

# Technical Data Sheet

## Bode 100 Revision 2

### Vector Network Analyzer



V 1.5  
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Contact [support@omicron-lab.com](mailto:support@omicron-lab.com) for technical support.

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## 1. Signal Source (OUTPUT)

Waveform	Sinusoidal
Frequency range	1 Hz to 50 MHz
Signal level range	-30 dBm to 13 dBm 14 mVrms to 2 Vrms (no load) 7 mVrms to 1 Vrms (50 Ω load)
Source level accuracy	± 0.3 dB (1 Hz to 1 MHz) ± 0.6 dB (1 MHz to 50 MHz)
Source level frequency response (flatness)	± 0.3 dB (typical, referring to 10 MHz)
Frequency accuracy after adjustment	± 2 ppm ± 0.5 · step size
Frequency step size / resolution	6.05 mHz (1 Hz to 100 Hz) 36.32 mHz (100 Hz to 50 MHz)
Frequency stability	± 2 ppm (< 1 year after adjustment) ± 4 ppm (< 3 years after adjustment)
Source impedance	50 Ω
Return loss	> 30 dB, > 35 dB typical
Spurious signals & harmonics	< - 25 dBc at full output power (typical)
Maximum reverse signal / power	0.5 W = 5 Vrms (≤ 3.3 Vdc recommended)
Connector type	BNC

## 2. Inputs (CH1, CH2)

Frequency range	1 Hz to 50 MHz
Input impedance (software switchable)	<b>High:</b> 1 M $\Omega$ (ac-coupled) <b>Low:</b> 50 $\Omega$ (dc-coupled)
1 M $\Omega$ input impedance	1 M $\Omega$ $\pm$ 0.5 % (ac-coupled)
Input capacitance	40...55 pF
50 $\Omega$ input impedance return loss	> 28 dB, > 35 dB typical (dc to 50 MHz)
Receiver bandwidth (RBW) software selectable	1 Hz, 3 Hz, 10 Hz, 30 Hz, 100 Hz, 300 Hz, 1 kHz, 3 kHz, 5 kHz
Input attenuators (software selectable)	0 dB, 10 dB, 20 dB, 30 dB, 40 dB
Full-scale ac input signal	100 mVrms @ 0 dB input attenuator 316 mVrms @ 10 dB input attenuator 1 Vrms @ 20 dB input attenuator 3.16 Vrms @ 30 dB input attenuator 10 Vrms @ 40 dB input attenuator
Input channel sensitivity (typical)	< 1 $\mu$ Vrms (@ 0 dB attenuator, 10 Hz RBW)
Maximum dc voltage (1 M $\Omega$ input impedance)	50 V
Maximum dc voltage (50 $\Omega$ input impedance)	7 V
Input channel dynamic range (typical)	> 100 dB (@ 10 Hz RBW)
Connector type	BNC

### 3. General

Noise floor (S21 measurement) RBW = 10 Hz, P <sub>SOURCE</sub> = 16 dBm Attenuator CH2: 0 dB	1 Hz to 10 kHz: - 115 dB (typical) 10 kHz to 10 MHz: - 125 dB (typical) 10 MHz to 50 MHz: - 105 dB (typical)
Gain error (User-Range calibrated)	< 0.1 dB
Phase error (User-Range calibrated)	< 0.5°
Warm-up time (3τ)	62 min*
USB connector	Type B

\*...specifications are valid after device has warmed up and reached a stable temperature

Dimensions (width × height × depth)	26 x 5 x 27 cm 10.25 x 2 x 10.65 inch
Weight	1.9 kg / 4.2 lb

### 4. Environmental

Temperature range	Storage	-35...+60 °C / -31...+140 °F
	Operating	+5...+40 °C / +41...+104 °F
	For specification	23 °C ± 5 °C / 73 °F ± 18 °F
Relative humidity	Storage	20...90 %, non-condensing
	Operating	20...80 %, non-condensing

## 5. PC Requirements for Bode Analyzer Suite

Processor	Intel Core-i Dual-Core (or similar)
Memory (RAM)	2 GB, 4 GB recommended
Graphics resolution	Super VGA (1024 x 768) higher resolution recommended
Graphics card	DirectX 11 with Direct2D support
USB interface	USB 2.0 or higher
Operating system	Windows 10, 11

## 6. Power Requirements

### Wide-range mains power adapter

Line input voltage / frequency / current	100...240 V / 47...63 Hz / < 0.5 A
Output voltage / current / power	18 Vdc / 1 A / 18 W

### Bode 100

Power demand	< 10 W
Supply voltage range	+ 9 Vdc to +24 Vdc
Coaxial power socket	Inner diameter 2.5 mm Outer diameter 5.5 mm Inner conductor...positive
Low supply voltage shutdown	8.25 Vdc (typical)

## 7. Absolute Maximum Ratings (device will be destroyed)

Maximum supply voltage	+28 Vdc
Maximum supply reverse voltage	-28 Vdc
Maximum input signal at CH1 or CH2 (low impedance, 50 Ω)	1 W (= 7 Vrms)
Maximum ac input signal at CH1 or CH2 (high impedance, 1 MΩ)	50 Vrms (1 Hz to 1 MHz)
	30 Vrms (1 MHz to 2 MHz)
	15 Vrms (2 MHz to 5 MHz)
	10 Vrms (5 MHz to 10 MHz)
	7 Vrms (10 MHz to 40 MHz)
Maximum dc input signal at CH1 or CH2 (high impedance, 1 MΩ)	- 50 V...+ 50 V
Maximum return power at the OUTPUT connector	0.5 W (= 5 Vrms)

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