

## FLEXPOINT® Machine Vision Laser MVstereo Series Pseudo Random Pattern Generator

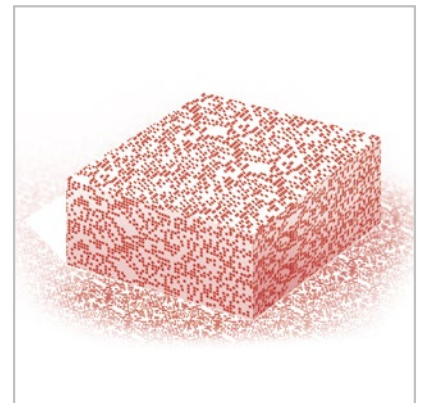
The MVstereo Pseudo Random Pattern Generator (PRPG) projects a dot matrix of 33,000 divergent dots. It is available with 660 nm and 830 nm. Laser Components offers an eye safe version for each wavelength. The MVstereo PRPG lasers include our new digital laser driver which offers various programming and reporting features.

### Applications

- 3D Stereo Machine Vision
- Gesture recognition
- Depth sensing
- Volume measurement

### Features

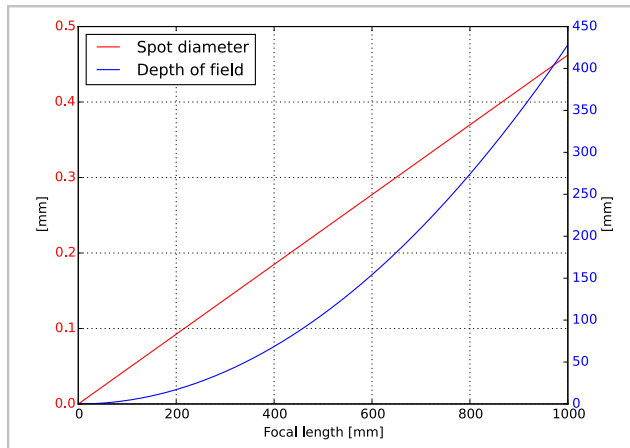
- 33,000 pseudo random dot matrix
- 660 nm or 830 nm
- Eyesafe
- Adjustable focus without removing the optics
- 4.5 – 30 VDC supply voltage
- 19 mm industrial housing
- Microprocessor controlled



## Specifications

Wavelength	660 nm 830 nm
Output power versions	660 nm: up to 70 mW (still eyesafe) laser class 1 830 nm: up to 130 mW (still eyesafe) laser class 1M
Number of dots	33,000
Pattern angles	660 nm: 46° x 32° 830 nm: 60° x 42°
Zero order intensity	660 nm: about 0.5% 830 nm: about 0.2%
Digital modulation / trigger	up to 2 MHz, rise time < 50 ns, TTL logic, active low default
Analog power adjustment	Linear range 0 to 5.0 V, max. bandwidth 1 kHz, active low default
Bore sighting	≤ 10 mrad
Pointing stability	<< 10 μrad/°C
Focus	Adjustable, preset or fixed
Operating voltage	4.5 – 30 VDC, reverse voltage protection
Current consumption	< 400 mA
Operating temperature (housing)	-20 to +50 °C
Storage temperature	-20 to +60 °C
Housing material	Aluminum, red anodized, potential free
Housing dimensions	Ø 19 mm l = 90 mm with adjustable focus l = 66.5 mm with fixed focus
Protection class	IP54, IP67 as option
Connector	M12 sensor connector Option: 2 m cable instead of M12 connector
Accessories	Mounts, connecting cable, power supply

## Spot Size and Depth of Field



## RS-232 Commands

Saving data and settings on the internal EEPROM

These modules have the option of storing relevant data and settings on the internal EEPROM. Data such as operating time can be stored; as well as operation parameters and production settings.

Command	Description	Return value
trig_x	x: active high/active low 1: active low (default) 2: active high	
dima xx_yy_z	analog power adjustment: xx → max. power adjustment [00 ... 50] (e.g. 00 ≙ 0V ... 50 ≙ 5V) yy → min. power adjustment [00 ... 50] (e.g. 00 ≙ 0V ... 50 ≙ 5V) z → modulation type [0, 1 or 2] 0: no modulation (disabled) 1: active low (default) 2: active high	
mon1	12-bit resolution [0..4095]digits. permanent swm  ESC → end of permanent swm	supply voltage [V] internal voltage [V] laser diode monitor current [µA] laser current [mA]
temp	temperature	temp: c
time	operating hours	days – hours – minutes
lasc	laser current	laser current [mA]

x) recommended terminal program: Tera Term, for communication

## Pin Out

PIN	Description	Comments
1	$V_{IN}$	input voltage
2	$V_{power}$	analog power adjustment input
3	$V_{Mod}$	trigger input
4	RxD	UART; communication interface
5	TxD	
6	C2CK	firmware flash access
7	C2D	
8	GND	ground

### 1. Analog power adjustment

Output power can be adjusted to any desired value within the capabilities of the installed laser diode. Due to safety regulations and laser classifications, the maximum output power can only be set by the factory during manufacture.

Please note: The maximum laser power is set during production; and the user can only reduce the laser power. This is locked via the firmware and password protected.

When using analog power adjustment, there is a distinction between active high and active low.

#### 1.1. Active high

The output power of the laser is proportional to the input voltage. The input voltage can be set via RS-232 commands in the range 0 – 5 V.

#### 1.2. Active low (default)

Inverse power adjustment follows an opposite relationship to the input voltage. The following graph (fig. 1) shows this relationship:

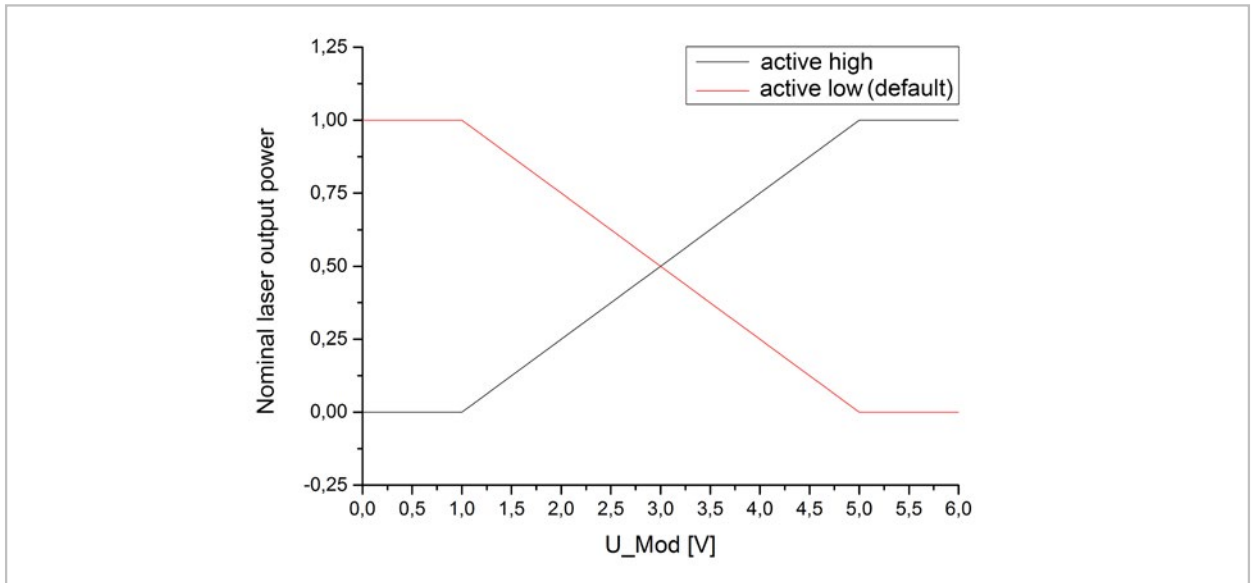


Fig. 1: Analog power adjustment

## 2. Digital modulation / Trigger

Triggering is controlled via an external TTL signal (transistor transistor logic).

The triggering signal can be switched between 2 input types:

- active high
- active low (default)

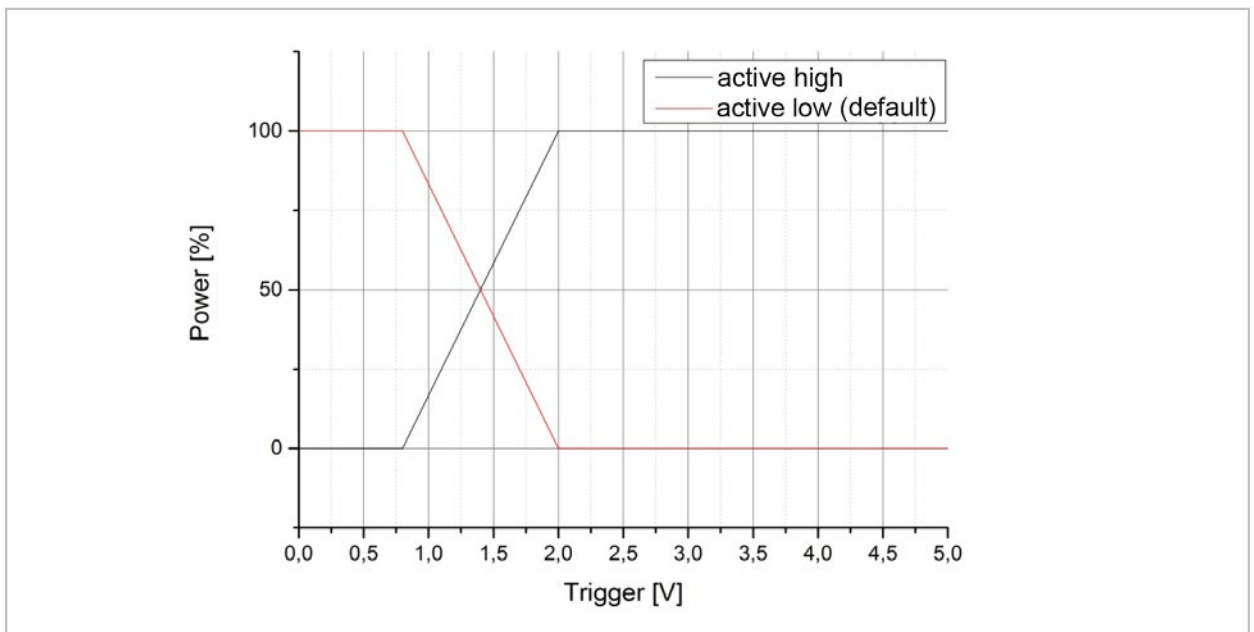
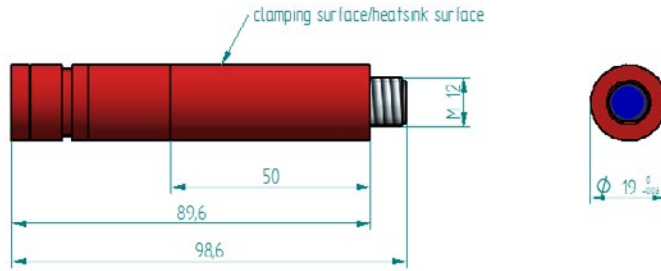
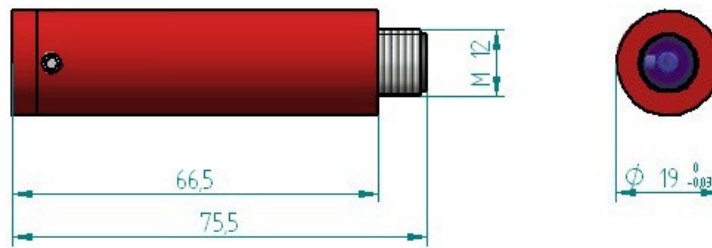


Fig. 2: Digital Modulation / Trigger

MVstereo with adjustable focus



MVstereo with fixed focus



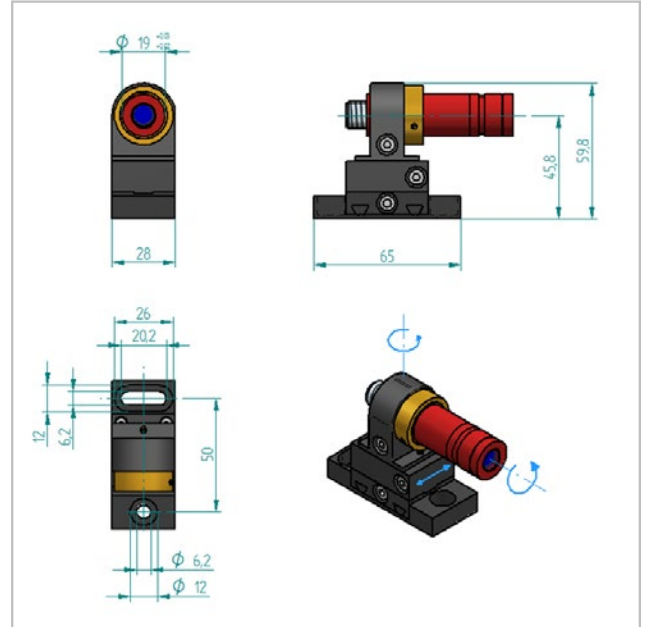
Ordering Code FLEXPOINT® MVstereo Series

Series	Wavelength (nm)	Output Power	Power Options	Pseudo Random Pattern Generator Type	Focus	Options
FP - <b>MVstereo</b>	<b>YYY</b>	<b>XXX</b>	<b>MD</b>	<b>XXX</b>	<b>XXX</b>	<b>XXX</b>
	650 830	up to 70 mW for 660 nm up to 130 mW for 830 nm	D=Dimmable (analog power adjustment) Default: active low M= digital Modulation Default: active low	335 (30,000 dots for 660 nm) 332 (30,000 dots for 830 nm)	F= adjustable focus FYYY= prefocused to YYY but still adjustable FIXYYY= fixed focused to YYY	Examples: µC settings cable length OEM customer name

Precision Mount for Laser Modules with 19 mm diameter

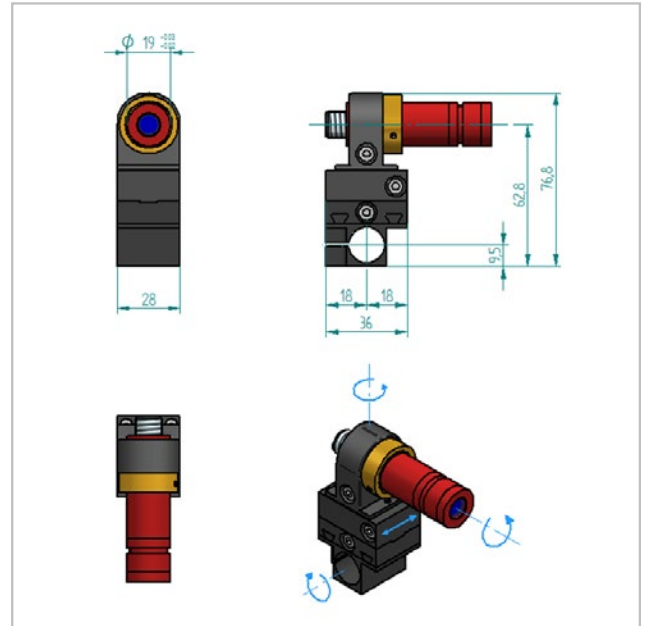
FP-MPT-19

- For flat surface mounting
- 360° rotation in 2 axes + parallel movement



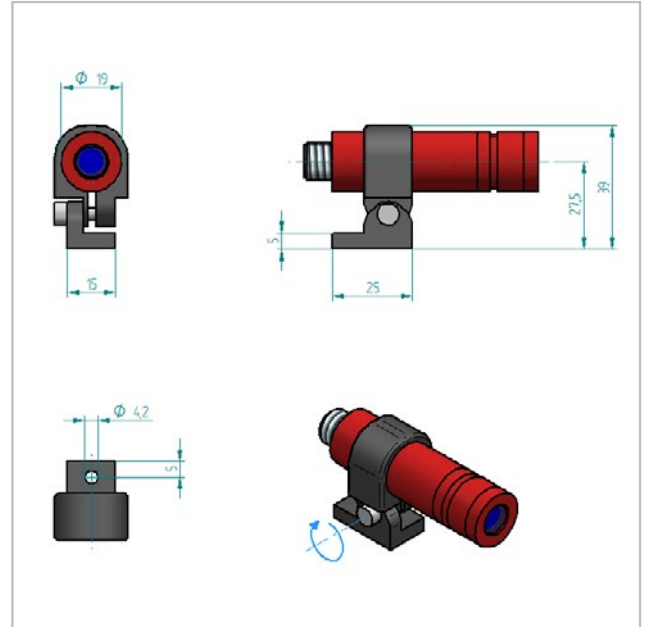
FP-MPS-19

- For mounting on a 16 mm shaft
- 360° rotation in 2 axes + parallel movement (+ rotation on shaft)



Standard Mount for Laser Modules with 19 mm diameter

FP-MS-19



FP-MG-19

