

Vector Network Analyzer

Bode 100 - 1 Hz to 50 MHz



Transmission/Reflection

Measure S-parameters of cables, filters, amplifiers, antennas and more.



Resonance Frequency

Detect even very narrow, high-Q resonance peaks of piezo elements or RFID and NFC transponders.



Frequency Response

Measure the complex transfer function (Gain/Phase) of active and passive electronic systems.



Complex Impedance

Analyze passive electronic components and active electronic circuits.



Stability Analysis

Analyze electronic control systems such as power supplies. Generate Bode diagrams & Nyquist plots.



Automated Measurements

Integrate the Bode 100 into measurement setups via its versatile Automation Interface.

Bode 100

The Bode 100 consists of hardware and software. The high quality hardware ensures **accurate** measurement results in the **wide frequency range** from 1 Hz to 50 MHz. Its **portable** and **compact** design enables you to test wherever you want. Due to the **versatile** system design, the Bode 100 works as **three devices in one**:

1. Vector Network Analyzer

The vector network analyzer function of the Bode 100 allows you to measure:

- Swept S-parameters in the 50 Ω system
- Reflection coefficient and return loss
- Insertion loss of filters
- Group delay characteristics
- Influence of termination on amplifiers

2. Frequency Response Analyzer

The Bode 100 serves as a Gain/Phase meter and is ideally suited to measure:

- Transfer functions of electronic circuits
- Stability of control systems such as DC/DC converters or voltage regulators
- Power Supply Rejection Ratio (PSRR) respectively Audio Susceptibility



3. Impedance Analyzer

The Bode 100 offers you a high variety of impedance measurement possibilities to easily analyze:

- Electromagnetic devices such as transformers and inductors
- Capacitors and their parasitics
- Ultrasonic and piezo electric components or systems
- Very high Q-circuits such as quartz crystals and oscillators
- Input impedance and output impedance of electronic circuits
- Resonance frequency of RFID, NFC and wireless power systems

Your benefits:

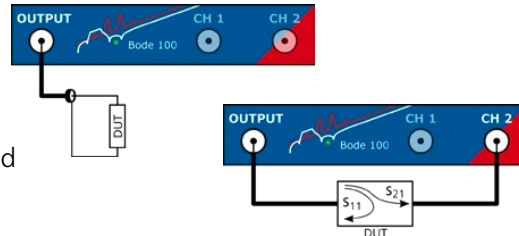
- One device for multiple applications
- Accurate measurement results
- Simple setup - fast results
- Easy data processing
- Automated measurements

Bode Analyzer Suite

You can fully control the Bode 100 via the Bode Analyzer Suite (BAS). The BAS is an **easy-to-use**, intuitive user interface, which is **included** in the Bode 100 delivery. It allows you to control the Bode 100 hardware from your Windows PC. The BAS helps you to quickly **measure and analyze** your device under test. In addition, it offers great functions to **save, document and share** your measurement results.

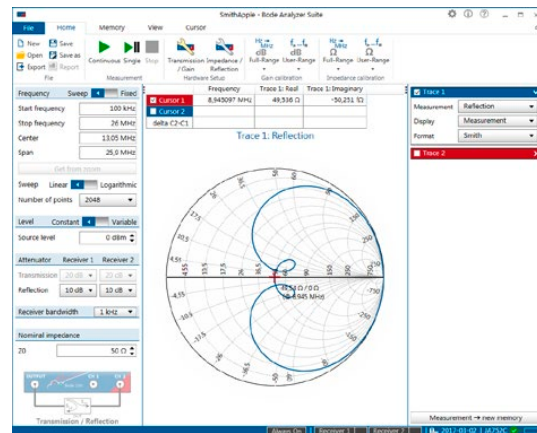
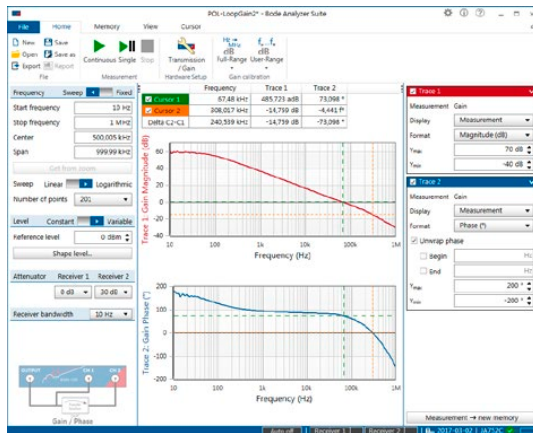
Measurement Modes

The BAS offers pre-defined measurement modes for quick configuration of the Bode 100 hardware. Impedance measurements from $m\Omega$ to $M\Omega$ are supported in Shunt-Thru and Series-Thru configuration.



Analysis

To understand and optimize your system under test, the BAS offers all kind of chart formats, like Smith, Polar, Nyquist and Bode plots. You can extract all required results and parameters from your measurements using a great variety of analysis features.



Documentation

The BAS helps you to easily extract the measurement results for your documentation. You can share and archive your results by:

- Exporting CSV, Excel or Touchstone files.
- Copying and pasting the results, charts and settings into your documents.
- Generating a PDF report containing all measurement graphs and device settings.
- Saving your entire measurement including the device settings to a *.bode3 file which can be viewed on any Windows PC having the Bode Analyzer Suite 3.12 or newer installed.

Integration & Automation

Easily automate your Bode 100 measurements via the Bode Automation Interface 3.12 using:

- OLE compliant controllers such as VBA (e.g. Excel), Matlab,...
- Programming languages like Visual Basic, C#, C++ or any other COM+ compatible system/language
- LabVIEW 2015 or newer

Technical Data

Signal Source

Frequency range: 1 Hz to 50 MHz
Output impedance: 50 Ω
Waveform: Sinusoidal signal
Signal level: -30 dBm to 13 dBm
(at 50 Ω load)
Connector: BNC

Inputs: CH1, CH2

Input impedance: 50 Ω or 1 M Ω || 50 pF
(software switchable)
Receiver bandwidth: 1 Hz to 5 kHz
Input attenuators: 0 dB, 10 dB, 20 dB, 30 dB, 40 dB
Input sensitivity: 100 mV_{RMS} full scale
(with 0 dB input attenuator)
Dynamic range: > 100 dB
Gain error: < 0.1 dB (calibrated)
Phase error: < 0.5° (calibrated)
Connector: BNC

PC Requirements

Processor: Core-i Dual-Core (or similar)
Memory (RAM): 2 GB, 4 GB recommended
Graphics resolution: Super VGA (1024x768)
higher resolution recommended
Graphics card: 11 with Direct2D support
USB interface: USB 2.0 or higher
Operating system: Windows 7 SP1 or higher

General

Weight Bode 100: < 2 kg / 4.4 lbs
Weight Accessories: < 0.5 kg / 1.1 lbs
Dimensions: 26 x 5 x 26.5 cm
10.25 x 2 x 10.5 inch
DC power supply: 10 V - 24 V / 10 W
AC power supply: 100 V - 240 V / 47 Hz - 63 Hz

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Delivery Includes

Vector Network Analyzer Bode 100
Bode Analyzer Suite on DVD
Printed Quick Start Guide (English)
Wide range power supply
USB cable
4 x BNC cable 50 Ω (m - m)
1 x BNC T-adapter (f - f - f)
1 x BNC straight adapter (f - f)
1 x BNC 50 Ω load (m)
1 x BNC short circuit (m)
Test objects: quartz filter and IF filter on a PCB
Order number: OL000100

Additional Accessories



B-WIT 100

Wideband injection transformer for the signal insertion into control loops
Order number: OL000151



B-SMC

Impedance test adapter for surface mount components
Order number: OL000152



B-WIC

Impedance test adapter for through-hole type components
Order number: OL000153



B-AMP

Amplifier to increase output power. Allows measuring impedance
Order number: OL000168



B-LFT 100

Low-frequency injection transformer to inject low frequency signals
Order number: OL000169



PML 1110

Passive 10:1 probe from PMK, designed for Bode 100
Order number: OL000110

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