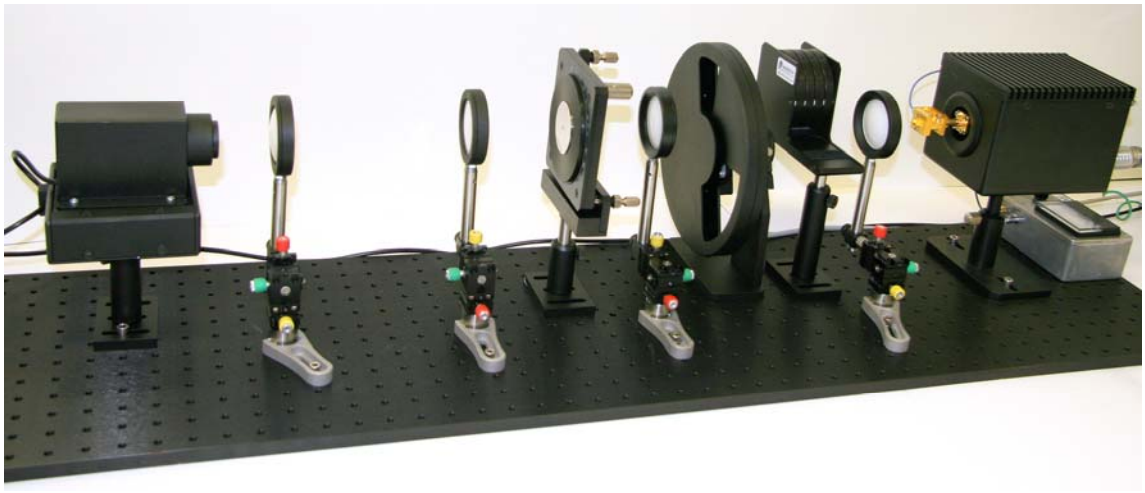
MICROTECH instruments, inc.

Compact THz spectrometer TScan-1500C-EX

Datasheet



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TScan-1500C-EX is designed for spectroscopic measurements in 0.1-1.5 THz frequency range. It consists of QS2-1500-EX quasi-optical THz source and improved model of Golay Cell detector. High output power of QS2-1050-EX and excellent sensitivity of Golay Cells enable high resolution (1-10 MHz) and wide dynamic range (up to 100,000) spectroscopic measurements. The basic system is configured for transmission measurements, but it can be extended to for in reflection, Mach-Zhender or THz imaging configurations.

Figure 1: QS2-1000 THz source, VR-3M power supply and DAU-1 unit

QS2-1500-EX THz source, shown in Figure 1, is powered by VR-3M high voltage power supply and computer controlled via DAU-1 data acquisition unit. This source is based on millimeter wave BWO combined with frequency multipliers. The BWO operates at frequency range 100-180 GHz. Combination of frequency multipliers extends the operating range to 1500 GHz.

Low noise level of TScan-1500C-EX is enabled by optimized acousto-optical detectors, known as Golay Cells, which offer exceptionally high sensitivity. Digital signal processing enabled by DAU-1 unit further improves detection sensitivity. Figure 2 shows typical power spectra of QS2-1500-EX and noise level of Golay Cell based detection system.

Figure 2: Typical power spectra of QS2-1500-EX and noise level of the detection system