N5252APXI

2-Port VNA to VNAX Adapter Module

The N5252APXI is a Virginia Diodes, Inc. VNAX-AM adapter module to use with VNAX extenders, the Keysight N5262BR/T/Wxx series, and Keysight PXI or Streamline Vector Network Analyzers.

Notices

Trademark Acknowledgments

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N5252-90004

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Warranty

Technology Licenses

U.S. Government Rights

Safety Notices

NOTE

A **NOTE** calls the user's attention to an important point or special information in the text.

CAUTION

A **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a CAUTION notice until the indicated conditions are fully understood and met.

WARNING

A **WARNING** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.

Keysight Technologies
Streamline VNA to VDI VNAX Adapter Module N5252APXI

The N5252APXI is a Virginia Diodes, Inc. VNAX-AM adapter module to use with VNAX extenders, the Keysight N5262BR/T/Wxx series, and Keysight PXI or Streamline Vector Network Analyzers. Normally, the PXI or Streamline series require N5252AWxx VNAX-P series with built-in diplexers and other components to specifically work with Keysight VNAs, but N5252A with the N5252APXI adapter enables the use of the standard VNAX frequency extenders, which can be separated up to 10m when extenders have option 500 and 5m cable sets.

- Any of the P50xx, M980x, M/P937xA may be used with the N5252APXI and a pair of N5262BW frequency extenders up to WR6.5.
- Either P50xx or M980x may be used with N5252APXI and a pair of N5262BW frequency extenders up to WR3.4, although the performance degrades due to multiplication of the LO and RF frequencies for higher frequencies.

Refer to the N5252A User's Guide (N5252-90002) for operation and Streamline/PXIe VNA to VDI VNAX Adapter Module (VNAX-AM) for VDI's operation manual.

The N5252APXI comes in a Pelican case and includes a power supply, a USB, tools, and five cables to connect the N5252APXI module to the PXI or Streamline VNA (Figure 1). To connect the extender to the N5252APXI adapter, cable sets option 501 or 505 will need to be purchased with the VNAX mm-wave extender. 1.2m or 5m cable sets are available in the N5262BWxx, N5262BRxx, and N5262BTxx models or in the model N5262AKCBL cable kits for mm-wave systems with VDI modules.

Figure 1   N5252APXI Shipment Components[1]

N5252APXI Pelican case   N5252APXI module

USB drive, cable set, tools, and power supply

1. Power cord not shown.

Dimensions and Space Requirements

Table 1   **Instrument Dimensions**

Model	Weight	Height	Width	Depth
N5252APXI	3 lbs. 1.1 0z.	1.625 inches	6.0 inches	5.5 inches

Power Requirements

- **Voltage and/or range (V):** 100-240 Vac (AC input for AC/DC adapter), 9 Vdc (input for module)
- **Frequency and/or range (Hz):** 50-60 Hz (AC input for AC/DC adapter)
- **Power in Watts, VA or Current (A):** 1.2 A max (input for AC/DC adapter), 4 A (input for module)

NOTE	The instrument can operate with mains supply voltage fluctuations up to ± 10% of the nominal voltage.

Install the instrument so that the detachable power cord is readily identifiable and is easily reached by the operator. The detachable power cord is the instrument disconnecting device. It disconnects the mains circuits from the mains supply before other parts of the instrument. Alternatively, an externally installed switch or circuit breaker (which is readily identifiable and is easily reached by the operator) may be used as a disconnecting device.

Environmental Conditions

- For indoor use only
- Operating temperature: Typical 25 degrees C; recommended 20-30 degrees C.

CAUTION	This product is designed for use in INSTALLATION CATEGORY II and POLLUTION DEGREE 2.

Figure 2   Basic Block Diagram for the N5252APXI

Streamline to Standard VNAX Adapter
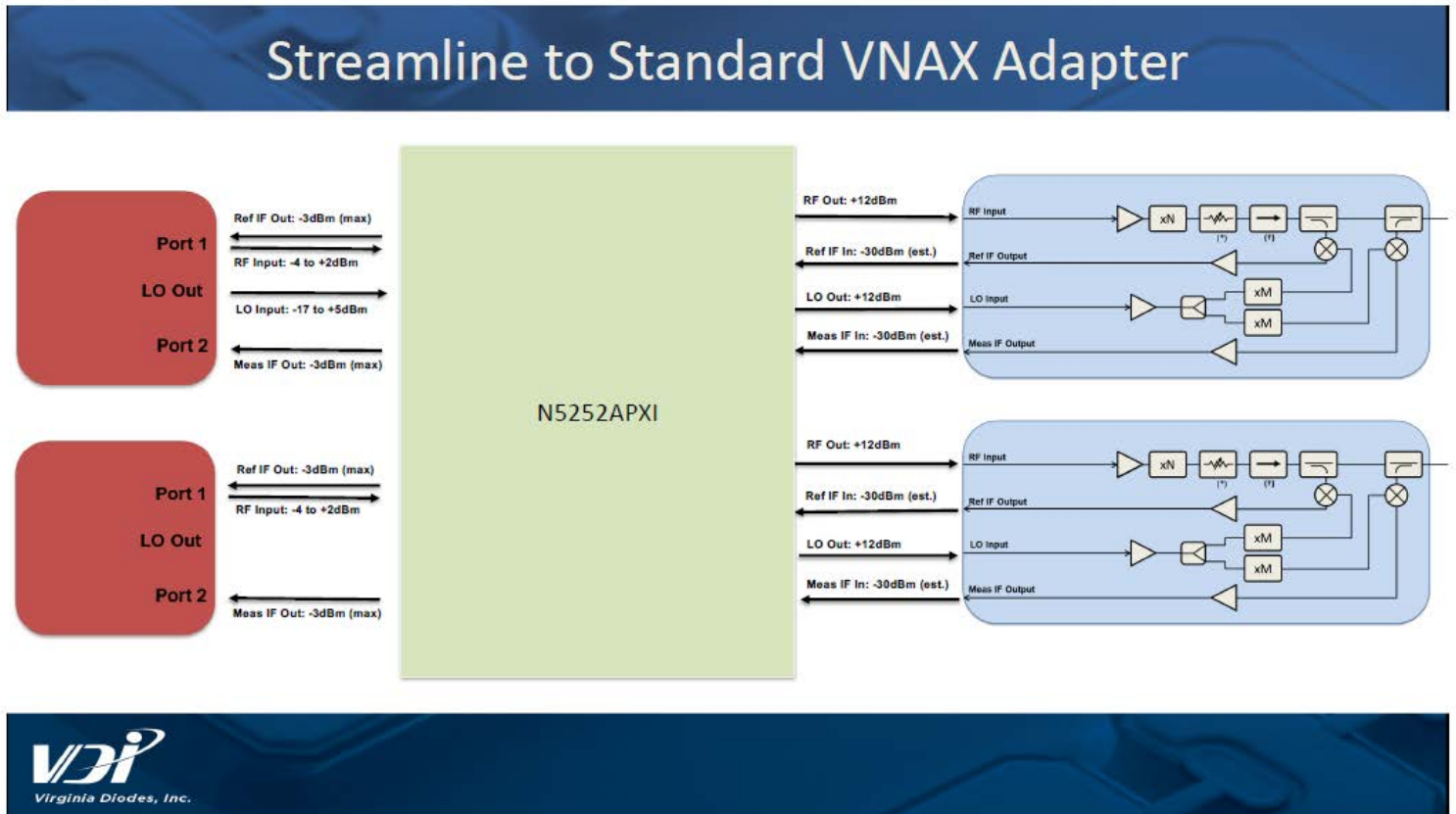
Note:

- RF and LO paths include splitter and amplifiers to boost signals to +10dBm (+/-3dB), sufficient to drive VDI VNAX Module.
- IF paths include amplifiers to boost the signal to -1dBm.
- Diplexers are installed to use same port of the VNA for both Ref IF and RF output to the extender.

System Configuration with the N5252APXI

Refer to the diagram below and Figure 4 on page 8 for your system.

Figure 3　　　　N5252APXI Connection with Standard VNAX Modules[1]

1. Power supply connections not shown.

1. Place the N5252APXI adapter on top of the PXI VNA or Streamline. The five cables are short and designed for placement of N5252APXI on top of the PXI chassis or Streamline.
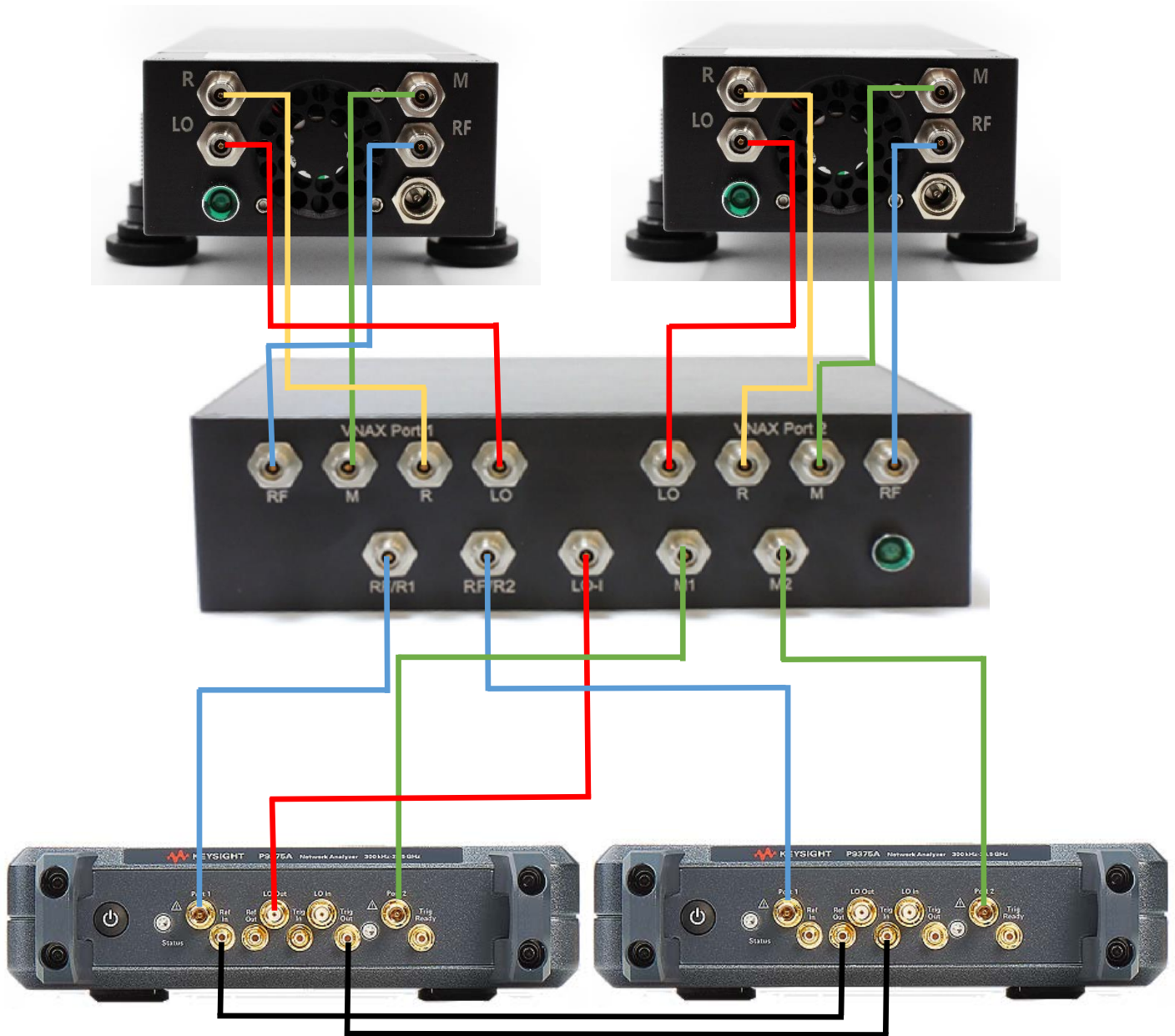
2. Connect the PXI VNA or Streamline VNA to the VDI VNAX adapter modules following the connection diagram above. RF1, RF2, LO, M1, and M2 connections to the PXI VNA or Streamline VNA.

3. Connect VNAX extenders to the VNAX Port 1 or Port 2 top connections (RF, LO, M, and R extender panel connectors).

4. Connect the power adapter module (9 vdc, 4 amp) and the supplied line cord to your AC line, then connect the adapter to the N5252APXI. Verify the green LED on the front panel is illuminated, indicating power is on.

> Note: The N5252APXI does not have a power switch. If the front panel green LED fails to illuminate, it is indicating no power or an electrical failure. Verify +9 vdc at cable supply end to N5252APXI.

5. Ensure your extenders are on with their power supplies, and note that the VNAX series extenders operate as the N5252APXI, with green LED rear panel indicators.

6. Refer to the N5252-90002 User's Guide for system configuration and operation information.

7. Refer to the Banded Millimeter-wave Network Analysis Technical Overview for information on available extenders and banded mm-wave systems.

Table 2   Compatible Vector Network Analyzers

Model	Required Option/Software License
M937x Series (with ≥ 20 GHz)[3]	Option 551
M98xx Series (with ≥ 20 GHz)[3]	Software License S95560B[1,2]
P500x Series (with ≥ 20 GHz)[3]	Software License S97560B[1,2]
P93xx Series (with ≥ 20 GHz)[3]	S97551A

1. Software licenses S95560B (M98xx Series) and S97560B (P50xx Series) are needed for operation with N5252AW VDI frequency extenders.

2. If using two M98xx or P50xx Series VNAs, you will also need software licenses S95551B (M98xx) or S97551B (P50xx).

3. For V-band, the 14 GHz VNA can be used.

Figure 4   N5252APXI Configuration Examples

A. Keysight N5252APXI module configured with two Keysight M9375A Network Analyzer modules (inside a Keysight M9005A PXIe chassis) and two standard VDI mm–wave modules.

B. Keysight N5252APXI module configured with a P-Series Streamline Vector Network Analyzer and two standard VDI mm–wave modules.

Safety and Information

WARNING	Use the Keysight supplied power cord or one with the same or better electrical rating.
WARNING	No operator serviceable parts inside. Refer servicing to qualified personnel. To prevent electrical shock do not remove covers.
WARNING	The Mains wiring and connectors shall be compatible with the connector used in the premise electrical system. Failure to ensure adequate earth grounding by not using the correct components may cause product damage and serious injury.
WARNING	If this product is not used as specified, the protection provided by the equipment could be impaired. This product must be used in a normal condition (in which all means for protection are intact) only.
CAUTION	This instrument has auto-ranging line voltage input. Be sure the supply voltage is within the specified range and voltage fluctuations do not to exceed 10 percent of the nominal supply voltage.
CAUTION	Use ESD precautions when using these devices.
NOTE	Before using your adapter module, please read all documentation from VDI (included on the USB drive). It is important to follow the General Operating Procedures and Guidelines section.
NOTE	This product has been designed and tested in accordance with accepted industry standards and has been supplied in a safe condition. The documentation contains information and warnings that must be followed by the user to ensure safe operation and to maintain the product in a safe condition.
NOTE	Only Keysight approved accessories shall be used.
NOTE	The main power cord can be used as the system disconnecting device. It disconnects the mains circuits from the mains supply.
WARNING	Safety of any system incorporating the equipment is the responsibility of the assembler of the system.
WARNING	To prevent electrical shock, disconnect the instrument from the mains before cleaning. Use a dry cloth or one slightly dampened with water to clean the external case parts. Do not attempt to clean internally.
NOTE	Cleaning connectors with alcohol shall only be done with the instrument's power cord removed and in a well-ventilated area. Allow all residual alcohol moisture to evaporate and the fumes to dissipate prior to energizing the instrument.
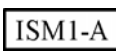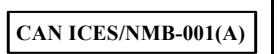
Instrument Markings

Listed below are definitions for the markings that may be found on the product.

⚠	The instruction documentation symbol. The product is marked with this symbol when it is necessary for the user to refer to the instructions in the documentation.
∿	The AC symbol indicates the required nature of the line module input power.
🚮	This symbol indicates separate collection for electrical and electronic equipment, mandated under EU law. All electric and electronic equipment are required to be separated from normal waste for disposal (Reference WEEE Directive).
|	This symbol indicates that the power line switch is ON.
⏻	This symbol indicates that the power line switch is in the STANDBY position.
○	This symbol indicates that the power line switch is in the OFF position.
⏚	This symbol is used to identify a terminal which is internally connected to the product frame or chassis.
CE	The CE mark is a registered trademark of the European Community.
ccr.keysight@keysight.com	The Keysight email address is required by EU directives applicable to our product.
UK CA	UK conformity mark is a UK government owned mark. When affixed to the product is declaring all applicable Directives and Regulations have been met in full.
ⓈⒶ ® c US	The CSA mark is a registered trademark of the CSA International.
ISM1-A	This is a symbol of an Industrial Scientific and Medical Group 1 Class A product (CISPR 11, Clause 5).
CAN ICES/NMB-001(A)	This is a marking to indicate product compliance with the Canadian Interference-Causing Equipment Standard (ICES-001).
⎓	Direct Current.
IP 2 0	The instrument has been designed to meet the requirements of IP 2 0 for egress and operational environment.
RCM	The RCM mark is a registered trademark of the Australian Communications and Media Authority.
40	Indicates the time period during which no hazardous or toxic substance elements are expected to leak or deteriorate during normal use. Forty years is the expected useful life of the product.
♻	This symbol on all primary and secondary packaging indicates compliance to China standard GB 18455-2001.
KC	South Korean Certification (KC) mark; includes the marking's identifier code.

EMC Compliance

Complies with the essential requirements of the European EMC Directive as well as current editions of the following standards (dates and editions are cited in the Declarations of Conformity):

- IEC/EN 61326-1

- CISPR Pub 11 Group 1, Class A
  Caution: This equipment is not intended for use in residential environments and may not provide adequate protection to radio reception in such environments.

- AS/NZS CISPR 11

- CAN ICES/NMB-001 (A)
  This ISM device complies with Canadian ICES-001.
  Cet appareil ISM est conforme a la norme NMB-001 du Canada.

NOTE	This is a sensitive measurement apparatus by design and may have some performance loss (up to 85 dB above the noise floor) when exposed to ambient electromagnetic phenomenon in the range of 190 kHz - 8 MHz, similar to those tested per IEC 61000-4-6 (3V).

South Korean Class A EMC Declaration

If there is a "KC" mark on the instrument, then the following statement applies:

This equipment has been conformity assessed for use in business environments. In a residential environment, this equipment may cause radio interference.

※ This EMC statement applies to the equipment only for use in a business environment.

사 용 자 안 내 문
이 기기는 업무용 환경에서 사용할 목적으로 적합성평가를 받은 기기로서 가정용 환경에서 사용하는 경우 전파간섭의 우려가 있습니다.

※ 사용자 안내문은 "업무용 방송통신기자재"에만 적용한다.

Safety

Complies with the following standard (dates and editions are cited in the Declaration of Conformity):

- IEC/EN 61010-1

Acoustic Statement (European Machinery Directive)

Acoustic noise emission
LpA <70 dB
Operator position
Normal operation mode per ISO 7779

To find a current Declaration of Conformity for a specific Keysight product, go to:
https://regulations.about.keysight.com/DoC/default.htm

Inspect the shipping container. If the container or packing material is damaged, it should be kept until the contents of the shipment have been checked mechanically and electrically. If there is physical damage refer to "Contacting Keysight" below. Keep the damaged shipping materials (if any) for inspection by the carrier and a Keysight Technologies representative.

Contacting Keysight

Assistance with test and measurement needs, and information on finding a local Keysight office are available on the Internet at:
http://www.keysight.com/find/assist

You can also purchase accessories items on the Internet at:
http://www.keysight.com/find/accessories

If you do not have access to the Internet, contact your field engineer.

NOTE In any correspondence or telephone conversation, refer to the Keysight product by its model number and full serial number. With this information, the Keysight representative can determine the warranty status of your unit.

N5252-90004

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