amsTECHNOLOGIES
where technologies meet solutions

Laser Diode Drivers & Temperature Controllers

High Precision, Ultra Stable Temperature Controllers, Quantum Cascade & Diode Laser Drivers

- Single-/ Multi Diode Laser Driver
- Stack-/ Multichannel Controller
- DPSS Controller
- Quantum Cascade Laser Driver
- Combined High Current Laser -/ Temperature Controller

pickaDRIVER

OPTICAL TECHNOLOGIES

AMS Technologies is Europe's leading solution provider and distributor for Optical, Power and Thermal Management Technologies

WHERE TECHNOLOGIES MEET SOLUTIONS

For more than 30 years, we at AMS Technologies have been supporting the European market with leading, innovative technologies and products that have allowed our customers to take prime position in their chosen markets.

AMS Technologies is a leading solution provider and distributor of high-tech, leading-edge components, systems and equipment, with more than 30 years of experience to date and currently serving more than 2000 European customers.

We are the specialists in both componentry 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

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LASER DIODE DRIVERS & HIGH PRECISION TEMPERATURE CONTROLLERS

Together with our partners we lead the laser control industry by simplifying advanced quantum cascade laser, laser diode, and thermal control for demanding electro-optical OEMs and researchers. We supply for over 20 years instrument-level performance in small, cost-effective modules. Ultra-stable, high precision quantum cascade laser drivers, laser diode drivers and temperature controllers are available for a wide range of applications.

Laser Diode Drivers

The laser driver, sometimes called also laser diode power supply, is a adjustable current source, delivering exactly the current to the laser diode that it needs for operation. Main important characteristics are further a high linearity and low noise operation. Laser driver providing also limiting functions to protect the laser diode against damaging like soft start, spike and ESD protection. Laser driver are operating either in constant current or constant power mode, and taking care of different laser diode and photo diode pin configurations.

Quantum Cascade Lasers

Quantum Cascade Lasers (QCLs) are semiconductor lasers that emit in the mid- and long-wave IR bands, used in applications like in precision sensing, spectroscopy, medical, and military applications. A quantum cascade laser driver is similar in some respects to drivers used for semiconductor laser diodes, but there are important differences that make it worthwhile to find the proper QCL driver for your application. Choosing the wrong driver may make high-precision applications impossible, or put at risk a very expensive and difficult-to-source quantum cascade laser.

Applications for ultra-stable, high precision QCL drivers, Laser diode drivers and Temperature controllers:

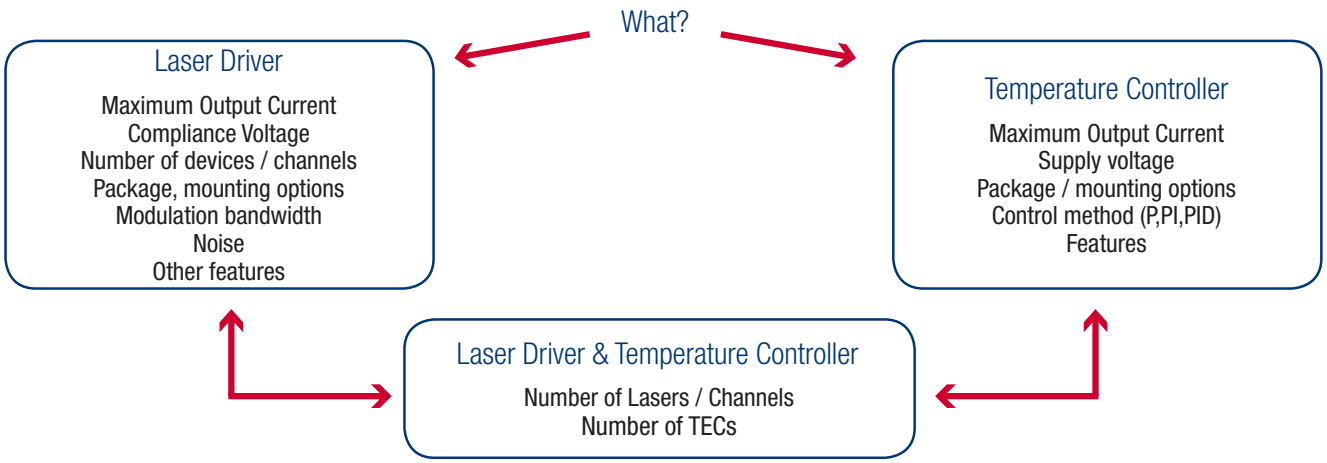
- Biomedical
- Imaging & Spectroscopy
- Remote sensing
- Material processing
- Environmental and manufacturing control

Temperature Control Systems

The purpose of a temperature control system is to maintain a device at a constant temperature. Two types of actuators are commonly used to precisely control the temperature of optics, lasers, biological samples, or other temperature sensitive devices. One is a thermoelectric, or Peltier device. The other is a resistive heater. A precision temperature controller uses a current or voltage source to drive power through these actuators based on feedback from a temperature sensor.

HOW TO CHOOSE THE RIGHT DRIVER & TEMPERATURE CONTROLLER

- It is recommended to start with the current and voltage requirements of your laser diode – Maximum Output Current
- Compliance Voltage is the maximum voltage that can develop over the laser diode at maximum current. Important to choose a driver with high enough compliance voltage – especially if it has to drive multiple diodes in series or bars.
- Decision about package style is next step.
- Modulation bandwidth and noise are typically the next most important specifications.



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Laser Diode Driver Summary

Type	Series	Model	Max Output Current (A)	Package	Features
Quantum cascade laser driver	QCL series	QCL500	0.5	Chassis mount, Stand alone	Lowest noise, Ultra narrow linewidth, OEM
Quantum cascade laser driver	QCL series	QCL1000	1	Chassis mount, Stand alone	Lowest noise, Ultra narrow linewidth, OEM
Quantum cascade laser driver	QCL series	QCL1500	1.5	Chassis mount, Stand alone	Lowest noise, Ultra narrow linewidth, OEM
Quantum cascade laser driver	QCL series	QCL2000	2	Chassis mount, Stand alone	Lowest noise, Ultra narrow linewidth, OEM
Quantum cascade laser driver	QCL Lab series	QCL500 LAB	0.5	Benchtop Instrument	Lowest noise, Ultra narrow linewidth, Lab equipment
Quantum cascade laser driver	QCL Lab series	QCL1000 LAB	1	Benchtop Instrument	Lowest noise, Ultra narrow linewidth, Lab equipment
Quantum cascade laser driver	QCL Lab series	QCL1500 LAB	1.5	Benchtop Instrument	Lowest noise, Ultra narrow linewidth, Lab equipment
Quantum cascade laser driver	QCL Lab series	QCL2000 LAB	2	Benchtop Instrument	Lowest noise, Ultra narrow linewidth, Lab equipment
Laser diode driver	PLD series	PLD5K-CH	5	Chassis mount	Constant current or constant power mode
Laser diode driver	PLD series	PLD10k-CH	10	Chassis mount	Constant current or constant power mode
Laser diode driver	PLD series	PLD12,5K-CH	12.5	Chassis mount	Constant current or constant power mode, parallel two units to drive up to 25A
Laser diode driver	PLD series	PLD200	0.2	PCB mount	High compliance voltage up to 30V with separate power supply
Laser diode driver	PLD series	PLD500	0.5	PCB mount	High compliance voltage up to 30V with separate power supply
Laser diode driver	PLD series	PLD1250	1.25	PCB mount	High compliance voltage up to 30V with separate power supply
Laser diode driver	PLD series	PLD5000	5	PCB mount	High compliance voltage up to 30V with separate power supply
Laser diode driver	PLD series	PLD6500	6.5	PCB mount	High compliance voltage up to 30V with separate power supply
Laser diode driver	PLD series	PLD10000	10	PCB mount	High compliance voltage up to 30V with separate power supply
Laser diode driver	PLD series	PLD125000	12.5	PCB mount	High compliance voltage up to 30V with separate power supply
Laser diode driver	LDD series	LDD200	0.2	8-Pin DIP PCB	Constant current or constant power mode, Buffered measurement outputs
Laser diode driver	LDD series	LDD400	0.4	8-Pin DIP PCB	Constant current or constant power mode, Buffered measurement outputs
Laser diode driver	WLD series	WLD3343	3	14-Pin DIP PCB	Compact, Adjustable current limit and current range
Laser diode driver	FL series	FL500	0.5	12-Pin SMT PCB	Low cost, two 250mA outputs ore one 500mA output
Laser diode driver	MPL series	MPL250	0.25	Chassis mount	Low noise and ripple, very long term stable current, mechanical relay protection, Onboard set points and limit controls
Laser diode driver	MPL series	MPL500	0.5	Chassis mount	Low noise and ripple, very long term stable current, mechanical relay protection, Onboard set points and limit controls
Laser diode driver	MPL series	MPL2500	2.5	Chassis mount	Low noise and ripple, very long term stable current, mechanical relay protection, Onboard set points and limit controls
Laser diode driver	MPL series	MPL7500	7.5	Chassis mount	Low noise and ripple, very long term stable current, mechanical relay protection, Onboard set points and limit controls
Laser diode driver	LV series	LV15	15	Stand alone	RS232 or USB, switch mode power conversion
Laser diode driver	LV series	LV30	30	Stand alone	RS232 or USB, switch mode power conversion
Laser diode driver	MV series	MV-12-01	10	Embedded PCB, Stand alone	controlling multiple high power discrete diodes in series (12V compliance)
Laser diode driver	MV series	MV-12-02	12	Embedded PCB, Stand alone	controlling multiple high power discrete diodes in series (10V compliance)
Laser diode driver	MV series	MV-12-03	15	Embedded PCB, Stand alone	controlling multiple high power discrete diodes in series (8V compliance)
Laser diode driver	MV series	MV-15-01	10	Embedded PCB, Stand alone	controlling multiple high power discrete diodes in series (15V compliance)
Laser diode driver	MV series	MV-15-03	15	Embedded PCB, Stand alone	controlling multiple high power discrete diodes in series (10V compliance)
Laser diode driver	MV series	MV-21-01	10	Embedded PCB, Stand alone	controlling multiple high power discrete diodes in series (21V compliance)
Laser diode driver	MV series	MV-21-02	15	Embedded PCB, Stand alone	controlling multiple high power discrete diodes in series (14V compliance)
Laser diode driver	MV series	MV-40-01	10	Embedded PCB, Stand alone	controlling multiple high power discrete diodes in series (40V compliance)
Laser diode driver	MV series	MV-40-02	15	Embedded PCB, Stand alone	controlling multiple high power discrete diodes in series (27V compliance)
Laser Diode driver	HV series	HV	120	Stand alone	for stacks/bars, compliance voltage 5-24V, compact, water cooled, RS232 or USB interface
Laser diode driver - Multichannel	MC series	MC-806	6	Rack mount	8 channel. RS232 interface
Laser diode driver - Multichannel	MC series	MC-412	12	Rack mount	4 channel, RS232 interface
Laser Diode driver/Temp controller combo	LDTC series	LDTC0520	0.5	Chassis mount	FL500 + WTC3243 (TC at 2.2A)
Laser Diode driver/Temp controller combo	LDTC series	LDTC1020	1	Chassis mount	2xFL500 + WTC3242 (TC at 2.2A)
Laser Diode driver/Temp controller combo	LDTC series	LDTC2/2	2.2	Chassis mount	2xWLD3343 + WTC3242 (TC at 2.2A)
Laser Diode driver/Temp controller combo	cLDD series	cLDD	2	Chassis mount	incl. 1 TEC (4 A) controller, USB interface
Laser Diode driver/Temp controller combo	DPSS series	DPSS-3.0	3	Embedded PCB, OEM package, Stand alone	2 TEC controller, Microprocessor controlled, RS232 interface
Laser Diode driver/Temp controller combo	HCT series	HCT	50	Embedded PCB, Stand alone	incl. 1 TEC (11.5A) controller, RS232 interface

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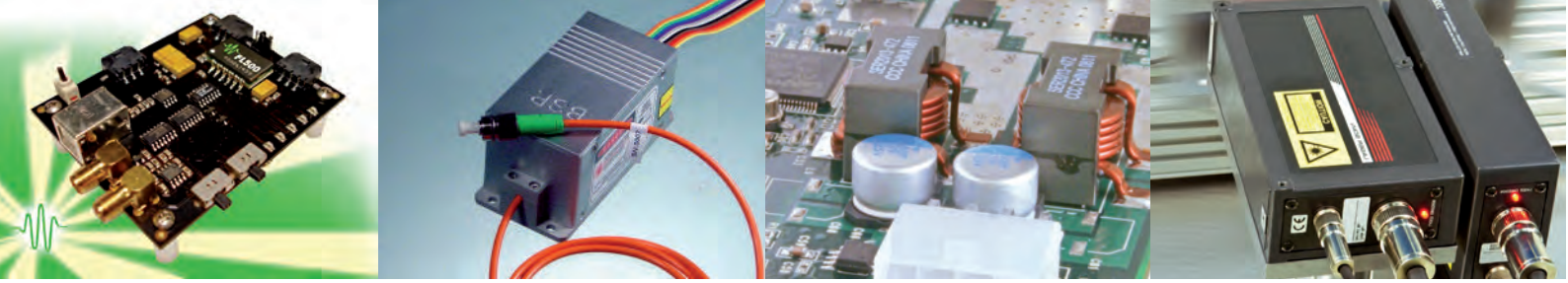
Temperature Controller Summary

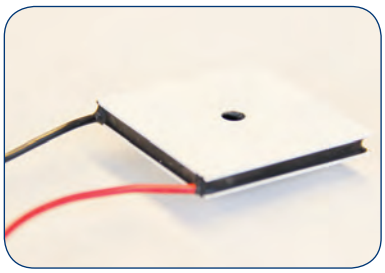
Serie.	Model	Max Output Current (A)	Min Input Supply Voltage (V)	Max Input Supply Voltage (V)	Package	Features
PTC series	PTC5000	+/- 5	5	30	PCB mount	linear T-stability < 0.0012°C, Onboard and remote controllable, failsafe setpoint default circuit
PTC series	PTC10000	+/- 10	6	30	PCB mount	linear T-stability < 0.0012°C, Onboard and remote controllable, failsafe setpoint default circuit
PTC series	PTC2.5K	+/- 2.5	4.5	30	chassis mount	linear T-stability < 0.0012°C, Onboard and remote controllable, failsafe setpoint default circuit
PTC series	PTC5K	+/- 5	4.5	30	chassis mount	linear T-stability < 0.0012°C, Onboard and remote controllable, failsafe setpoint default circuit
PTC series	PTC10K	+/- 10	4.5	30	chassis mount	linear T-stability < 0.0012°C, Onboard and remote controllable, failsafe setpoint default circuit
WTC series	WTC 3243	+/- 2.2	4.5	30	14-pin DIP PCB	supports Thermistors, RTDs and IC sensors
WTC series	WTC5V5APWM	+/- 5	4.5	5.5	22-pin PCB	PWM - pulse width modulation
WHY series	WHY 5640	+/- 2.2	5	24	14-pin DIP PCB	general purpose T-controller, supports resistive sensors only
HTC series	HTC1500	+/- 1.5	5	30	20-pin SIP PCB	ultra stable PI control, supports Thermistors, RTDs and IC sensors, linear T-stability < 0.0009°C
HTC series	HTC3000	+/- 3	5	30	20-pin SIP PCB	ultra stable PI control, supports Thermistors, RTDs and IC sensors, linear T-stability < 0.0009°C
HTC series	HTC4000	+/- 4	5	30	20-pin SIP PCB	ultra stable PI control, supports Thermistors, RTDs and IC sensors, linear T-stability < 0.0009°C
RHM5K series	RHM5K -CH	5	4.5	30	chassis mount	unipolar, PID
PID series	PID 1500	+/- 1.5	5	12	14-pin SIP PCB	Plug and play
5R series	5R7-570	+/- 12.5	6	28	PCB mount	PI controller, heat and cool
5R series	5R7-570A	+/- 12.5	6	28	PCB mount	PI controller, heat and cool, with ext. Temp Pot
5R series	5R7-001	+/- 25	12	36	PCB mount	PID controller, RS232 Interface
5R series	5R7-002	+/- 25	12	36	PCB mount	PID controller, RS485 Interface
5R series	5R6-900	+/- 10	85 VAC	260 VAC	benchtop	PID controller
5R series	5R7-350	+/- 7.5	12	24	PCB mount	PI controller, heat or cool
5R series	5R7-350A	+/- 7.5	12	24	PCB mount	PI controller, heat or cool, with ext. Temp Pot
5R series	5R7-388	+/- 25	12	36	PCB mount	PID controller, RS232 Interface
5R series	5R7-573	+/- 12.5	6	28	PCB mount	PID controller
5R series	5R7-582	+/- 28	9	36	PCB mount	PID controller, RS232 and RS485 Interface



ACCESSORIES

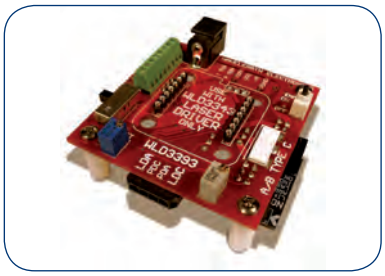
We carry a wide selection of accessories specifically for our products which will help you simplify your equipment purchasing and set up, speeding you onto your research. From the categories below, select evaluation boards to streamline your prototyping; the correct power and connector cables for connecting our products to your devices; and thermal solutions, such as heatsinks and thermistors, to make your application run smoothly.

Peltier Coolers TECs



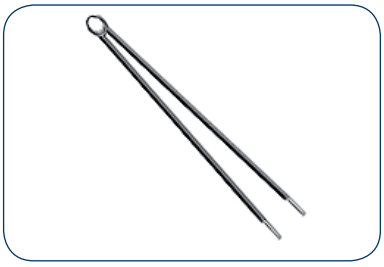
AMS Technologies provides extensive development services for medical equipment, instrumentation, automotive and other applications. We also offer a complete thermoelectric solutions portfolio, including design consultancy and all components for thermoelectric modules, heat sinks, temperature controllers, assemblies air-to-air, plate-to-air, liquid–to-air and others. Furthermore, thermoelectric recirculating chillers are available with extraordinarily high efficiency and quiet operation.

Evaluation Boards



Use the Evaluation Boards to rapidly prototype a complete laser diode control system using the cutting edge technology of the Laser Diode Driver, Onboard switches, connectors, and trimpots make configuration and operation simple, Input and output cables are also included.

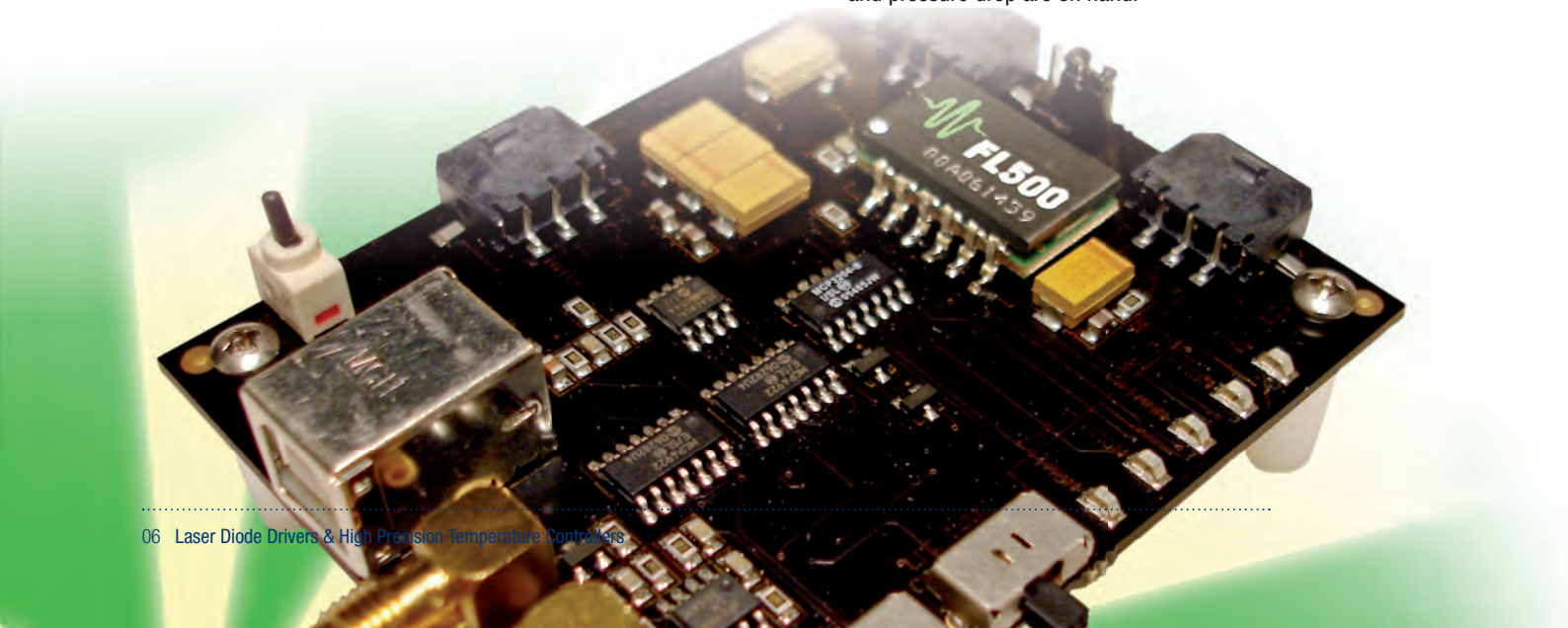
Thermistors



Thermistors are easy to use, inexpensive, sturdy, and respond predictably to changes in temperature. While they do not work well with excessively hot or cold temperatures, they are the sensor of choice for applications that measure temperature at a desired base point. They are ideal when very precise temperatures are required.

Heat Sinks

Selection, design and production of high performance heat sinks is a challenging task. Not only surface area, but factors such as efficiency of heat transfer in the vicinity of the heat source and pressure drop need to be considered. For both our high performance aluminium extrusions and copper brazed heat sinks, thermal performance curves for different component sizes and pressure drop are on hand.



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OUR SOLUTION APPROACH

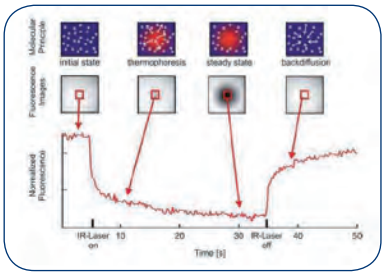
AMS Technologies' solution approach has helped hundreds of customer projects to move from concept to production. Helping you to understand our capabilities, we invite you to browse a list of the many projects that we have successfully completed over a timeframe closely approaching 30 years.

Our three key competencies Optical, Power and Thermal Management have no logical bits and bytes, nor industry qualification standards. Hence the design of a system and the choice of the right technology, supplier and products can only be based on knowledge and experience in those fields. AMS Technologies has built a comprehensive knowledge base in those three key competencies, enabling us to provide customers with complete solutions, over and above the mere product support for standard design aspheres we can provide.

- Development of customized specification sheets
- Effective project management of any product development
- Higher level design services for system-level prototypes
- Interdisciplinary system-level integrated design
- Appropriate subcontractor selection and production support
- Proper vetting of technologies and suppliers
- Simulations and modeling of system-level designs
- Installation, training and servicing

„TEC INSIDE" AMS TECHNOLOGIES SOLUTIONS

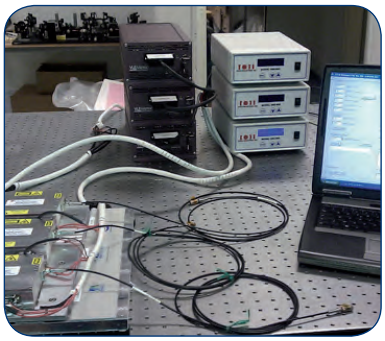
Microscale thermophoresis for drug-screening assay



The technology uses a fluorescence microscope equipped with a dichroic mirror that couples a IR-Laser into the path of fluorescence light. The heating laser is focused with the same objective used for fluorescence detection. This enables a precise local heating (1-6 K) of the glass capillary and simultaneously to observe and measure local changes of fluorescence intensity due to the motion of labeled molecules in the glass capillaries. Together with our partners we lead the laser control industry by simplifying advanced quantum cascade laser, laser diode, and thermal control for demanding electro-optical OEMs and researchers. We supply for over 20 years instrument-level performance in small, cost-effective modules.

Image: NanoTemper

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.

Image: AMS Technologies

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enabling your ideas.

Optical, Power and Thermal Management Technologies

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