XC-8752C-50-C 50 Ω

Vector Network Analyzer
1 Hz - 6400 MHz

Data Sheet, Rev.1.1

www.ibtp-koschuch.com
www.avalancheradar.com

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Vector Network Analyzer XC-8752C-50 50 Ω

The XC-8752C two-port Vector Network Analyzer offers superior performance in a very small form factor. Through its fully DC coupled active VSWR bridges, measurements down to 1Hz are possible without sacrificing accuracy. A rich set of software utilities like spectrum analyzer or oscilloscope make this instrument a versatile helper in development or test applications. (6 GHz Calibration kit included)

1 Hz to 6400 MHz bandwidth.

With a bandwidth ratio of 1 : 6400000000 the instrument covers measurement applications from audio to RF frequencies. The excellent port return loss of better than -25 dB at 1 GHz allows measurements with less distortion.

Small Size

Through the instruments small size of 200 mm x 130 mm, fan less operation, USB connection and external power supply, it will fit on the smallest workbench.

Full two port configuration.

Since the instrument uses four independent measurement channels simultaneously, more accurate and faster two port measurements become possible.

Utilities

A wide set of additional Utilities like spectrum analyzer, EMI analyzer, oscilloscope or RF Voltmeter, IQ Modulator, etc. further extend the instruments capabilities.

Powerful software.

An unlimited number of rectangular- and smith-diagrams and over 50 built in measurement functions like time domain measurements allow a detailed DUT analysis.

Utility Overview

• Signal generator DC – 6.4 GHz with 1 Hz resolution.

• Arbitrary Function Generator with 64k x 18 Bit depth and 150 MS/s interpolated to 1.2 GS/s.

• IQ-Modulator up to 500 MHz carrier frequency with file or ethernet streaming capabilities. (GNU radio compatible)

• Two (four with Option BODE) channel 60 MHz digital oscilloscope with 125 Ms/s and 14 bit resolution.

• DC – 6.4 GHz spectrum analyzer, with an unambiguous frequency range of DC - 60 MHz and an active sideband suppression for spurious-free signal measurements up to 6.4 GHz (under certain conditions).

• IQ streaming receiver with file or ethernet streaming capabilities. (GNU radiocompatible)

• Dual channel spectrum analysis with cross correlation

• EMI analyzer with quasi-peak and average measurements.

• Power sweep measurements.

• RF Wideband Power / Voltage measurements.

• THD analyzer.

• Phase noise analyzer.

• General noise and bode measurements.

• Option: BODE adds two additional high impedance inputs with 1Mohm // 15 pF for gain /phase measurements and/or as vector voltmeter.

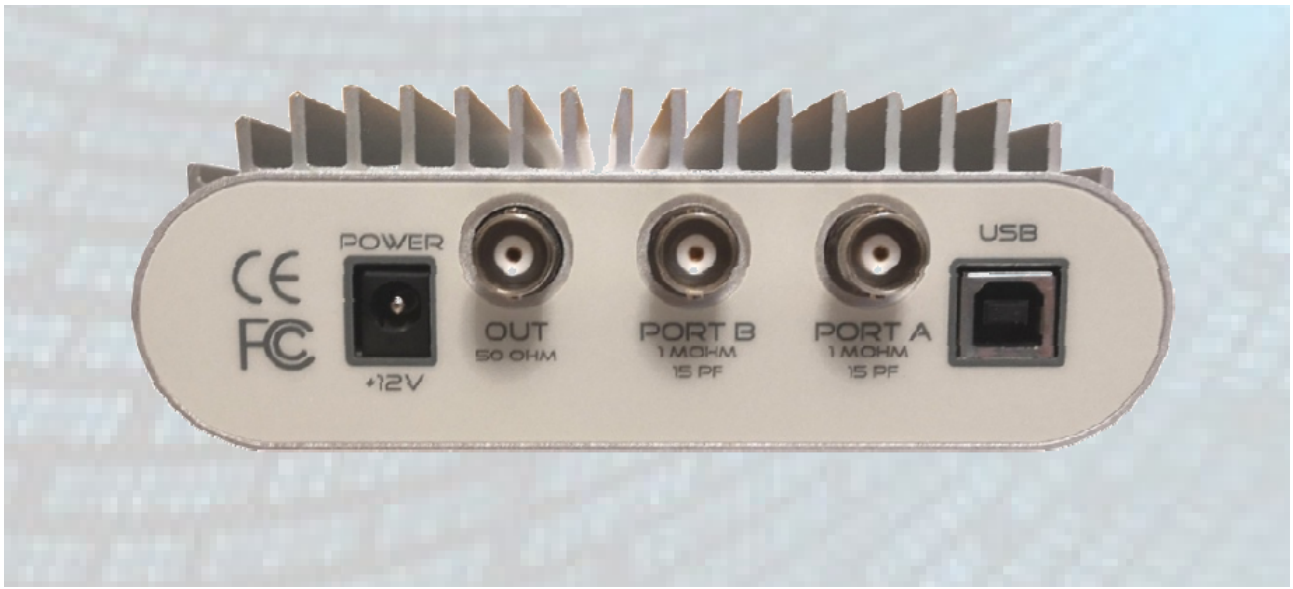
• Option BODE adds an additional high voltage signal output (+/- 10V high impedance and +/- 5V into 50 Ohms) with a bandwidth of > 200 MHz (at full power)

• Option BODE adds DC analysis capabilities and DC voltmeter functionality with multiple DC to DC or AC to DC sweeping capabilities.

Specifications

Specifications describe the instrument's warranted performance over the temperature range of 0 °C to 55 °C. Supplemental characteristics are intended to provide information useful in applying the instrument by giving supplemental, but not warranted performance parameters. These are denoted as "typical."

Additional inputs and outputs on the backside of the instrument implementing option BODE.



VNA specifications:

Measured Parameters	S_{11}, S_{12}, S_{21}, S_{22}
Measurement Channels	Four parallel receiver chains
Data Traces	Arbitrary number of traces and diagrams
Memory traces	4 full S-parameter memory slots
Data display formats	Rectangular and smith diagram, over 50 trace functions, including time domain and group delay.
Sweep type	Linear and Logarithmic
Measured points per sweep	2 - 100000
Power Settings	-15 dBm to -80 dBm in 0.1 dB steps
Sweep Trigger	Continuous, Single, Hold
Trace Math	Normalization, Magnitude, Phase, log, Real, Imag, Complex, Delay
De-Embedding	Port Extension with loss, delay and Z_0 adjustment, full de-embedding.
Calibration	SOLT (short, open, load, through), normalization
Calibration Types	1-port or 2-port
Measurement bandwidth	0.01 Hz – 200 kHz adjustable
Frequency range	0.25 Hz - 6400 MHz
Frequency resolution	0.25 Hz to 500 MHz 0.5 Hz to 6.4 GHz
Setups	Arbitrary number of predefined setups
Output signal amplitude accuracy (typ.)	+/- 1 dB @ -10 dBm to -25 dBm
	+/- 2 dB @ -25 dBm to -40 dBm
	+/- 2 dB @ -40 dBm to -80 dBm
Trace noise (typ.)	+/- 3 mdB
Measurement speed (typ.)	1.5 ms / frequency point
Frequency accuracy	+/- 25 ppm
Operating temperature	0°C - 55°C ambient
Operating humidity	0% to 80% rel. humidity
Power consumption	15 Watt max.
Power requirements	+12V / 2A
Connection	USB 2.0, Full-Speed

Table 1.1 VNA specifications

Spectrum analyzer, EMI analyzer and Phase Noise analyzer utility

Frequency range	0.001 Hz - 6400 MHz
Parallel Channels	2
Resolution bandwidth	0.001 Hz - 200 kHz
Frequency resolution	0.25 Hz to 500 MHz 0.5 Hz to 6.4 GHz
Frequency accuracy	+/-25 ppm
Amplitude accuracy	+/- 1.5 dB typ.0.001 Hz - 60 MHz
Unambiguous frequency range	0.001 Hz - 60 MHz
Low spurs technology (sideband suppression)	Multi frequency sampling
Frequency points	Arbitrary
Display functions	RMS, Minimum, Maximum and Average
Maximum linear input power	20 dBm
Phase noise (low noise mode) @ 300 MHz	< -90 dBc @ 100 Hz offset
	< -115 dBc @ 1kHz offset
	< -115 dBc @ 10kHz offset
	< -115 dBc @ 100kHz offset
	< -125 dBc @ 1MHz
Quasi Peak	Following CISPR 16–1–1 (9 kHz - 1 GHz)
Input noise voltage	< 30 nV/Sqrt(Hz) @ f > 10 kHz

Table 1.2 Spectrum Analyzer specifications

Signal Generator utility

Frequency range	1 Hz -6.4 GHz
Frequency resolution	0.25 Hz to 500 MHz 0.5 Hz to 6.4 GHz
Output power range	-7 dBm to -75 dBm (1Hz to 500 MHz)
	-5 dBm to < -90 dBm (500 MHz to 6.4GHz)
Output signal amplitude accuracy (typ.)	+/- 2 dB @ -15 dBm to -25 dBm
	+/-2.5 dB @ -25 dBm to -40 dBm
	+/-3 dB @ -40 dBm to <-80 dBm
Phase noise (low noise mode) @ 300 MHz	<-90 dBc @ 100 Hz offset
	< -115 dBc @ 1kHz offset
	< -115 dBc @ 10kHz offset
	< -115 dBc @ 100kHz offset
	< -125 dBc @ 1MHz

Table 1.3 Signal Generator specifications

Oscilloscope, Voltmeter

Resolution	14 Bit (up to 16Bits with CIC Filter)
Input range	Max. +/- 3V, +/-20V with Option BODE
Channels	2, 4 with option BODE
Memory	Max. 8192 points
Lowpass Filter	CIC type, adjustable
Sampling range (real)	15 S/s - 125 MS/s
Sampling range (Sin(x)/x)	250 MS/s - 4 GS/s
Bandwidth	60 MHz (Nyquist), 500 MHz (real)
Protocol analyzer	SPI, I2C, RS232
Measurement functions	24 measurement functions like RMS, period..
Trigger Modes	Edge Trigger, Pulse Trigger, Manual, Auto, A->B
Trigger Delay	0 - 1020 samples
Input	50 Ohms single ended, 100 Ohms differential, 1 MOhm // 15 pF with Option BODE
Special	Trigger aperture and HF Suppression filters

Table 1.4 Oscilloscope specifications

Arbitrary Waveform Generator (Option BODE)

Resolution	14 Bit
Sampling Rate	1 Gs/s up-sampled from 150 Ms/s
Sample Depth	64k samples
Built in waveforms	Sinus, rectangular, triangle, saw-tooth, pulse, haversine, circular
Output level	+/- 10 V max with 20 dB and 40 dB attenuators
Output bandwidth	ca. 230 MHz full power into 50 Ohms
Frequency range	200 MHz+ for sinus and 0-50 MHz for all other waveforms
DC accuracy	+/- 5mV for full range setting.

Table 1.5 AWG specification

IQ Modulator

Resolution	14 Bit
Sampling Rate	1 Gs/s up-sampled
IQ Resolution	18 Bits for I and Q
USB IQ Transfer Rate	typ. 1.5 MT max.
Sources	Network UDP, File
Carrier Frequency Range	0 - 500 MHz
Output	Front channels or AWG output port (Option Bode only)

Table 1.6 IQ Modulator specifications

High impedance inputs (Option BODE only)

Input Impedance	1 MOhm parallel 15 pF
Frequency Range	0 - 500 MHz +/- 20V and +/- 5V range, 250 MHz+/- 0.5 V range
Offset	< 1 mV
Voltage ranges	3, +/- 20V, +/- 5V, +/- 0.5 V

Table 1.7 High Impedance inputs specifications

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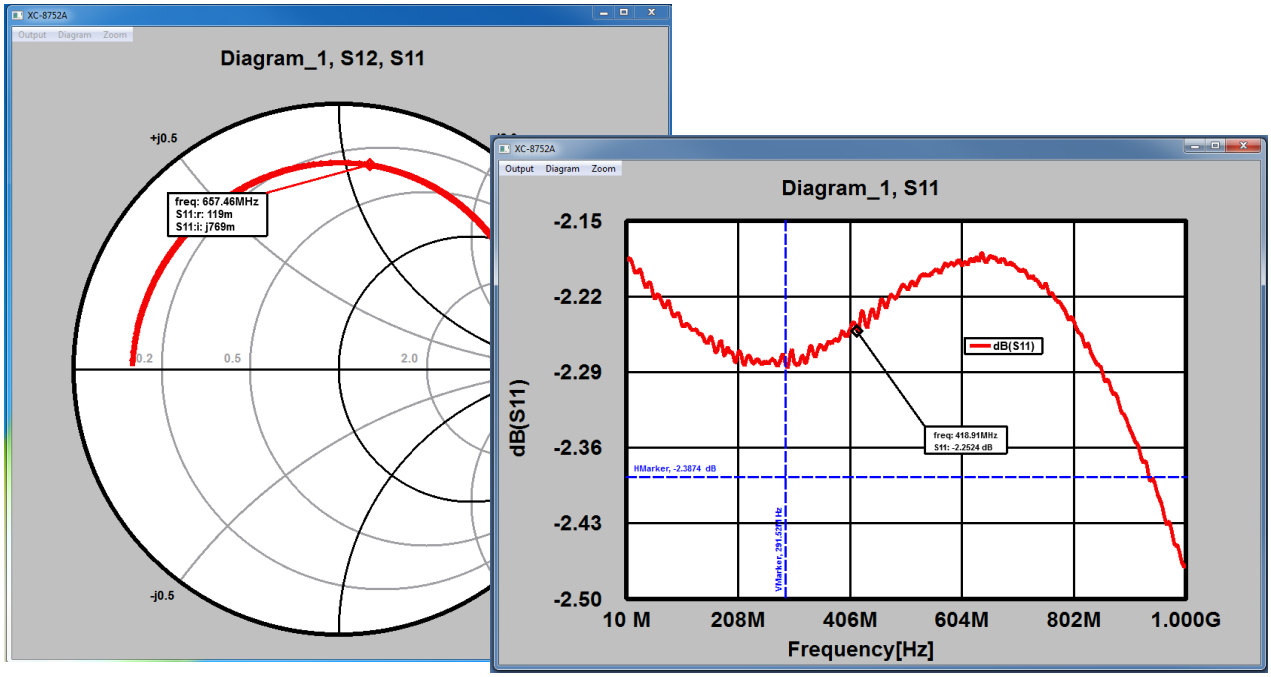
Software Overview



- Unlimited number of diagrams.
- Over 50 different measurement functions.
- Symbolic equations as trace function.
- Unlimited number of traces per diagram.
- Linear and logarithmic view in horizontal or vertical direction.
- Smith diagram
- Unlimited number of markers
- Delta Markers
- Horizontal line or vertical line marker.
- Many marker functions.
- Single and dual port operation and calibration.
- Printing and Clipboard support.
- Unlimited number of measurement setups.
- Easy loading of setups via direct access.
- Single and continuous measurement.
- Port Extension and full de-embedding.
- Time domain lowpass and bandpass support.
- Selectable measurement bandwidth.
- and much more.

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Manufacturer:

Product specifications and descriptions in this document
Subject to change without notice.

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Distributor:

www.ibtp-koschuch.com
IBTP Koschuch e.U.
Ingenieurbüro für Technische Physik

Langegg 31
A-8463 Leutschach an der Weinstraße
+ 43/699 18448542
office@ibtp-koschuch.com