Keysight Technologies
Streamline Series
USB Vector Network Analyzer
P937xA 2-port, Up to 26.5 GHz

Configuration Guide

Compact Form. Zero compromise.
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Keysight Streamline Series: Exceptional Performance in a Small Package

Balance deadlines, productivity, budget and bench space with the Keysight P937xA, a member of Keysight’s Streamline Series. You’ll move confidently across every stage of your product’s development lifecycle by leveraging accurate and repeatable measurements, automated code capability, and a consistent, intuitive user experience. With comprehensive Keysight Services including calibration, education and consulting, these instruments enhance your solution to help you accelerate technology adoption and lower costs.

The P937xA series, Keysight’s first compact vector network analyzer (VNA), is an affordable full two-port VNA which dramatically reduces your size of test. The compact VNA has wide frequency coverage with six frequency breaks, that operates from 300 kHz up to 26.5 GHz. The VNA is packaged in a compact chassis and controlled from an external computer with powerful data processing capabilities and functionalities. The firmware running on the PC has the same intuitive GUI as the other Keysight VNAs which allows you to reduce switching cost between models.

This configuration guide describes standard configurations, options, accessories, upgrade kits and compatible peripherals for the Keysight Streamline Series P937xA USB vector network analyzer (VNA).

P937xA 2-port USB Vector Network Analyzer

- P9370A 300 kHz to 4.5 GHz
- P9371A 300 kHz to 6.5 GHz
- P9372A 300 kHz to 9 GHz
- P9373A 300 kHz to 14 GHz
- P9374A 300 kHz to 20 GHz
- P9375A 300 kHz to 26.5 GHz

Figure 1. Share the compact VNA between your different test stations.
Frequency Models

Choose one of the frequency models.

<table>
<thead>
<tr>
<th>Product Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P9370A</td>
<td>USB vector network analyzer, 300 kHz to 4.5 GHz, 2-port</td>
</tr>
<tr>
<td>P9371A</td>
<td>USB vector network analyzer, 300 kHz to 6.5 GHz, 2-port</td>
</tr>
<tr>
<td>P9372A</td>
<td>USB vector network analyzer, 300 kHz to 9 GHz, 2-port</td>
</tr>
<tr>
<td>P9373A</td>
<td>USB vector network analyzer, 300 kHz to 14 GHz, 2-port</td>
</tr>
<tr>
<td>P9374A</td>
<td>USB vector network analyzer, 300 kHz to 20 GHz, 2-port</td>
</tr>
<tr>
<td>P9375A</td>
<td>USB vector network analyzer, 300 kHz to 26.5 GHz, 2-port</td>
</tr>
</tbody>
</table>

Application Software

<table>
<thead>
<tr>
<th>Product Number</th>
<th>Description</th>
<th>Additional Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>S97007A</td>
<td>Automatic fixture removal</td>
<td></td>
</tr>
<tr>
<td>S97010A</td>
<td>Time domain analysis</td>
<td></td>
</tr>
<tr>
<td>S97082A</td>
<td>Scalar mixer/converter measurements</td>
<td>Provides ability to independently set the frequency of internal sources and receivers, and to configure external sources. Provides scalar mixer calibration.</td>
</tr>
<tr>
<td>S97551A</td>
<td>Multiport calibrated measurements²</td>
<td>Required for multiport measurements (max 4-port) using stacked two P937xA instruments.</td>
</tr>
</tbody>
</table>

1. Supported software license types: node-locked perpetual (1FP), node-locked 12 month (1FL).
2. A 4-port ECal module (i.e. N4431B, N4432A or N4433A) is recommended for multiport measurements.

Calibration Options

<table>
<thead>
<tr>
<th>Product Number</th>
<th>Description</th>
<th>Additional Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option 1A7</td>
<td>ISO 17025 complaint calibration</td>
<td></td>
</tr>
<tr>
<td>Option A6J</td>
<td>ANSI Z540 compliant calibration</td>
<td></td>
</tr>
<tr>
<td>Option UK6</td>
<td>Commercial calibration certificate with test data</td>
<td></td>
</tr>
</tbody>
</table>

Accessories

<table>
<thead>
<tr>
<th>Product Number</th>
<th>Description</th>
<th>Additional Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y1281A</td>
<td>Accessory and tool kit</td>
<td>Includes the following tools for SMA and SMB connector removal: 5002-3361 Pull tool for SMB connectors, 5023-1450 Custom long deep socket for 3.5/SMA connector nuts</td>
</tr>
<tr>
<td>Y1701A</td>
<td>Multiple USB instruments configuration kit</td>
<td>Includes latch kit for connecting two USB instruments. Add optional 2 SMB cables and 1 SMA cable for connecting 2 P937xA to configure a 4-port analyzer. Option 001 Interconnect cables for multiport configuration of P937xA. Option 101 Latch kit for connecting two 1-slot USB instruments</td>
</tr>
<tr>
<td>Y1710A</td>
<td>Hard transit case</td>
<td></td>
</tr>
</tbody>
</table>
Measurement Application Software

Automatic fixture removal (S97007A)
Many devices do not have coaxial connectors and are put in fixtures in order to measure them in a coaxial environment. Accurately removing the effects of the fixture is required to get a good measurement of the device under test (DUT). This application adds a powerful application wizard to guide you through characterizing a fixture and removing it from the measurement. Devices can be single-ended or differential. Files can be saved in a variety of formats for later use in ENA, PNA, ADS, and PLTS.

Time domain analysis (S97010A)
This application enables the analyzer to view reflection and transmission responses in time or distance. Use time domain to tune filters, gate out the response of fixtures and cables, characterize the impedance of transmission lines and more.

Scalar mixer/converter measurements (S97082A)
This application enables the analyzer to set the frequency of the internal source independently from where the receivers are tuned, and is required to configure an external source. This ability is important for measuring mixers and converters. This application delivers the highest accuracy for scalar conversion-loss/gain measurements by combining one-port and power calibrations to remove mismatch errors.

Multiport calibrated measurements (S97551A)
Keysight USB VNA offers a capability to extend the number of ports for your measurements by using an additional instrument. When multiple instruments are used, they are configured for multiport operation. The instruments may be identified by the firmware as one VNA by an external PC. At least one VNA instrument connected to your PC must have one S97551A license to maintain N-port capabilities. The frequency of the multiport array is determined by the lowest frequency instrument configured in the array. For example, a 4-port analyzer configuration using a P9370A (4.5 GHz) and a P9375A (26.5 GHz) would have a maximum frequency of 4.5 GHz when performing 4-port measurements. This behavior extends to S97007A, S97010A and S97082A. In a multiport configuration, only one instrument must have a valid license for these capabilities to function in multiport mode.

Each instrument is connected into the array with Keysight cables. A Y1701A Multiple USB instruments configuration kit should be ordered for each additional instrument and a single Y1281A accessory and toolkit should be ordered for easier cable connections.

Figure 2. 4-port configuration using two P937xA VNAs
Measurement Accessories

A complete list of RF and microwave test accessories is available on our Web site:
http://www.keysight.com/find/mta

Accessories are available in these connector types:

- 50 Ω Type-N, 3.5 mm, 7 mm, and waveguide. Test port cables and a calibration kit should be added for a complete measurement system. A verification kit is used to verify corrected system performance.

Cables and adapter sets

Keysight offers cables in the following types:
- Single cables in semi-rigid and flexible
- Cable sets in semi-rigid and flexible

There are also adapter sets available that protect the test port and convert the port to the desired connector interface. These kits contain:
- One male adapter
- One female adapter

To attain the best mechanical rigidity for device connection, use a single cable and the appropriate special adapter set. To attain the greatest flexibility for device connection, use a cable set.

Calibration kits

Coaxial measurements

Mechanical calibration kits include standards, such as opens, shorts and loads, which are measured by the network analyzer for increased measurement accuracy.

Choose a calibration kit for each connector type to be used.

Economy includes:
- open standards (male and female)
- short standards (male and female)
- fixed-termination standards (male and female)

Standard includes the devices in the economy kit and adds:
- sliding load standards (male and female) or a series of offset shorts

Precision includes the devices in the economy kit and adds:
- 50 Ω airline(s) for TRL calibration
- TRL adapters

Electronic calibration (ECal) kits replace mechanical calibration standards with one solid-state calibration that is controlled by the network analyzer via USB, to present many different impedances to the test ports. A full calibration can be performed quickly with a single connection. This technique reduces operator errors and connector wear and abrasion.

For more information about ECal modules, refer to the technical overview (5963-3743E).

Waveguide measurements

For waveguide measurements, Keysight offers mechanical calibration kits that include:
- waveguide-to-coax adapters (X, P, K, R, Q, U, V)
- precision waveguide section
- flush short circuit
- fixed terminations
- straight section
For devices with 3.5 mm or SMA connectors

Mechanical calibration kits

85033E economy: DC to 9 GHz. Includes:
- 85033-60016 3.5 mm (m) load
- 85033-60017 3.5 mm (f) load
- 85033-60018 3.5 mm (m) open
- 85033-60019 3.5 mm (f) open
- 85033-60020 3.5 mm (m) short
- 85033-60021 3.5 mm (f) short
- 8710-1761 torque wrench

Option 85033E-100 adds:
- 85027-60005 3.5 mm (f) to 3.5 mm (f) adapter

Option 85033E-200 adds:
- 85027-60007 3.5 mm (m) to 3.5 mm (m) adapter

Option 85033E-300 adds:
- 85027-60006 3.5 mm (m) to 3.5 mm (f) adapter

Option 85033E-400 adds:
- 1250-1744 3.5 mm (f) to 50 Ω Type-N (m) adapter
- 1250-1743 3.5 mm (m) to 50 Ω Type-N (m) adapter
- 1250-1745 3.5 mm (f) to 50 Ω Type-N (f) adapter
- 1250-1750 3.5 mm (m) to 50 Ω Type-N (f) adapter

Option 85033E-500 adds:
- 1250-1746 3.5 mm (m) to 7 mm adapter (two included)
- 1250-1747 3.5 mm (f) to 7 mm adapter (two included)

85052B standard: DC to 26.5 GHz. Includes:
- 00902-60003 3.5 mm (m) fixed load
- 00902-60004 3.5 mm (f) fixed load
- 00911-60019 3.5 mm (m) sliding load
- 00911-60020 3.5 mm (f) sliding load
- 85052-60006 3.5 mm (m) short
- 85052-60007 3.5 mm (f) short
- 85052-60008 3.5 mm (m) open
- 85052-60009 3.5 mm (f) open
- 85052-60012 3.5 mm (f) to 3.5 mm (f) adapter
- 85052-60013 3.5 mm (m) to 3.5 mm (m) adapter
- 85052-60014 3.5 mm (m) to 3.5 mm (m) adapter

85052C precision TRL: DC to 26.5 GHz. Includes:
- 00902-60003 3.5 mm (m) fixed load
- 00902-60004 3.5 mm (f) fixed load
- 85052-60006 3.5 mm (m) short
- 85052-60007 3.5 mm (f) short
- 85052-60008 3.5 mm (m) open
- 85052-60009 3.5 mm (f) open
- 85052-60032 3.5 mm (f) to 3.5 mm (f) adapter
- 85052-60033 3.5 mm (m) to 3.5 mm (m) adapter
- 85052-60034 3.5 mm (f) to 3.5 mm (m) adapter
- 85052-60035 3.5 mm short TRL line
- 85052-60036 3.5 mm long TRL line

Electronic Calibration (ECal) modules

85093C RF ECal: 300 kHz to 9 GHz, 2-ports. Standard module includes:
- Option 00F: Both 3.5 mm connectors are female
- Option 00M: Both 3.5 mm connectors are male
- Option M0F: One female and one male connector, both 3.5 mm
- Option 00A adds:
  - 85052-60012 3.5 mm (f) to 3.5 mm (f) adapter
  - 85052-60014 3.5 mm (m) to 3.5 mm (m) adapter
- Option 150: Replaces standard storage container with a wooden box

85093C mixed-connector options:

<table>
<thead>
<tr>
<th>Connector type</th>
<th>Port A Option</th>
<th>Port B Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>Male</td>
<td>Type-N 50 Ω</td>
</tr>
<tr>
<td>3.5 mm</td>
<td>101</td>
<td>201</td>
</tr>
<tr>
<td>7-16</td>
<td>205</td>
<td>206</td>
</tr>
</tbody>
</table>

N4431B ECal: 300 kHz to 13.5 GHz, 4-ports.

<table>
<thead>
<tr>
<th>Connector type</th>
<th>Port A option</th>
<th>Port B option</th>
<th>Port C option</th>
<th>Port D option</th>
</tr>
</thead>
<tbody>
<tr>
<td>Four 3.5 mm female</td>
<td>010</td>
<td>401</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Four Type-N 50 Ω (f)</td>
<td>020</td>
<td>303</td>
<td>403</td>
<td></td>
</tr>
<tr>
<td>3.5 mm (f)</td>
<td>101</td>
<td>201</td>
<td>301</td>
<td></td>
</tr>
<tr>
<td>3.5 mm (m)</td>
<td>102</td>
<td>202</td>
<td>302</td>
<td>402</td>
</tr>
<tr>
<td>Type-N 50 Ω (f)</td>
<td>103</td>
<td>203</td>
<td>303</td>
<td>403</td>
</tr>
<tr>
<td>Type-N 50 Ω (m)</td>
<td>104</td>
<td>204</td>
<td>304</td>
<td>404</td>
</tr>
<tr>
<td>7-16 (f)</td>
<td>105</td>
<td>205</td>
<td>305</td>
<td>405</td>
</tr>
<tr>
<td>7-16 (m)</td>
<td>106</td>
<td>206</td>
<td>306</td>
<td>406</td>
</tr>
</tbody>
</table>

- Option 150: Replaces standard storage container with a wooden box

N4433A ECal: 300 kHz to 20 GHz, 4-ports.

<table>
<thead>
<tr>
<th>Connector type</th>
<th>Port A option</th>
<th>Port B option</th>
<th>Port C option</th>
<th>Port D option</th>
</tr>
</thead>
<tbody>
<tr>
<td>Four 3.5 mm (f)</td>
<td>010</td>
<td>401</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Four 3.5 mm (m)</td>
<td>102</td>
<td>202</td>
<td>302</td>
<td>402</td>
</tr>
</tbody>
</table>

- Option 150: Replaces standard storage container with a wooden box
N4691D Microwave ECal, DC or 300 kHz to 26.5 GHz, 2-ports. Includes:
- Option FOF: Both 3.5 mm connectors are female
- Option M0F: One female and one male connector, both 3.5 mm
- Option M0M: Both 3.5 mm connectors are male
- Option 0DC: DC to 26.5 GHz
- Option 003: 300 kHz to 26.5 GHz
- Option 00A adds:
  - 85052-60012 3.5 mm (f) to 3.5 mm (f) adapter
  - 85052-60014 3.5 mm (m) to 3.5 mm (m) adapter

N755XA Series Economy ECal, 2-ports:
- N7550A DC to 4 GHz, 2-ports
- N7551A DC to 6.5 GHz, 2-ports
- N7552A DC to 9 GHz, 2-ports
- N7553A DC to 14 GHz, 2-ports
- N7554A DC to 18 GHz, 2-ports
- N7555A DC to 26.5 GHz, 2-ports

N755xA Series includes:
- Option 3FF: Both 3.5 mm connectors are female
- Option 3MF: One female and one male connector, both 3.5 mm
- Option 3MM: Both 3.5 mm connectors are male
- Option 150: Plastic storage box
- N7550X-151: 3.5 mm or 2.92 mm torque wrench

Cables
85131C¹ single, semi-rigid:
3.5 mm (f) to PSC-3.5 mm (f), 81 cm, 32 inches

85131D¹ set, semi-rigid:
- 85131-60009 One 3.5 mm (f) to 3.5 mm (m), 53 cm, 21 inches
- 85131-60010 One 3.5 mm (f) to PSC-3.5 mm (f), 53 cm, 21 inches

85131E¹ single, flexible:
3.5 mm (f) to PSC-3.5 mm (f), 96.5 cm, 38 inches

85131F¹ set, flexible:
- 85131-60012 One 3.5 mm (f) to 3.5 mm (m), 62.2 cm, 24.5 inches
- 85131-60013 One 3.5 mm (f) to PSC-3.5 mm (f), 62.2 cm, 24.5 inches

Adapter sets
85130D 3.5 mm1 to 3.5 mm

1. Special rugged female connector specifically for connecting to the network analyzer test port, but does not mate with a standard male connector.
For devices with Type-N connectors

Mechanical calibration kits

85032F standard, DC to 9 GHz Includes:
- 85032-60017 Type-N (m) fixed load
- 85032-60018 Type-N (f) fixed load
- 85032-60013 Type-N (m) open
- 85032-60014 Type-N (f) open
- 85032-60016 Type-N (m) short
- 85032-60015 Type-N (f) short

Option 85032F-100 adds:
- 85032-60021 Type-N (f) to Type-N (f) adapter

Option 85032F-200 adds:
- 85032-60019 Type-N (m) to Type-N (m) adapter

Option 85032F-300 adds:
- 85032-60020 Type-N (m) to Type-N (f) adapter

Option 85032F-500 adds:
- 85054-60001 Type-N (f) to 7 mm adapter (two included)
- 85054-60009 Type-N (m) to 7 mm adapter (two included)

85054B standard: DC to 18 GHz. Includes:
- 00909-60011 Type-N (m) fixed lowband load
- 00909-60012 Type-N (f) fixed lowband load
- 85054-60025 Type-N (m) short
- 85054-60026 Type-N (f) short
- 85054-60027 Type-N (m) open
- 85054-60028 Type-N (f) open
- 85054-60031 Type-N (f) to 7 mm adapter
- 85054-60032 Type-N (m) to 7 mm adapter
- 85054-60037 Type-N (f) to Type-N (f) adapter
- 85054-60038 Type-N (m) to Type-N (m) adapter
- 85054-80010 Type-N (f) sliding load
- 85054-80009 Type-N (m) sliding load
- 85054-60050 Type-N (f) connector gage
- 85054-60052 Type-N (f) gage master
- 85054-60051 Type-N (m) connector gage
- 85054-60053 Type-N (m) gage master

85054D economy: DC to 18 GHz. Includes:
- 85054-60025 Type-N (m) short
- 85054-60026 Type-N (f) short
- 85054-60027 Type-N (m) open
- 85054-60028 Type-N (f) open
- 85054-60031 Type-N (f) to 7 mm adapter
- 85054-60032 Type-N (m) to 7 mm adapter
- 85054-60037 Type-N (f) to Type-N (f) adapter
- 85054-60038 Type-N (m) to Type-N (m) adapter
- 85054-60046 Type-N (m) fixed load
- 85054-60047 Type-N (f) fixed load

Electronic calibration (ECal) modules

85092C RF ECal: 300 kHz to 9 GHz, 2 ports. Includes:
- Option 00F: both Type-N connectors are female
- Option 00M: both Type-N connectors are male
- Option M0F: one female and one male connector, both Type-N
- Option 00A adds:
  - 85054-60037 Type-N (f) to Type-N (f) adapter
  - 85054-60038 Type-N (m) to Type-N (m) adapter

N4431B ECal: 300 kHz to 13.5 GHz, 4-ports.

<table>
<thead>
<tr>
<th>Connector type</th>
<th>Port A option</th>
<th>Port B option</th>
<th>Port C option</th>
<th>Port D option</th>
</tr>
</thead>
<tbody>
<tr>
<td>Four 3.5 mm (f)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Four Type-N 50 Ω (f)</td>
<td>010</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.5 mm (f)</td>
<td>101</td>
<td>201</td>
<td>301</td>
<td>401</td>
</tr>
<tr>
<td>3.5 mm (m)</td>
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<td>302</td>
<td>402</td>
</tr>
<tr>
<td>Type-N 50 Ω (f)</td>
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<tr>
<td>Type-N 50 Ω (m)</td>
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<tr>
<td>7-16 (f)</td>
<td>105</td>
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<tr>
<td>7-16 (m)</td>
<td>106</td>
<td>206</td>
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</tbody>
</table>

- Option 150: Replaces standard storage container with a wooden box

N4432A ECal: 300 kHz to 18 GHz, 4-ports.

<table>
<thead>
<tr>
<th>Connector type</th>
<th>Port A option</th>
<th>Port B option</th>
<th>Port C option</th>
<th>Port D option</th>
</tr>
</thead>
<tbody>
<tr>
<td>Four Type-N 50 Ω (f)</td>
<td></td>
<td></td>
<td></td>
<td>020</td>
</tr>
<tr>
<td>3.5 mm (f)</td>
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<tr>
<td>3.5 mm (m)</td>
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<td>402</td>
</tr>
<tr>
<td>Type-N 50 Ω (f)</td>
<td>103</td>
<td>203</td>
<td>303</td>
<td>403</td>
</tr>
<tr>
<td>Type-N 50 Ω (m)</td>
<td>104</td>
<td>204</td>
<td>304</td>
<td>404</td>
</tr>
</tbody>
</table>

- Option 150: Replaces standard storage
N4690D Microwave ECal, DC or 300 kHz to 18 GHz, 2-ports.
Includes:
- Option F0F: Both Type-N connectors are female
- Option M0F: One female and one male connector, both Type-N connectors
- Option M0M: Both Type-N connectors are male
- Option 0DC: DC to 18 GHz
- Option 003: 300 kHz to 18 GHz
- Option 00A adds:
  - 85054–60037 Type-N (f) to Type-N (f) adapter
  - 85054–60038 Type-N (m) to Type-N (m) adapter

N755XA Series Economy ECal, 2-ports:
- N7550A DC to 4 GHz, 2-ports
- N7551A DC to 6.5 GHz, 2-ports
- N7552A DC to 9 GHz, 2-ports
- N7553A DC to 14 GHz, 2-ports
- N7554A DC to 18 GHz, 2-ports

N755xA Series includes:
- Option NFF: Both Type-N connectors are female
- Option NMF: One female and one male connector, both Type-N
- Option NMM: Both Type-N connectors are male
- Option 150: Plastic storage box
- 11511A Type-N (f) short
- 11512A Type-N (m) short

Cables
N6314A 50 Ω Type-N RF cable, DC to 12.4 GHz
Includes:
- 8120–8862 one 610 mm (24 in) cable with male connectors

N6315A 50 Ω Type-N RF cable, DC to 12.4 GHz
Includes:
- 8121–0027 one 610 mm (24 in) cable with both female and male connectors

Adapter sets
11853A 50 Ω Type-N accessory kit. Includes:
- 1250–1472 Type-N (f) to Type-N (f) adapter (two included)
- 1250–1475 Type-N (m) to Type-N (m) adapter (two included)
- 11511A Type-N (f) short
- 11512A Type-N (m) short

11878A Type-N to 3.5 mm adapter kit. Includes:
- 1250–1744 3.5 mm (f) to 50 Ω Type-N (m) adapter
- 1250–1743 3.5 mm (m) to 50 Ω Type-N (m) adapter
- 1250–1745 3.5 mm (f) to 50 Ω Type-N (f) adapter
- 1250–1750 3.5 mm (m) to 50 Ω Type-N (f) adapter

11524A 7 mm to Type-N (f) adapter
11525A 7 mm to Type-N (m) adapter

85130C 3.5 mm to Type-N includes:
- 85054–60029 NMD–3.5 mm to Type-N (f)
- 85054–60030 NMD–3.5 mm to Type-N (m)

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1. Special rugged female connector specifically for connecting to the network analyzer test port, but does not mate with a standard male connector.
For devices with waveguide connectors

**Mechanical calibration kits**

**X Band**
X11644A Standard WR-90, 8.2 to 12.4 GHz. Includes:
- 00896-60008 X-band standard section
- 00910-60003 X-band termination
- 11644-20018 X-band short
- 11644-20021 X-band shim

**P-Band**
P11644A Standard WR-62, 12.4 to 18 GHz. Includes:
- 00896-60007 P-band standard section
- 00910-60002 P-band termination
- 11644-20017 P-band short
- 11644-20020 P-band shim

**K-Band**
K11644A Standard WR-42, 18 to 26.5 GHz. Includes:
- 00896-60006 K-band standard section
- 00910-60001 K-band termination
- 11644-20016 K-band short
- 11644-20019 K-band shim

**Verification kits**
All Keysight verification kits include:
- precision Z0 airline or match thru
- mismatched airline or mismatch thru
- fixed attenuators (except 85059V)
- traceable measured data and uncertainties

**85051B 45 MHz to 18 GHz 7 mm kit**
Includes attenuators, airline and mismatch airline with data on a USB drive for use in confirming calibrated system performance, traceable to national standards. Test procedure is provided in the service manual.

**85053B 300 kHz to 26.5 GHz 3.5 mm kit**
Includes attenuators, airline and mismatch airline with data on a USB drive for use in confirming calibrated system performance, traceable to national standards. Test procedure is provided in the service manual.

**85055A 300 kHz to 18 GHz Type-N kit**
Includes attenuators, airline and mismatch airline with data on a USB drive for use in confirming calibrated system performance, traceable to national standards. Test procedure is provided in the service manual.

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**PC Requirements for USB VNA Control**

<table>
<thead>
<tr>
<th>PC Requirement</th>
<th>Specification</th>
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</thead>
<tbody>
<tr>
<td>Operating systems</td>
<td>Windows 7 or Windows 10 (64 bit)</td>
</tr>
<tr>
<td>Processor speed</td>
<td>Intel i5 6th Generation or newer/Intel Xeon E3 v3 or newer</td>
</tr>
<tr>
<td>Available memory</td>
<td>4 GB minimum, 16 GB recommended</td>
</tr>
<tr>
<td>Available disk space</td>
<td>2 GB available drive space minimum</td>
</tr>
<tr>
<td>Display resolution</td>
<td>1024 X 768 minimum</td>
</tr>
<tr>
<td>USB</td>
<td>USB 3.0 port directly connected to Intel chipset</td>
</tr>
</tbody>
</table>

**Related Literature**

<table>
<thead>
<tr>
<th>Literature</th>
<th>Document Number</th>
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<tbody>
<tr>
<td>Keysight Streamline Series USB Vector Network Analyzer - Data Sheet</td>
<td>5992-2765EN</td>
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<tr>
<td>Keysight Network Analyzer - Selection Guide</td>
<td>5980-7603EN</td>
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<tr>
<td>Electric Calibration (ECal) Modules for Vector Network Analyzer - Technical Overview</td>
<td>5963-7343E</td>
</tr>
</tbody>
</table>
More information

Keysight Streamline Series – Vector Network Analyzer
www.keysight.com/find/USB-VNA

Keysight Network Analyzer
www.keysight.com/find/na

Keysight Electronic Calibration Kits
www.keysight.com/find/ecal

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