adopts new design concepts and technical solutions, so that the key technical performance indicators of the whole unit are significantly improved; in terms of software, its spread spectrum system is based on the platform environment of Windows operating system, so that the interconnectivity and usability of the whole unit has been greatly improved.

SAV364X series can be used to compose a millimeter wave vector network analyzer system with a SAV3640 millimeter wave spread spectrum controller and a vector network analyzer, which can realize flexible configuration of 5mm, 3mm, 2mm, 1mm frequency band and an even higher frequency band, and the highest frequency can cover 500GHz. It has the features of simple system configuration, friendly user interface and high test precision, and realizes the measurement of all S parameters of millimeter wave measured network. The system is widely used in R&D and production testing for millimeter wave components, MMIC, antenna and RCS and materials.

## 2. Key Feature

- Frequency Range: 40GHz to 500GHz.
- Windows 7 operating system, English menu.
- Various calibration methods such as frequency response, single port, response isolation, dual port, TRL and so on.
- Applicable to different types of vector network analyzer hosts.
- Realizing spread spectrum measurement of two-port vector network analyzer by SAV3640.

## 3. Technical Specifications of Extension Module

Module No.	SAV3643K	SAV3643NA	SAV3643N	SAV3643P	SAV3643QA
Frequency range	40GHz - 60GHz	50GHz - 75GHz	60GHz - 90GHz	75GHz - 110GHz	90GHz - 140GHz
Port output power	≥+6dBm	≥+5dBm	≥+5dBm	≥5dBm	≥+3dBm
System dynamic range (intermediate frequency bandwidth 10Hz)	≥100dB	≥100dB	≥100dB	≥100dB	≥100dB
Reflection tracking (dB)	≤0.12	≤0.12	≤0.12	≤0.12	≤0.15
Transmission tracking (dB)	≤0.12	≤0.12	≤0.12	≤0.12	≤0.15
Effective directivity (dB)	≤-35dB	≤-35dB	≤-35dB	≤-35dB	≤-34dB
Payload matching (dB)	≤-35dB	≤-35dB	≤-35dB	≤-35dB	≤-34dB
Port connector form	WR19, system	WR15, system	WR12, system	WR10, system	WR8.0, system

	Impedance 1 ohm	Impedance 1 ohm	Impedance 1 ohm	Impedance 1 ohm	Impedance 1 ohm
Working voltage	12VDC@2A	12VDC@2A	12VDC@2A	12VDC@3A	12VDC@3A
Outline dimension (W×H×D, mm)	120×90×240	120×90×240	120×90×240	120×90×240	120×90×240

SAV3643Q	SAV3649	SAV3643SA	SAV3643R	SAV3649A	SAV3649B
110GHz - 170GHz	170GHz - 220GHz	140GHz - 220GHz	170GHz - 260GHz	220GHz - 325GHz	325GHz - 500GHz
≥-1dBm	≥-10dBm	≥-9dBm	≥-10dBm	≥-13dBm	≥-23dBm
≥100dB	≥100dB	≥100dB	≥100dB	≥95dB	≥80dB
≤0.15	≤0.2	≤0.25	≤0.2	≤0.2	≤0.3
≤0.15	≤0.2	≤0.25	≤0.2	≤0.2	≤0.3
≤-34dB	≤-30dB	≤-30dB	≤-25dB	≤-25dB	≤-20dB
≤-34dB	≤-30dB	≤-30dB	≤-25dB	≤-25dB	≤-20dB
WR6.5, system Impedance 1 ohm	WR5.1, system Impedance 1 ohm	WR5.1, system Impedance 1 ohm	WR4.3, system Impedance 1 ohm	WR3.4, system Impedance 1 ohm	WR2.2, system Impedance 1 ohm
12VDC@2A	12VDC@2A	12VDC@2A	12VDC@2A	12VDC@3A	12VDC@3A
120×90×240	120×90×240	120×90×240	120×90×240	120×90×240	120×90×240

SAV3640 millimeter wave spread spectrum controller, compatible with SAV3672X series and PNA-X series vector network analyzers.

#### 4. Technical Specifications of Frequency Extension Controller

SAV3640 is a frequency extension controller. It is compatible with S3602 series VNA and Keysight PNA-X series VNA.

Please be kindly noted, SAV3640 is not necessary for 4-port S3602 frequency extension. 4-port S3602 can be connected to extension modules directly via test ports on front panel.



Model	Frequency Range	Output Power	Control Port	Output Power	Power Supply	Dimension WxHxD (mm)
SAV3640A	8GHz - 20GHz	10 ± 1dBm	Device Test Port	12VDC@2A	Self-adaption power supply: AC220/240V; 50/60Hz; 100/115V: 50/60/400Hz;	426 x 177 x 460 (without handles, pad, feet)

## 5. Ordering Information

### ➤ System Instrument List

Model	Instrument Name	Main Indicators	Quantity	Remarks
S3602 B/C/D/E	Vector network analyzer	10MHz - 26.5GHz/40GHz /50GHz/67GHz	1 set	S80 option
SAV3640A	Millimeter wave spread spectrum controller	8GHz - 20GHz	1 set	-
SAV3643K	Millimeter-wave VNA extender	40GHz - 60GHz	2 sets	-
SAV3643NA	Millimeter-wave VNA extender	50GHz - 75GHz	2 sets	-
SAV3643N	Millimeter-wave VNA extender	60GHz - 90GHz	2 sets	-
SAV3643P	Millimeter-wave VNA extender	75GHz - 110GHz	2 sets	-
SAV3643QA	Millimeter-wave VNA extender	90GHz - 140GHz	2 sets	-
SAV3643Q	Millimeter-wave VNA extender	110GHz - 170GHz	2 sets	-
SAV3649	Millimeter-wave VNA extender	170GHz - 220GHz	2 sets	-
SAV3643SA	Millimeter-wave VNA extender	140GHz - 220GHz	2 sets	-
SAV3643R	Millimeter-wave VNA extender	170GHz - 260GHz	2 sets	-
SAV3649A	Millimeter-wave VNA extender	220GHz - 325GHz	2 sets	-
SAV3649B	Millimeter-wave VNA extender	325GHz - 500GHz	2 sets	-
SAV32121K	6mm waveguide calibration kit	40GHz - 60GHz	1 box	-

SAV32156	5mm waveguide calibration kit	50GHz - 75GHz	1 box	-
SAV32155N	60-90 waveguide calibration kit	60GHz - 90GHz	1 box	-
SAV32141	3mm waveguide calibration kit	75GHz - 110GHz	1 box	-
SAV32155Q	90-140 waveguide calibration kit	90GHz - 140GHz	1 box	-
SAV32155	2mm waveguide calibration kit	110GHz - 170GHz	1 box	-
SAV20301	1mm waveguide calibration kit	140GHz - 220GHz	1 box	-
SAV32155S	170-260 waveguide calibration kit	170GHz - 260GHz	1 box	-
SAV20302	1mm waveguide calibration kit	220GHz - 325GHz	1 box	-
SAV20301T	0.5THz waveguide calibration kit	325GHz - 500GHz	1 box	-
-	System connection cable	-	1 set	See the following table for details

➤ **Cable List of Spread Spectrum System of the Controller**

No.	Cable Name and Function	Length (meter)	Connector	Quantity	Remarks
Microwave Cable					
A1	RF output of network analyzer to RF input of control machine	0.6	3.5mm/3.5mm-JJ	1	Low loss cable
A2	Local oscillator output of network analyzer to local oscillator input of control machine	0.6	3.5mm/3.5mm-JJ	1	Low loss cable
A3/A4	RF output of control machine to input of millimeter-wave VNA extender.	1.2/1.5/2	3.5mm/3.5mm-JJ	2	Low loss cable, length optional
A5/A6	Local oscillator output of control machine to local oscillator input of millimeter-wave VNA extender.	1.2/1.5/2	3.5mm/3.5mm-JJ	2	Low loss cable, length optional
IF Cable					
C1	IF output of control machine to outer IF input of control machine	0.6	SMA/SMA	4	IF cable
C2	IF output of millimeter-wave VNA extender to IF input of control machine	1.2/1.5/2	SMA/SMA	4	IF cable, length optional
Communication/Power Cable					

D1	Interface of network analyzer test device to interface of control machine test device	1	PCL-10125	1	Test device cable
D2	Control machine power output to millimeter-wave VNA extender power input	1.2/1.5/2	Circular connection cable	2	Power cable, length optional

➤ **Cable list of S3602B Vector Network Analyzer (Four-Port) Spread Spectrum System**

No.	Cable Name and Function	Length (meter)	Connector	Quantity	Remarks
Microwave Cable					
A1	S3602B complete machine four port spread spectrum system cable option	/	/	1	RF cable kit
Power Supply					
C1/C2	Adapter power output to millimeter-wave VNA extender power input	/	Seven core	2	Power adapter

➤ **Cable list of S3602C/D/E Vector Network Analyzer (Four-Port) Spread Spectrum System**

No.	Cable Name and Function	Length (meter)	Connector	Quantity	Remarks
Microwave Cable					
A1	S3602C/D/E complete machine four port spread spectrum system cable option	/	/	1	RF cable kit
Power Supply					
C1/C2	Adapter power output to millimeter-wave VNA extender power input	/	Seven core	2	Power adapter

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