



## K-Band FT-MRR Spectrometer

The Brightspec K-Band spectrometer is designed for both fundamental research and educational applications. The form factor allows for integration with custom sample chambers, including pulsed and continuous wave jet flows, including studies of transient species. The instrument includes a system control laptop, and BrightSpec's proprietary software for experiment setup, data visualization and processing, and spectral library comparison.



### Key Advantages:

- 18-26.5 GHz frequency coverage
- Easily reconfigured for different sample chamber designs
- 4 marker channel outputs for synchronization to external sources
- Targeted and segmented chirped pulse acquisition modes
- Advanced pulse sequences, including double resonance and echoes
- Expandable spectral library for experiment data and simulations
- Automated composition analysis software for quantitative mixture analysis

### Academic Collaborators

Brightspec is committed to ensuring our technology is a cornerstone for the advancement of rotational spectroscopy around the world. Get in touch with us to learn about our special packages and initiatives for educational purposes: [brightspec.com/contact](https://brightspec.com/contact)



## K-Band FT-MRR Spectrometer Specifications

### FT-MRR Spectrometer

Measurement technique	Fourier Transform Microwave Spectroscopy
Frequency Range	18-26.5 GHz
Excitation Source	Three color chirpable synthesizer (up to 30 MHz)
Digitizer	125 MS/s 14-bit digitizer with averaging
Repetition Rate	Configurable, 0-98% duty cycle
Number of signal averages	X-4 million
Synchronization to external sources	4 CMOS compatible (3.3 V) marker channels provided
Sampling Options	BrightSpec Standard Sample Cell 65 cm
Sampling Module Options	Air/Gas/Headspace Flow
Autosampler Option	Yes/no?
Measurement modes	Broadband Scan and Targeted
Broadband Scan	Segmented Chirped Pulse
Targeted	Nutation

### Key Analyte Performances\*

Carbonyl Sulfide	8 ppm
Ethylene Oxide	12 ppm
Water	<1 ppm
Ammonia	1 ppm
Sulfur Dioxide	20 ppm

### Operating Conditions

Operating temperature	25 +/-10 C
Humidity range	20-80% relative humidity
Noise	< 70 dB(A)
Power supply	100/240 VAC, 50/60 Hz

### Electrical Rating

Power supply	100/240 VAC, 50/60 Hz
Dimensions (in standard configuration)	122 cm x 61 cm x 71 cm
Weight (need to update)	45 kg

\* Typical sensitivity (60s, targeted detection, in N2)