



Amplitude
SYSTEMES

Satsuma



A new generation of ultrafast lasers

Satsuma is an exceptional high energy, ultrafast fiber laser with high repetition rate.

Satsuma is a high energy ultrafast fiber laser. It benefits from Amplitude Systemes extensive experience in ultrafast laser technology and simultaneously offers a high output energy and high repetition rate.

Thanks to groundbreaking, patented technological advances in fiber design and amplifier technology, **Satsuma** offers short pulse width, high repetition rate (up to 1 MHz) and high energy (up to 10 μ J) in an ultra-compact and highly stable housing. With its extremely high repetition rate and excellent beam quality, **Satsuma** combines the high quality of ultrafast laser micro-machining and the processing speed required for industrial applications.

Satsuma is built on a hermetically sealed monolithic housing for improved stability. It features advanced optical performances, a complete set of diagnostics and simple control electronics.

Satsuma is an ideal tool for ultrafast micro- and nano-machining, non-linear optics, nanophotonics, and life science applications.

Compact high repetition rate ultrafast fiber laser

Features:

- > Designed for industrial applications
- > Pulse width below 500 fs
- > Up to 10 μ J energy per pulse
- > Repetition rate up to 5 MHz
- > Compact laser head
- > Optional SHG & THG

Satsuma

Compact high repetition rate
ultrafast fiber laser

Technology:

Ultrafast fiber amplifiers

Fiber amplification has been widely recognized as an attractive technology to achieve high optical power and excellent beam quality: beam guiding in the fiber core maintains a high quality TEM₀₀ beam. Efficient heat extraction through the fiber periphery allows for high average power operation.



However, a challenge in the development of high energy, ultrafast fiber lasers has been the confinement of the laser beam in the fiber core. Due to the high intensity in the fiber, the output energy was limited by non linearities in the fiber core.

Extensive development at Amplitude Systemes led to a breakthrough in fiber technology. A proprietary, advanced amplifier design, instead of fighting non linear effects, integrates them to offer short duration, high quality pulses.

Satsuma offers high energy and high repetition rate operation, while maintaining a high industrial reliability.



Specifications:

	Satsuma
Pulse duration	< 500 fs
Pulse energy	10 μJ
Average power	5 W
Repetition rate	from 0 up to 5 MHz
Wavelength	1030 nm
M2	1,2
Beam quality	TEM ₀₀

Other specifications available on request. Please contact us

Options:

- Custom specifications for OEM integration
> *Contact us for OEM products*
- Second harmonic & third harmonic generation (SHG/THG)
- Pulse picker

Flexibility:

Satsuma series can be proposed with fixed or adjustable parameters:

- Adjustable repetition rate
- Adjustable pulse duration up to 10 ps
- Adjustable energy

Application examples:

- Refractive surgery
- Micro-machining
- Marking and engraving
- Nanostructuring



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