18 – 500 GHZ · VNA · SPECTRUM · SIGNAL GENERATOR · UP/DOWN · CAL KITS

Frequency Extension Solutions

With the frequency extension modules from AT Microwave you take existing network, spectrum and signal analysis into the millimeter-wave and sub-THz range up to 500 GHz. bq-microwave is the official distributor of AT Microwave within Europe.



Product Families

VNA Frequency Extenders

18 – 500 GHZ · 24 MODELS

VNA frequency extenders expand the measurement capability of your vector network analyzer into the mmWave and sub-THz range.

Spectrum Analyzer Extenders

40 – 500 GHZ · 24 MODELS

Spectrum analyzer extenders expand standard spectrum analyzers into the millimeter-wave and sub-THz bands – from WR-19 to WR-2.2 with different LO multiplication factors.

Signal Generator Extenders

33 – 500 GHZ · 36 MODELS

Signal generator extenders expand established signal generators into millimeter-wave and sub-THz bands from WR-22 to WR-2.2.

Up/Down Converters

33 – 500 GHZ · 24 MODELS

Up/down converters translate signals between IF and millimeter-wave – for all waveguide bands from WR-22 to WR-2.2, each with different LO multiplication factors.

Waveguide Cal Kits

40 – 330 GHZ · 9 MODELS

Waveguide calibration kits for the precise calibration of vector network analyzers and frequency extenders – for the waveguide bands WR-19 to WR-03.

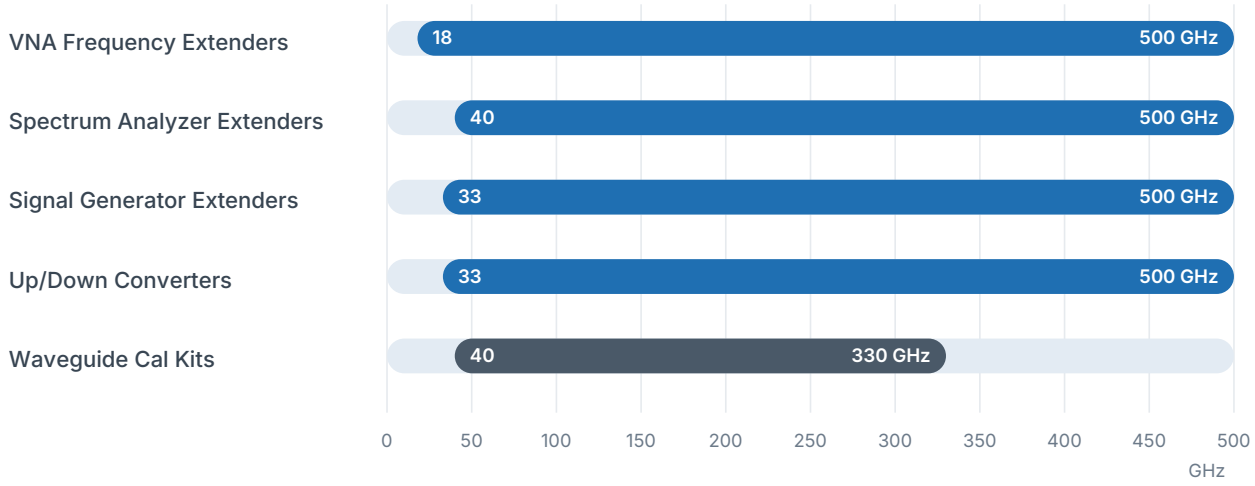
Compatibility

The frequency extenders work with instruments from leading manufacturers such as Rohde & Schwarz, Keysight, Ceyear and others.

bq-microwave GmbH & Co. KG · Hohe Str. 23 · 71549 Auenwald · Germany
+49 (0) 151 25290128 · info@bq-microwave.de · www.bq-microwave.de

Frequency Coverage at a Glance

All product families in this catalog are available for the standard waveguide bands from WR-22 to WR-2.2. The matrix shows which family is available in which band – the detailed tables are in the respective chapter.



Band	GHz	VNA	Spectrum	Signal generator	Up/Down	Cal Kits
WR-22	33–50			●	●	
WR-19	40–60	●	●	●	●	●
WR-15	50–75	●	●	●	●	●
WR-12	60–90	●	●	●	●	●
WR-10	75–110	●	●	●	●	●
WR-08	90–140	●	●	●	●	●
WR-06	110–170	●	●	●	●	●
WR-05	140–220	●	●	●	●	●
WR-04	170–260	●	●	●	●	●
WR-03	220–330	●	●	●	●	●
WR-2.8	260–400	●	●	●	●	
WR-2.2	330–500	●	●	●	●	

VNA: additionally AT-VEX-1850C1 with 2.4 mm coaxial connector (18–50 GHz).

VNA Frequency Extenders

CHAPTER 01 · 18 – 500 GHZ · 24 MODELS



VNA frequency extenders expand the measurement capability of your vector network analyzer into the mmWave and sub-THz range. The portfolio covers 2.4 mm coax (18–50 GHz) and all waveguide bands from WR-19 to WR-2.2, including extended and high-power versions.

Key Features

- Frequency range up to 500 GHz, waveguide bands WR-19 to WR-2.2
- Modular architecture: separate Tx and Rx modules
- Low insertion loss and high dynamic range for precise S-parameter measurements
- Robust waveguide connections for repeatable results
- Compact size and fast calibration

Applications

- 5G/6G component and antenna measurement
- mmWave circuit development and validation
- SATCOM and defense systems
- Sub-THz sensing and imaging
- High-frequency material characterization
- Integrated circuits and chiplets in mmWave bands

Compatibility

The frequency extenders work with instruments from leading manufacturers such as Rohde & Schwarz, Keysight, Ceyear and others.

Customized solutions

AT Microwave can respond to customer requirements and may realize customized solutions on request. Just get in touch with us.

Model Overview

VNA FREQUENCY EXTENDERS

MODEL	TYPE	INTERFACE	FREQUENCY (GHZ)
AT-VEX-1850C1	2.4mm	2.4 mm coax	18–50
AT-VEX-19	U Band	WR-19	40–60
AT-VEX-19E	U Band	WR-19	40–67
AT-VEX-19HP	U Band	WR-19	40–60
AT-VEX-15	V Band	WR-15	50–75
AT-VEX-15E	Extended	WR-15	47–77
AT-VEX-15HP	V Band	WR-15	50–75
AT-VEX-12	E Band	WR-12	60–90
AT-VEX-12E1	Extended	WR-12	55–90
AT-VEX-12HP	High Power	WR-12	60–90
AT-VEX-10	W Band	WR-10	75–110
AT-VEX-10E	Extended	WR-10	67–110
AT-VEX-10HP	High Power	WR-10	75–110
AT-VEX-08	F Band	WR-08	90–140
AT-VEX-08HP	F Band	WR-08	90–140
AT-VEX-06	D Band	WR-06	110–170
AT-VEX-06HP	D Band	WR-06	110–170
AT-VEX-05	G Band	WR-05	140–220
AT-VEX-05MP	G Band	WR-05	140–220
AT-VEX-04	H Band	WR-04	170–260
AT-VEX-03	J Band	WR-03	220–330
AT-VEX-03R1	J Band	WR-03	220–310
AT-VEX-2.8	–	WR-2.8	260–400
AT-VEX-2.2	–	WR-2.2	330–500

All data as specified by the manufacturer AT Microwave. Detailed datasheets and quotations are available directly from bq-microwave.

Spectrum Analyzer Extenders

CHAPTER 02 · 40 – 500 GHZ · 24 MODELS



Spectrum analyzer extenders expand standard spectrum analyzers into the millimeter-wave and sub-THz bands – from WR-19 to WR-2.2 with different LO multiplication factors.

Key Features

- Frequency coverage up to 500 GHz in a compact design
- Waveguide interfaces WR-19 to WR-2.2
- Low noise figure and low insertion loss
- Flexible LO multiplication factors for variable test scenarios

Applications

- 5G/6G communication systems
- Radar signal analysis, FMCW and pulsed modulation
- Material measurements and spectroscopy
- Defense and SATCOM frequency management
- Industrial and research test & measurement

Compatibility

The frequency extenders work with instruments from leading manufacturers such as Rohde & Schwarz, Keysight, Ceyear and others.

Customized solutions

AT Microwave can respond to customer requirements and may realize customized solutions on request. Just get in touch with us.

Model Overview

SPECTRUM ANALYZER EXTENDERS

MODEL	INTERFACE	FREQUENCY (GHZ)
AT-SAX4-19R	WR-19	40–60
AT-SAX8-19K	WR-19	40–60
AT-SAX6-15KR	WR-15	50–75
AT-SAX8-15A	WR-15	50–75
AT-SAX6-12R	WR-12	60–90
AT-SAX12-12K	WR-12	60–90
AT-SAX8-10KR	WR-10	75–110
AT-SAX9-10KR	WR-10	75–110
AT-SAX16-08K	WR-08	90–140
AT-SAX16-06KR	WR-06	110–170
AT-SAX24-06K	WR-06	110–170
AT-SAX12-06R	WR-06	110–170
AT-SAX16-05KR	WR-05	140–220
AT-SAX24-05KA	WR-05	140–220
AT-SAX16-04	WR-04	170–260
AT-SAX32-04KA	WR-04	170–260
AT-SAX24-04K	WR-04	170–260
AT-SAX24-03KR	WR-03	220–330
AT-SAX32-03K	WR-03	220–330
AT-SAX48-03K	WR-03	220–330
AT-SAX36-2.8K	WR-2.8	260–400
AT-SAX48-2.8KA	WR-2.8	260–400
AT-SAX36-2.2K	WR-2.2	330–500
AT-SAX36-2.2KR	WR-2.2	330–500

All data as specified by the manufacturer AT Microwave. Detailed datasheets and quotations are available directly from bq-microwave.

Signal Generator Extenders

CHAPTER 03 · 33 – 500 GHZ · 36 MODELS



Signal generator extenders expand established signal generators into millimeter-wave and sub-THz bands from WR-22 to WR-2.2. Dual-channel versions are also available as Dual Signal Source.

Key Features

- Frequency range up to 500 GHz, waveguide bands WR-22 to WR-2.2
- Standard, extended, MP and HP versions
- Dual Signal Source: two output signals from one module
- Low phase noise
- Compact form factor for lab setups and OEM integration

Applications

- FMCW and pulsed radar development (ADAS)
- 5G/6G communication measurement
- Millimeter-wave imaging and spectroscopy
- SATCOM and defense test environments
- Material research and sensor calibration

Compatibility

The frequency extenders work with instruments from leading manufacturers such as Rohde & Schwarz, Keysight, Ceyear and others.

Customized solutions

AT Microwave can respond to customer requirements and may realize customized solutions on request. Just get in touch with us.

Model Overview

SIGNAL GENERATOR EXTENDERS

MODEL	TYPE	INTERFACE	FREQUENCY (GHZ)
AT-SGX4-22	Signal Generator Extender	WR-22	33–50
AT-DSGX4-22P12-L2	Dual Signal Source	WR-22	33–50
AT-DSGX4-22P18-L2	Dual Signal Source	WR-22	33–50
AT-SGX4-19	Signal Generator Extender	WR-19	40–60
AT-SGX4-19-MP	Signal Generator Extender	WR-19	40–60
AT-DSGX4-19P12-L2	Dual Signal Source	WR-19	40–60
AT-DSGX4-19P18-L2	Dual Signal Source	WR-19	40–60
AT-SGX4-15	Signal Generator Extender	WR-15	50–75
AT-SGX4-15E	Signal Generator Extender	WR-15	45–77
AT-DSGX4-15P10-L2	Dual Signal Source	WR-15	50–75
AT-DSGX4-15P18-L2	Dual Signal Source	WR-15	50–75
AT-SGX6-12	Signal Generator Extender	WR-12	60–90
AT-SGX6-12E	Signal Generator Extender	WR-12	55–95
AT-DSGX6-12P10-L2	Dual Signal Source	WR-12	60–90
AT-DSGX6-12P18-L2	Dual Signal Source	WR-12	60–90
AT-SGX6-10	Signal Generator Extender	WR-10	75–110
AT-SGX6-10E	Signal Generator Extender	WR-10	67–110
AT-DSGX6-10P08-L2	Dual Signal Source	WR-10	75–110
AT-DSGX6-10P18-L2	Dual Signal Source	WR-10	75–110
AT-SGX8-08	Signal Generator Extender	WR-08	90–140
AT-SGX8-08E	Signal Generator Extender	WR-08	85–140
AT-SGX8-08-HP	Signal Generator Extender	WR-08	90–140
AT-DSGX8-08P05-L2	Dual Signal Source	WR-08	90–140
AT-SGX8-06	Signal Generator Extender	WR-06	110–170
AT-SGX8-06-HP	Signal Generator Extender	WR-06	110–170
AT-SGX12-06	Signal Generator Extender	WR-06	110–170
AT-SGX12-06-HP	Signal Generator Extender	WR-06	110–170
AT-DSGX12-06P08-L2	Dual Signal Source	WR-06	110–170
AT-DSGX12-06P15-L2	Dual Signal Source	WR-06	110–170
AT-SGX12-05	Signal Generator Extender	WR-05	140–220
AT-SGX12-05-MP	Signal Generator Extender	WR-05	140–220
AT-SGX18-04	Signal Generator Extender	WR-04	170–260
AT-SGX18-04-MP	Signal Generator Extender	WR-04	170–260
AT-SGX18-03	Signal Generator Extender	WR-03	220–330
AT-SGX24-2.8	Signal Generator Extender	WR-2.8	260–400
AT-SGX36-2.2	Signal Generator Extender	WR-2.2	330–500

All data as specified by the manufacturer AT Microwave. Detailed datasheets and quotations are available directly from bq-microwave.

Up/Down Converters

CHAPTER 04 · 33 – 500 GHZ · 24 MODELS



Up/down converters translate signals between IF and millimeter-wave – for all waveguide bands from WR-22 to WR-2.2, each with different LO multiplication factors.

Key Features

- Frequency range up to 500 GHz, waveguide bands WR-22 to WR-2.2
- Different LO multiplication factors per band
- Low insertion loss and low phase noise
- Wide dynamic range for measurement and communication tasks

Applications

- FMCW and CW radar systems (automotive, defense, ADAS)
- Millimeter-wave and THz spectrum analysis
- 5G/6G communication test environments
- SATCOM and space communication
- Sensor and imaging systems in the mmWave range

Customized solutions

AT Microwave can respond to customer requirements and may realize customized solutions on request. Just get in touch with us.

Model Overview

UP/DOWN CONVERTERS

MODEL	INTERFACE	FREQUENCY (GHZ)
AT-UDC2-22	WR-22	33–50
AT-UDC4-22	WR-22	33–50
AT-UDC2-19	WR-19	40–60
AT-UDC4-19	WR-19	40–60
AT-UDC2-15	WR-15	50–75
AT-UDC4-15	WR-15	50–75
AT-UDC2-12	WR-12	60–90
AT-UDC4-12	WR-12	60–90
AT-UDC4-10	WR-10	75–110
AT-UDC6-10	WR-10	75–110
AT-UDC4-08	WR-08	90–140
AT-UDC8-08	WR-08	90–140
AT-UDC6-06	WR-06	110–170
AT-UDC8-06	WR-06	110–170
AT-UDC6-05	WR-05	140–220
AT-UDC12-05	WR-05	140–220
AT-UDC8-04	WR-04	170–260
AT-UDC16-04	WR-04	170–260
AT-UDC12-03	WR-03	220–330
AT-UDC24-03	WR-03	220–330
AT-UDC12-2.8	WR-2.8	260–400
AT-UDC24-2.8	WR-2.8	260–400
AT-UDC12-2.2	WR-2.2	330–500
AT-UDC24-2.2	WR-2.2	330–500

All data as specified by the manufacturer AT Microwave. Detailed datasheets and quotations are available directly from bq-microwave.

Waveguide Cal Kits

CHAPTER 05 · 40 – 330 GHZ · 9 MODELS



Waveguide calibration kits for the precise calibration of vector network analyzers and frequency extenders – for the waveguide bands WR-19 to WR-03.

Key Features

- Frequency range 40 to 330 GHz, WR-19 to WR-03
- Calibration standards for two-port calibration
- Precision metal construction with repeatable transitions
- Matching the VNA frequency extenders

Applications

- Characterization of filters, amplifiers and attenuators
- Waveguide transitions and antenna measurement
- 5G/6G front-end tests and ADAS radar validation
- Defense and SATCOM
- Research and development in mmWave and THz

MODEL	BAND	INTERFACE	FREQUENCY (GHZ)
AT-CAKT1-WR19	U Band	WR-19	40–60
AT-CAKT1-WR15	V Band	WR-15	50–75
AT-CAKT1-WR12	E Band	WR-12	60–90
AT-CAKT1-WR10	W Band	WR-10	75–110
AT-CAKT1-WR08	F Band	WR-08	90–140
AT-CAKT1-WR06	D Band	WR-06	110–170
AT-CAKT1-WR05	G Band	WR-05	140–220
AT-CAKT1-WR04	H Band	WR-04	170–260
AT-CAKT1-WR03	J Band	WR-03	220–330

All data as specified by the manufacturer AT Microwave. Detailed datasheets and quotations are available directly from bq-microwave.

Your partner for mmWave and sub-THz test & measurement

Official distributor
bq-microwave is the official distributor of AT Microwave within Europe.

Personal contact
One dedicated contact for consulting, quotation and order processing.

Fast quotations
Short lines of communication and quick response to your inquiry.

Complete portfolio
Test equipment up to 500 GHz, waveguide components up to 1700 GHz and coaxial components up to 145 GHz.

Available through bq-microwave

Consulting, quotation and order processing from one source – talk to us about your measurement task.

Dion Gallinat · Managing Director
+49 151 252 901 28 · info@bq-microwave.de · www.bq-microwave.de

Visit our website