

# Bode 100

The solution for your measurement tasks  
from 1 Hz to 40 MHz

Three devices in one



Vector Network Analyzer Bode 100 shown with a Tablet PC (PC not included in delivery).



## Transmission/Reflection

Characterize cables, filters, amplifiers and more. Measure S-parameters.



## Complex Impedance

Analyze passive electronic components and active electronic circuits.



## Frequency Response

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



## Resonance Frequency

Detect even very narrow, high-Q resonance peaks.



## Stability Analysis

Analyze electronic control systems. Generate Bode & 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 40 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  $\Omega$  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
- 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- and output impedance of electronic circuits

### Your benefits:

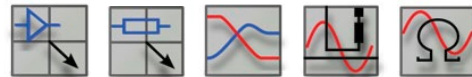
- One device for multiple applications
- Accurate measurement results
- Simple setup - fast results
- Easy data processing

# 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®1 PC. The BAS helps you to quickly **measure and analyze** your device under test. In addition, it offers great functions to **document and share** your measurement results.

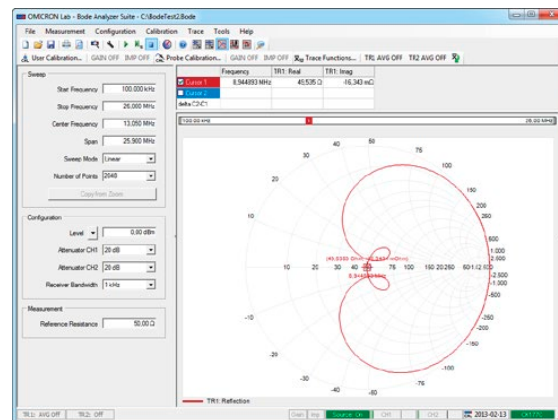
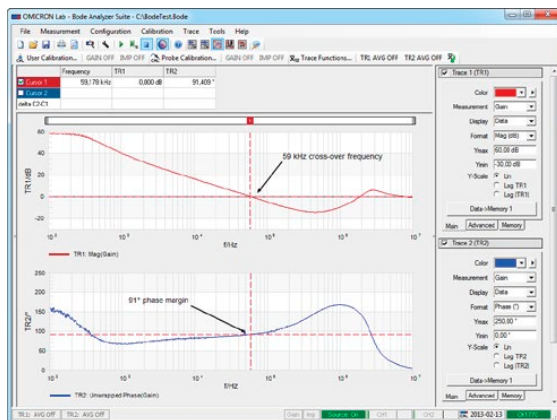
## Measurement

Pre-defined measurement modes allow you to switch quickly between different measurements and ensure that the hardware is always preset correctly.



## 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 help you to easily extract the measurement results for your documentation. You can share and archive your results by:

- Copying and pasting the results, charts and settings into your documents.
- Generating a print report containing all measurement graphs and device settings.
- Saving your entire measurement including the device settings to a \*.bodex file which can be viewed on any Windows®1 PC having the Bode Analyzer Suite installed.

## Integration & Automation

Easily automate your measurements by controlling the Bode 100 via its Automation Interface using:

- OLE compliant controllers such as VBA (e.g. Excel®1), Matlab®2, LabVIEW®3,...
- Programming languages like Visual Basic®1, C#®1, C++ or any other COM+ compatible system/language

# Technical Data

## Signal Source

Frequency range: 1 Hz to 40 MHz  
Output impedance: 50  $\Omega$   
Waveform: Sinusoidal signal  
Signal level: -27 dBm to 13 dBm  
(at 50  $\Omega$  load)  
Connector: BNC

## Inputs: CH1, CH2

Input impedance: 50  $\Omega$  or 1 M $\Omega$  // 50 pF  
(software selectable)  
Receiver bandwidth: 1 Hz to 3 kHz  
Input attenuator: 0 dB, 10 dB, 20 dB, 30 dB, 40 dB  
Input sensitivity: 100 mV<sub>RMS</sub> full scale  
(for 0 dB input attenuator)  
Dynamic range: > 100 dB  
Gain error: < 0.1 dB (calibrated)  
Phase error: < 0.5° (calibrated)  
Connector: BNC

## PC Requirements

Interface: USB  
Operating system: Windows® XP SP3 (32 bit),  
Windows® Vista  
Windows® 7  
Windows® 8  
Processor: Pentium 1GHz (minimum)  
Pentium 2.5 GHz  
(recommended)  
Memory: 512 MB RAM (minimum)  
1 GB RAM (recommended)

## 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

# Delivery Includes

Bode 100 Vector Network Analyzer  
Bode Analyzer Suite on CD  
User Manual (English)  
Wide range power supply  
USB cable  
4 x BNC cable 50  $\Omega$  (m - m)  
1 x BNC T-adaptor (f - f - f)  
1 x BNC straight adapter (f - f)  
1 x BNC 50  $\Omega$  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

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<sup>3</sup> LabVIEW is a registered trademark of the National Instruments Corporation

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