amsTECHNOLOGIES
where technologies meet solutions

diode pumped solid state lasers

- pulsed DPSS lasers
- cw DPSS lasers
- multiple wavelength sources

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AMS Technologies – where technologies meet solutions

AMS Technologies is a leading solution provider and distributor of high-tech, leading-edge components, systems and equipment, with more than 35 years of experience to date and currently serving more than 2000 European customers.

We are the specialists in both components and complete solutions for Optical Technology, Thermal Management and Power Technology fields, with access to and long standing relationships with the most advanced manufacturers in each of those fields. Drawing extensively on our experience in each of these differing technologies, and coupling this with our broad system-level competence, we are able to offer seamless and comprehensive solutions incorporating complementary aspects from all three key technology fields.

With an appropriate technical education, an element of entrepreneurial spirit and many years of design and consultancy expertise, our sales engineers can rapidly comprehend system requirements and provide you the customer with a solution that goes way beyond a simple understanding of our product datasheets. We take active involvement in the design cycle, defining and re-defining your specifications, and leading in many cases to highly specific, customized products and solutions. Helping you to effectively outsource your production line, we can even provide you with the necessary leading turnkey contract manufacturing services in our key competency fields.

AMS Technologies has been delivering solutions into a variety of high-tech markets, including renewable energies, medical, defence & aerospace, research & scientific and various other industrial segments. Our customer base consists of Europe's largest leading technology corporations, a network of universities and research institutes as well as the most promising start-ups.

We thrive by working in a 'customer first' environment. Our pan-European customers are serviced from a network of local offices in Germany, the UK, France, Italy, Spain, Poland and Sweden, with a focused operations and logistics centre located in Munich, Germany.

Our commitment: Identifying the best solution for your project enabling you to become your customers' first choice!

Your AMS Technologies team

- Optical Technologies
- Power Technologies
- Thermal Management

diode pumped solid state lasers

Our comprehensive range of Diode Pumped Solid State (DPSS) lasers includes CW and q-switched models at infrared, visible and ultraviolet wavelengths. The product range serves the research and scientific community as well as OEM applications, for which the standard offering can be customized into turnkey solutions. The lasers are designed for high reliability and stable performance. Typical applications include photo-acoustic microscopy, MALDI imaging, Raman spectroscopy, FLIM, LIDAR, holography, flow visualization, rapid prototyping and semiconductor wafer inspection. The lasers satisfy performance requirements for 24/7 operation.

Q-switched DPSS lasers

The q-switched lasers provide high peak powers with a range of pulse widths and energies offered to suit micromachining, bio imaging and analysis applications and enabling time-resolved measurements. Fundamental 1064 nm outputs and second, third and fourth harmonics are available.

cw DPSS lasers

The CW lasers feature stable output from a compact laser head with scope to tailor beam parameters to optimise delivery. Excellent beam quality enables efficient fibre transmission. Stable single frequency (SLM) outputs are available with fine wavelength tuneability for applications such as injection seeding.

multiple wavelength sources

Recent developments in response to user demand have resulted in the introduction of tuneable sources at IR and visible wavelengths, with extension into the UV, further enabling spectroscopic techniques across a range of applications. Tuneable sources at kHz repetition rate enable high speed analysis and imaging.

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Q-switched DPSS

Model	Wavelength	Energy	Minimum Pulse Width		Repetition rate range	Mode	Jitter*
SPOT-10-50-266	266 nm	5 µJ at 10 kHz	< 1.5 ns		0 – 30 kHz	TEM_{00}, $M^2 < 1.2$	< +/- 1 ns
SPOT-10-100-355	355 nm	10 µJ at 10 kHz	< 1.5 ns		0 – 30 kHz	TEM_{00}, $M^2 < 1.2$	< +/- 1 ns
FQS-100-1-355	355 nm	100 µJ at 1 kHz	< 4 ns		0 – 10 kHz	TEM_{00}, $M^2 < 1.2$	< +/-1 ns
SPOT-10-100-532	532 nm	10 µJ at 10 kHz	< 1.8 ns		0 – 50 kHz	TEM_{00}, $M^2 < 1.2$	< +/- 1 ns
SPOT-10-200-532	532 nm	20 µJ at 10 kHz	< 1.8 ns		0 – 50 kHz	TEM_{00}, $M^2 < 1.2$	< +/- 1 ns
FQS-200-1-532	532 nm	200 µJ at 1 kHz	< 4 ns		0 – 10 kHz	TEM_{00}, $M^2 < 1.2$	< +/- 1 ns
FLP-1-A-532	532 nm	1 mJ at 50 Hz	< 3 ns		1 – 100 Hz	TEM_{00}, $M^2 < 1.2$	**
FLP-0.5-P-532	532 nm	500 µJ at 50 Hz	< 3 ns		1 – 100 Hz	TEM_{00}, $M^2 < 1.2$	**
SPOT-10-500-1064	1064 nm	50 µJ at 10 kHz	< 2 ns		0 – 50 kHz	TEM_{00}, $M^2 < 1.2$	< +/- 1 ns
FQS-400-1-Y-1064	1064 nm	400 µJ at 1 kHz	< 4 ns		0 – 10 kHz	TEM_{00}, $M^2 < 1.2$	< +/- 1 ns
FQ-800-5-Y-1064	1064 nm	800 µJ at 1 kHz	10 – 15 ns		0 – 10 kHz	TEM_{00}, $M^2 < 1.2$	< +/- 10 ns
FQ-60-100-V-1064	1064 nm	60 µJ at 100 kHz	< 20 ns		10 – 100 kHz	TEM_{00}, $M^2 < 1.2$	< +/- 10 ns
FLP-3-A-1064	1064 nm	3 mJ at 50 Hz	< 3 ns		1 – 50 Hz	TEM_{00}, $M^2 < 1.2$	**
FLP-1.5-P-1064	1064 nm	1.5 mJ at 1 kHz	< 3 ns		1 Hz – 1 kHz	TEM_{00}, $M^2 < 1.2$	**

*Jitter with respect to external trigger input at constant rep rate and pump level
** Internal trigger only

cw DPSS lasers

Model	Wavelength	Wavelength Tuneability	Power	Longitudinal Mode		Divergence
I4-30-1064-S	1064 nm	~50 GHz	30 mW	SLM		< 2.5 mRad
I4-60-1064-S	1064 nm	~50 GHz	60 mW	SLM		< 2.5 mRad
I4-1000-1064-M	1064 nm	Fixed	1 W	Multi		< 2 mRad
I4-1000-1064	1064 nm	Fixed	1 W	SLM		< 2 mRad
I4-500-1064	1064 nm	Fixed	500 mW	SLM		< 2 mRad
I4-700-1064	1064 nm	Fixed	700 mW	SLM		< 2 mRad
I4-500-1342	1342 nm	Fixed	500 mW	Multi		< 3 mRad

cw DPSS lasers

Common Specifications	
Noise	< 0.5 % (typ < 0.2 %)
Polarisation	> 100 : 1 vertical (horizontal on request)
Divergence / diameter can be tailored to specific requirements	
Transverse mode	TEM_{00}, $M^2 < 1.2$

multiple wavelength sources

Model	Wavelength	Max. Energy	Max. Repetition Rate	Pulse Width		Tuneability
TETRA	532, 555, 579, 606 nm	20 µJ	2 kHz	~ 5 ns		Specified wavelengths for every pulse
OPO-5-100-1700	1500 – 1900 nm	100 µJ	5 kHz	~ 7 ns		> 50 nm within range. Range factory set
OPO-1-200-1700	1500 – 1900 nm	200 µJ	1 kHz	~ 7 ns		> 50 nm within range. Range factory set
OPO-100-500-1700	1500 – 1900 nm	500 µJ	100 Hz	~ 5 ns		> 50 nm within range. Range factory set
OPO-1-100-3000	2500 – 3700 nm	100 µJ	1 kHz	~ 5 ns		> 50 nm within range. Range factory set
OPO-50-500-3000	2500 – 3700 nm	500 µJ	50 Hz	~ 5 ns		> 50 nm within range. Range factory set

multiple wavelength sources

Common Specifications	
Laser head size	420 mm × 184 mm × 104mm
PSU size	2 U high 19" rack unit
Cooling	Air cooled
Control	RS232
Power requirement	100 – 240 VAC, 50/60Hz,
Transverse mode	TEM_{00}, $M^2 < 1.2$

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associated products

pulsed fiber lasers

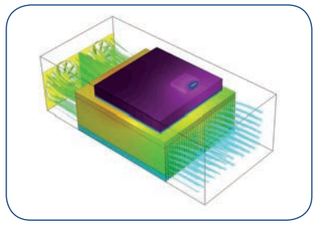
Our comprehensive range of pulsed fiber lasers includes femtosecond, picosecond and nanosecond versions.

The product range encompasses wavelengths ranging from UV to IR, pulse durations from sub -100 fs to a few ns, repetition rates from pulse-on-demand up to 1.3 GHz and pulse energy from a few nJ up to > 400 µJ. They are very compact and truly Plug & Play. There are no user serviceable parts inside or outside the laser head and laser driver, and no adjustment knobs or screws.

The lasers are dust sealed and maintenance free, shock and vibration proof and passively air cooled (no water, no fans). They maintain their high performance at temperatures ranging from 10°C to 40°C and offer superb spectral and temporal quality combined with a long lifetime. Several different power/energy versions are available, as well as different wavelength options, covering the IR, visible and UV spectrum.

These pulsed fiber lasers provide solid, reliable and cost-effective solutions for a broad range of ultrafast pulsed laser applications within micro material processing, laser surgery, medical treatment, THz generation, frequency comb generation, spectroscopy among others.

laser cooling



Lasers run better and longer when they are cooled properly. Stable operational conditions with a continuous power supply and precise temperature control guarantee a stable wavelength. Cooling to low operating temperatures stands for higher efficiencies and longer life of your laser source.

AMS Technologies laser cooling solutions include heat sinks for actively and passively cooled light sources, thermoelectric and compressor based recirculating chillers from 150 W to 95 kW and cabinet cooling for laser equipment.

The engineers at AMS Technologies will assist you to select appropriate products, develop a custom design or set up your equipment to guarantee trouble-free operation.

eye laser safety

Protective eyewear in the form of spectacles or goggles with appropriately filtering optics can protect the eyes from the reflected or scattered laser light with a hazardous beam power, as well as from direct exposure to a laser beam.

The range of frames offers a wide choice of different styles and features. Excellent coverage and a great fit are the basis of laser glasses with features like side shields, superposition and the innovative Softpad system.

Contact us

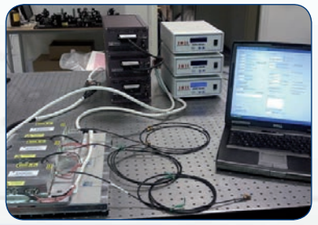
from technology components to turnkey solutions

We want to accelerate your success, which is why AMS Technologies has invested in two design centers: in Krakow, Poland, and in the United Kingdom. Our goal is to augment your team's key competencies by providing engineering services that are not core to you or where you may struggle with available resources to finish your projects.

From design services to prototype development to complete turnkey solutions, our collaborative approach has already helped many customer projects to move from concept to production.

- Design, prototyping and "proof of concept"
- Development of turnkey solutions to the customer's order
- Design-in, systems integration, realization of entire design projects
- Development of customized specification sheets
- Effective project management of any product development
- Interdisciplinary system-level integrated design
- Appropriate subcontractor selection and production support
- Simulations and modeling of system-level designs
- Installation, training and servicing

driving solution for high power pump lasers



The University of Bordeaux valued our interdisciplinary consulting approach to his project and decided to go with AMS Technologies in order to have one technical contact providing both the design and all necessary components (lasers, laser and TEC controllers, chiller).

In order to build a chain of high power fiber lasers, our customer selected three laser diodes from one of his supplies. AMS Technologies gave a proposal on the possibility to have those driven and cooled. Main requirements were constant current mode, small size assembly, cost effective solution and ready to use.

We developed a rugged assembly using AMS Technologies optical components and improved thermal management, employing individual drivers for laser (5 V / 70 A) and TEC via USB interfaces onto a PC.

laser diode management system ACTARUS

AMS Technologies developed the industry's first customizable standalone platform, providing an integrated management system for laser diodes and associated TECs. By allowing independent choices of current ranges, it can easily be adapted towards the application needs and even be upgraded for a different project.

The standard version is for laser diodes up to 10W multimode or 1W singlemode. The system can be adapted towards customer requirements for more power or for further customization.