



Mid-IR few-cycle source

Frequency combs in the molecular fingerprint region have enabled applications in metrology, spectroscopy and medicine. All these applications benefit from higher average powers that allow for faster acquisition rates and an improved signal-to-noise ratio. This extension complements the compact femtosecond fiber laser system and provides a high-power frequency comb in the mid-IR. The ultrafast mid-IR pulses are achieved through intra-pulse difference-frequency generation, which guarantees

passive carrier-envelope-offset stability. The complete frequency-comb nature of the source can be achieved by controlling and stabilizing the fundamental pulse-repetition frequency of the driving laser.

	Mid-IR few-cycle source
Central wavelength	5-18 μm (tunable)
Pulse repetition rate	20 MHz, others on request
Average power	up to 100 mW
Polarization	Linear
Beam quality	close to diffraction-limited, $M^2 < 1.3$
Average power stability	< 1% RMS
Pulse energy stability	< 1% RMS
Beam pointing	< 10 μrad RMS
Additional features	Turnkey reliability, all parameters software-controlled, temperature-stabilized and dust-sealed housing

The brightness of the AFS Mid-IR few-cycle source exceeds those of typical synchrotrons by orders of magnitude.

