

FLEXPOINT®  
Laser Modules

Laser Modules  
For Your Application



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# FLEXPOINT® Laser Modules Production

## Development of Laser Modules

Two laser modules are rarely alike. Our strength lies in the ability to offer custom FLEXPOINT® modules. Whether single pieces are required or series production, we develop and manufacture your modules in Germany – from electronics and optics to the complete laser module. Place your trust in the FLEXPOINT® brand.

## The Most Modern Technologies for Customized Developments

Our FLEXPOINT® laser modules are developed with computer assistance: Using CAD, we determine the shape of the housing. Integrated lens combinations are responsible for the beam quality of the laser modules. We simulate the beam using optics design software. To ensure that the driver of the laser diode works hassle free, it is also developed on the computer.

## Quality Assurance

To assure quality, the laser modules are tested at different optical measuring stations. All kinds of parameters are tested: optical power, beam profiles, the beam angle error, and electrical parameters, such as power consumption and voltage.



# FLEXPOINT® Laser Modules

## Key Features

Create your individual laser module by selecting from the following options:

- Wavelengths: Blue: 405 / 450 / 488 nm  
Green: 520 nm (laser diode) or  
532 nm (DPSS laser)  
Red / IR: 635-660 / 685 / 785 / 808-980 nm
- Output power: From <1 mW to 1 W  
The output power can be adjusted to meet a specific laser class requirement (e.g., laser class 1, 2, 2M)  
Output power adjustment can be conducted using an external potentiometer or a control signal.
- Beam shapes: Uniform lines, uniform multilines, dots, various different patterns such as circles, dot matrices, crosses
- Focus: Adjustable or preset at factory  
Includes easy focusing mechanism
- Supply voltage: 4.5-30 VDC (depends on laser diode used)
- Digital modulation
- Cable connection or M12 connector for easy integration
- Outstanding bore sighting and pointing stability
- Protection class up to IP67

**OEM versions are available for all types of FLEXPOINT® lasers!**



## Dot Lasers

We offer dot lasers with a round or elliptical beam profile. The output power can be set according to customer specifications from a few microwatts up to 100 mW. We also build laser modules that have to be assigned to a specific laser class (e.g., laser class 1, 2, or 3R).

As an option, all dot lasers can be modulated or equipped with an external power adjustment. The supply voltage is typically 4.5-6 VDC or 4.5-30 VDC. Standard housings measure 57 mm x 11.5 mm; however, custom housings can also be manufactured and used.



## Line Lasers

Line lasers can be produced with different fan angles to ensure that the correct line length is always projected at the working distance.

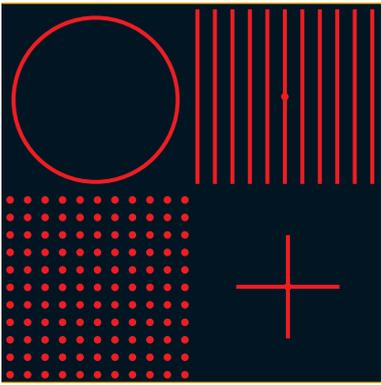
Upon request, the laser line can be optimized for a customer-specified working distance in order to produce optimal imaging results (e.g., line width). The output power can be set according to customer specifications from a few microwatts up to 100 mW.



## OEM Designs

We focus on custom and OEM versions of lasers and laser modules. Custom mechanical, electrical, and optical design solutions are provided, using up-to-date developing tools like CAD and optics design software. Typical production lots start at 10 pieces and go up to 10,000 pieces. Please talk to our engineers to develop a laser module that fits your application best.

! Detailed datasheets of each FLEXPOINT® laser module can be found on our website!



## Pattern Generators

Some applications require special laser patterns that can be produced by so-called diffractive optical elements (DOEs). DOEs are computer generated and manufactured cheaply in mass production by copying the master optic. Such optics can be permanently integrated into a FLEXPOINT® laser module or delivered in a pluggable plastic mount.



## Heavy Duty HD Series

The HD series was specifically developed for alignment tasks in harsh environments. The 19 mm housing is mechanically robust and conforms to protection class IP67 (dustproof and waterproof). The lasers can be focused and thus adjusted to each working distance.

HD series laser modules are available as dot lasers, line lasers, or cross-hair lasers. The wavelength is 520 nm (green) or 635 nm (bright red).



## ILM12 Series

The M12x1 thread of this stainless steel industrial housing makes it quick and easy to mount and run the laser. ILM12 lasers conform to protection class IP54 and are equipped with an M12 connector.

These laser modules are available as dot lasers, line lasers, or cross-hair lasers. The wavelength is 520 nm (green) or 635 nm (bright red).



## LT-PLM Series Precision Laser Modules

LT-PLM precision laser modules feature a precise housing from which the laser beam exits aligned to the mechanical axis of the housing. This eliminates any beam angle error.

The modules are suitable for a wide variety of alignment tasks, for example to align machines to each other or to center the spindle inside a turning lathe.

There are three types of precision laser modules available: one in a squared housing, one in a standard cylindrical housing, and one with an integrated battery.



## LR Series Long Range Lasers

LR series laser modules generate beam diameters from 1.5 mm to 12 mm at a distance from 10 m to 200 m. This makes these lasers perfectly suitable for aligning long production lines, aiming at long-distance targets, tunnel building, and constructing walls and fences.

The modules are equipped with bright red or green laser diodes and deliver an output power of between 1 mW and 5 mW.



## Laser Modules with Fiber Connection

FLEXPOINT® laser modules are also available with SMA and FC fiber connection. They are mainly used with multimode fibers to achieve the highest coupling efficiency.

These laser modules are available with wavelengths in the blue, green, and red spectral range. Further specifications will be discussed individually.



## MV micro

### For Stand-Alone Machine Vision Applications

The FLEXPOINT® MV micro series was developed for stand-alone machine vision applications. An output power of up to 100 mW and a sophisticated focusing mechanism make them a universal tool for industrial inspection and 3D triangulation. The MV micro comes with an M12 plug for easy electrical connection.

### Options

Versions with a fixed and an adjustable focus are both available – with superior line and focusing quality.

Different line optics and diverse red and blue wavelengths are standard.

Choose between analog and digital modulation and benefit from the ruggedized housing.



## MV nano

### The Standard Image Processing Laser

With a housing measuring 61 mm x 11.5 mm, FLEXPOINT® MV nano lasers are suited both for use as stand-alone products and for integration.

MV nano lasers produce a precise line with a uniform power distribution along the line. The focus can be adjusted by the customer using an Allen wrench.

### Technical Information

In addition to wavelengths in the range from 635 nm to 785 nm, these lasers are also available with a wavelength of 405 / 450 nm (violet / blue) and 520 / 532 nm (green). Depending on the wavelength, an output power of up to 100 mW can be achieved.



## MV pico

### Smallest Dimensions

FLEXPOINT® MV pico line lasers are used for integration into intelligent 3D vision sensors.

Smart sensors are complex components. Thus, it is important to incorporate lasers with the smallest possible dimensions into the sensor housing. The MV pico line lasers are only 53 mm long and have a diameter of 10 mm.

### Your Choice

In spite of the tiny housing dimensions, an output power of up to 100 mW is available. Choose from a variety of wavelengths and fan angles. All MV pico lasers come with an adjustable focus.



## MV femto

### As Short as a Match

With the FLEXPOINT® MV femto line laser, LASER COMPONENTS presents the smallest machine vision laser with outstanding optical performance.

With dimensions of only 40 mm in length and 8 mm in diameter, it is the best choice for integration into 3D sensors that have very little space. Different output power, wavelengths, and fan angles are available.



## MV giga

### The Most Powerful Laser

With the MV giga series, high power lasers are available for machine vision applications.

The output power of this laser is 400 mW / 1 W at different wavelengths (e.g., 450 nm, 638 nm, and 675 nm).

Typical applications for these lasers include train or street inspection and, in the steel industry, the measurement of hot steel.



## MV microline

### For Ultrathin Lines of 5 µm in Width

MV microline series lasers create ultra-thin lines with a line width as small as 5 µm. This makes these image processing laser modules particularly well suited for the measurement of very small objects, such as in PCB inspection.

## MV 12

### The Laser With M12 Thread

The FLEXPOINT® MV 12 laser was developed for easy integration into production lines. This laser is housed in a stainless steel housing with an M12 thread and can easily be screwed into existing threads or holes.

! Detailed datasheets of each MV laser module can be found on our website!



## Low-Cost OEM Laser Modules

### The Absolut Smallest Lasers

With a housing diameter as small as only 3.3 mm, our LC-LMD series laser modules are the smallest laser modules in the world. Different housing diameters from 3.3 mm to 10.5 mm are available.

### Dot or Line Lasers

The OEM laser module series includes dot lasers and a line laser. A majority of the dot lasers comes with a collimated beam, whereas the -05 version has an adjustable focus.

### Different Wavelengths

The laser modules are available with 635 nm, 650 nm, 785 nm, and 850 nm.

### Common Supply Voltage and Connection Leads

The laser modules work with a supply voltage of 3.0 VDC. Together with 10-cm-long flying leads (applies to selected versions), easy integration is guaranteed.

### Different Output Power Levels

Standard output power levels include <1 mW, 2-3 mW and 2-5 mW. Other power level settings are available upon request.

### Now Available: Cross-Hair and Line Lasers, Green Laser

In addition to dot lasers, several cross-hair and line lasers are now available as part of our low-cost OEM series. A 520 nm/green laser module was also added to the portfolio. Please check out Laser Components' website for details.

! Detailed datasheets of each low cost OEM laser module can be found on our website!



## Mounts

### FP-MS Mounts

FP-MS mounts are available for laser modules with a diameter of 11.5 mm and 19 mm. They are the right choice for easy and long-lasting fixing of the laser module in an application.



### FP-MG Mounts

FP-MG mounts are equipped with a ball joint and, therefore, offer more flexibility in adjusting the laser module. They are available for laser modules with a diameter of 11.5 mm and 19 mm.



### FP-MP Precision Mounts

For applications which require high alignment accuracy, Laser Components offers FP-MP precision mounts with a rotation of 360° along two axes and parallel movement. They are available for laser modules with a diameter of 19 mm.



## Accessories

### Power Supplies and Battery Packs

If the laser modules need to be connected to 110/230 VAC, simple and inexpensive power supplies are available. The battery pack is a practical accessory for stand-alone or mobile laser module applications, or if a power source is not nearby.





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