

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

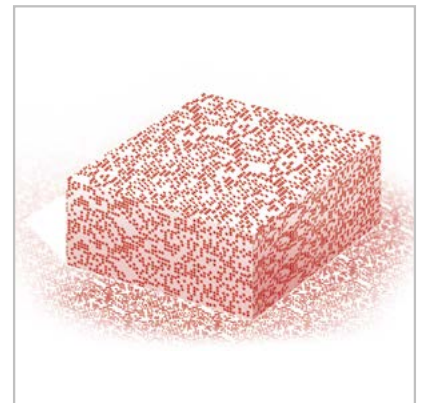
The MVstereo Pseudo Random Pattern Generator (PRPG) projects a dot matrix of divergent dots. It is available with 660 nm and 830 nm. LASER COMPONENTS offers an eye safe version for each wavelength. A version in our standard 11.5 mm Ø housing is available too.

### Applications

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

### Features

- Pseudo random dot matrix
- 660 nm or 830 nm
- Adjustable focus without removing the optics
- 4.5 – 30 VDC supply voltage
- 19 mm industrial housing



## Available Patterns

DOE Item #	Description	Design Wavelength	Pattern Size @ 100 mm Distance (@ Design Wavelength)	Pattern Angles (@ Design Wavelength)	Optimum Wavelength Range (s)
DOE-332	33000-Dot Pseudo-Random Pattern	830 nm	Width: 114.6 mm Height: 76.3 mm Diagonal: 136.9 mm	Width: 59.6° Height: 41.7° Diagonal: 68.8°	820 – 850 nm
DOE-335	33000-Dot Pseudo-Random Pattern	645 nm	Width: 84.8 mm Height: 56.4 mm Diagonal: 101.3 mm	Width: 45.9° Height: 31.5° Diagonal: 53.7°	630 – 660 nm
DOE-372	40100-Dot Pseudo-Random Pattern	850 nm	Width: 114.9 mm Height: 72.0 mm Diagonal: 135.6 mm	Width: 59.7° Height: 39.6° Diagonal: 68.3°	825 – 870 nm
DOE-373	31806-Dot Truly-Random Pattern	830 nm	Width: 118.5 mm Height: 86.9 mm Diagonal: 146.9 mm	Width: 61.3° Height: 47.0° Diagonal: 72.6°	820 – 860 nm
DOE-374	47708-Dot Truly-Random Pattern	830 nm	Width: 118.5 mm Height: 86.9 mm Diagonal: 146.9 mm	Width: 61.3° Height: 47.0° Diagonal: 72.6°	820 – 860 nm
DOE-375	29594-Dot Pseudo-Random Pattern	830 nm	Width: 118.5 mm Height: 86.5 mm Diagonal: 146.7 mm	Width: 61.3° Height: 46.8° Diagonal: 72.5°	810 – 850 nm
DOE-384	51978-Dot Truly-Random	640 nm	Width: 97.5 mm Height: 130.4 mm Diagonal: 162.8 mm	Width: 52.0° Height: 66.2° Diagonal: 78.3°	610 – 660 nm
DOE-385	101050-Dot Truly-Random	640 nm	Width: 100.4 mm Height: 133.9 mm Diagonal: 167.4 mm	Width: 53.3° Height: 67.6° Diagonal: 79.9°	610 – 660 nm

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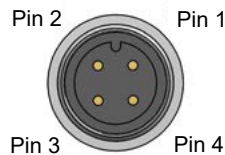
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## Specifications

Wavelength	660 nm, 830 nm
Output power versions	660 nm: up to 100 mW 830 nm: up to 130 mW Please contact LASER COMPONENTS for the maximum allowed output power for an eye-safe version.
Number of dots	see table above
Modulation options	Dimmable, option D/DI: by 0 – 5V signal, active high/low, see figure 3 Digital, option M/MI: 0 – 10 kHz (higher frequency on request), active high/low, table 1
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	Binder series 713 Pin 1: VCC Pin 2: Option M/MI or D/DI if ordered one of them, option D/DI if ordered both Pin 3: GND Pin 4: Option M/MI if ordered both modulation options Option: 2 m cable instead of M12 connector
Accessories	Mounts, connecting cable, power supply

Fig. 1:  
M12 connector,  
laser side



## Spot Size and Depth of Field

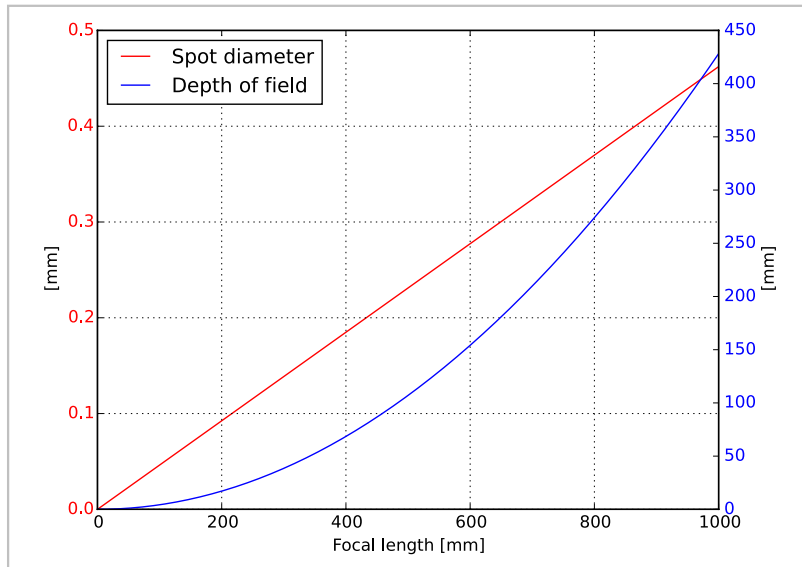


Fig. 2: Spot size and depth of field

## Modulation Options

MVstereo lasers can either be ordered with digital modulation or analog power adjustment (dimnable). Both modulations are optional. The digital option is called option 'M', power adjustment is called option 'D'.

The individual options are:

- M: digital modulation, active low
- MI: digital modulation (inverted), active high
- D: Dimmable, active low
- DI: Dimmable (inverted), active high

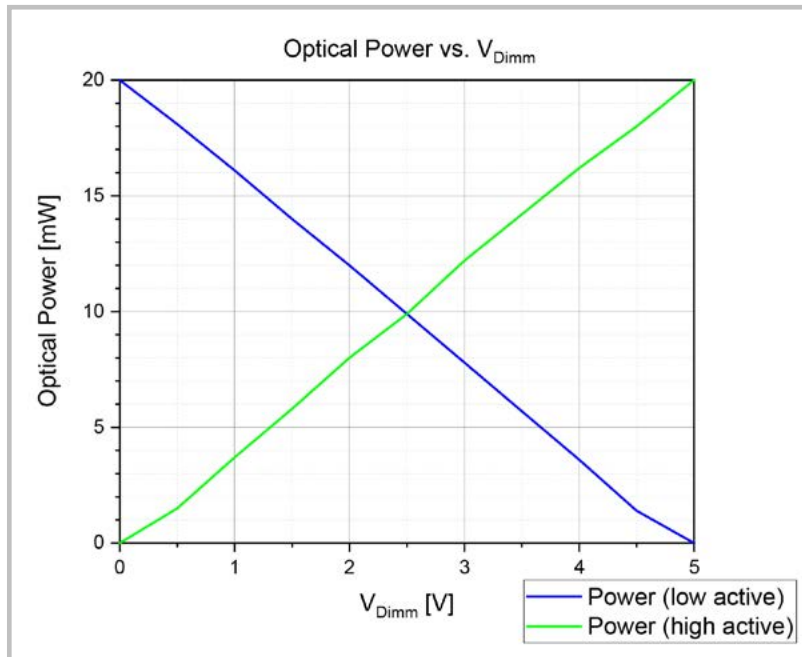


Fig. 3: Typical graph of an active high/active low logic for option D/DI (dimnable)

### Digital Modulation with External Trigger

V <sub>Modulation</sub>	State	Laser	
		Low active	High active
-0.3 V to +0.8 V	Low	on	off
2.0 to 5.3 V	High	off	on

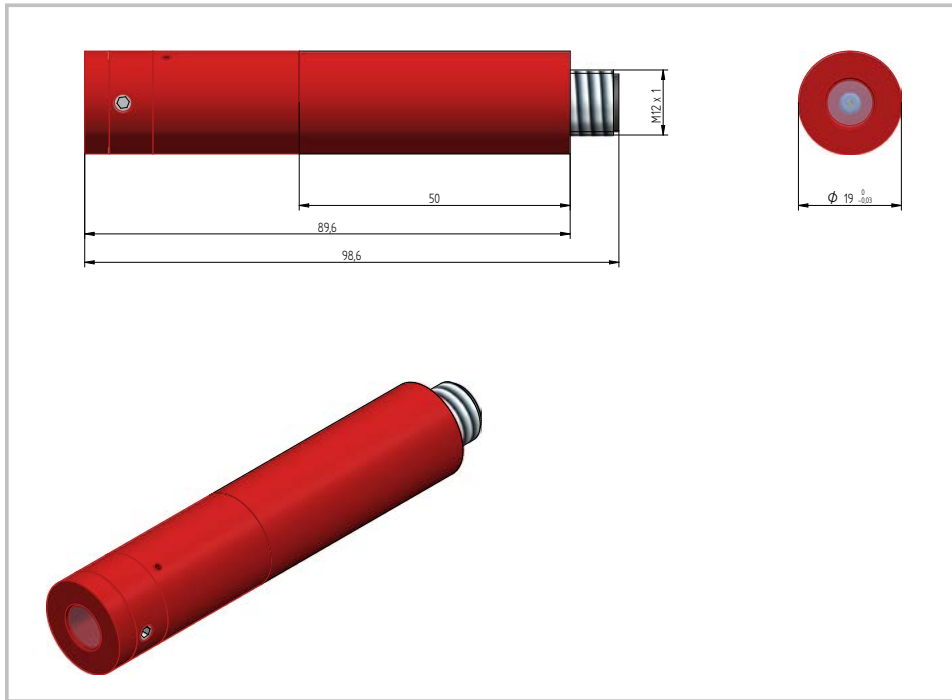
Table 1: Definition of state of laser

For voltages of  $0.8 \text{ V} < V_{\text{Modulation}} < 2.0 \text{ V}$ , the state of the laser is not defined.  
 The frequency and duty cycle are determined by the external modulation voltage  $V_{\text{Modulation}}$ .

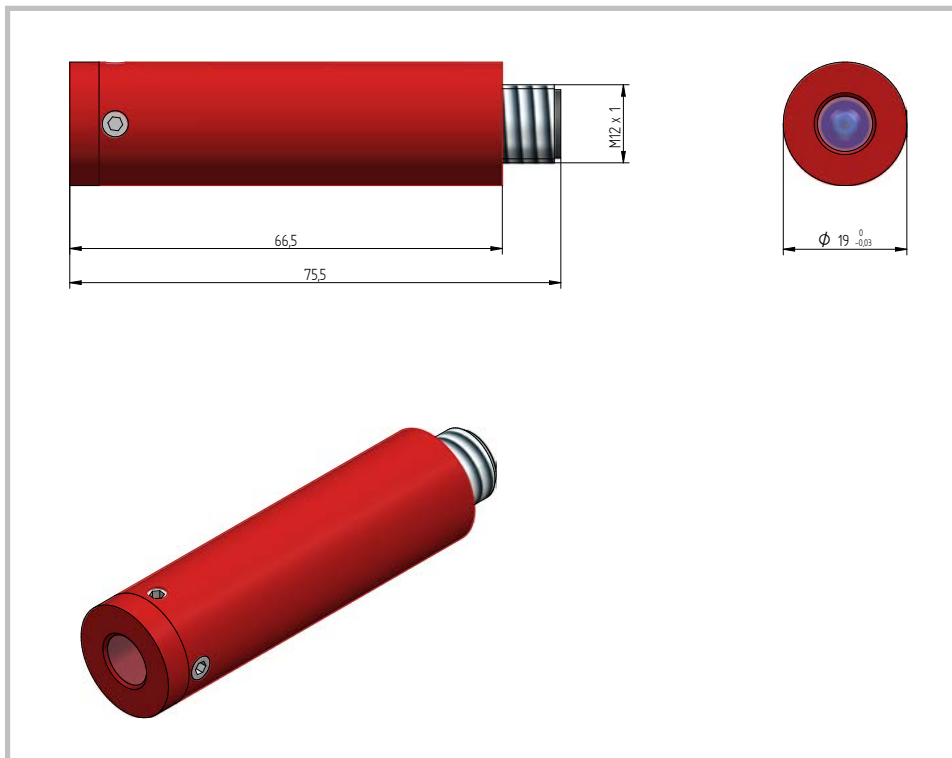
In order to obtain reasonable pulses, the following values should be taken into account:

- Maximum frequency  $f_{\text{Max}} = 3 \text{ MHz}$
- Minimum pulse width  $t_{\text{ON\_min}} = 200 \text{ ns}$

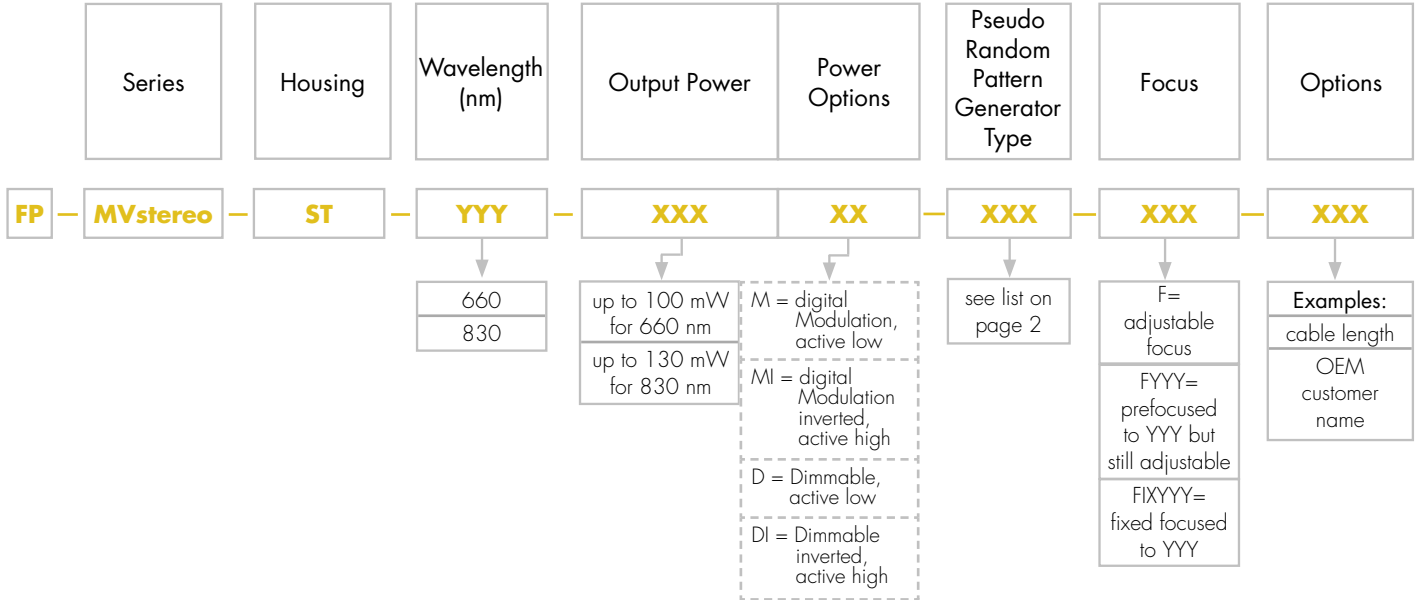
### MVstereo with adjustable focus



### MVstereo with fixed focus



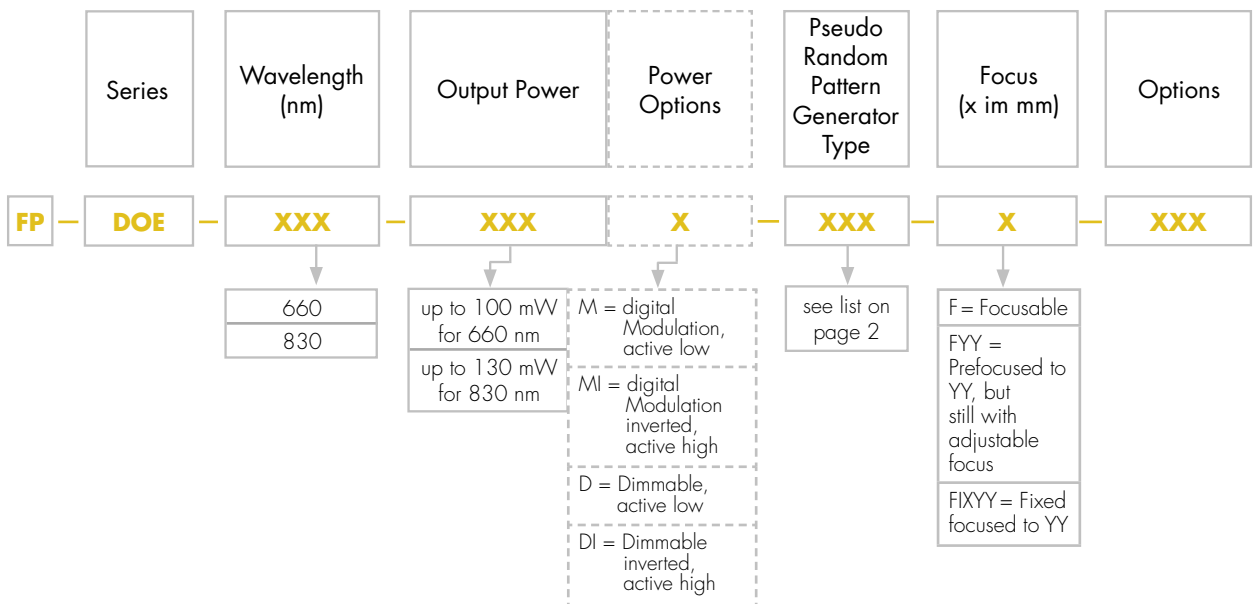
### Ordering Code FLEXPOINT® MVstereo Series



### Standard FP-DOE Version

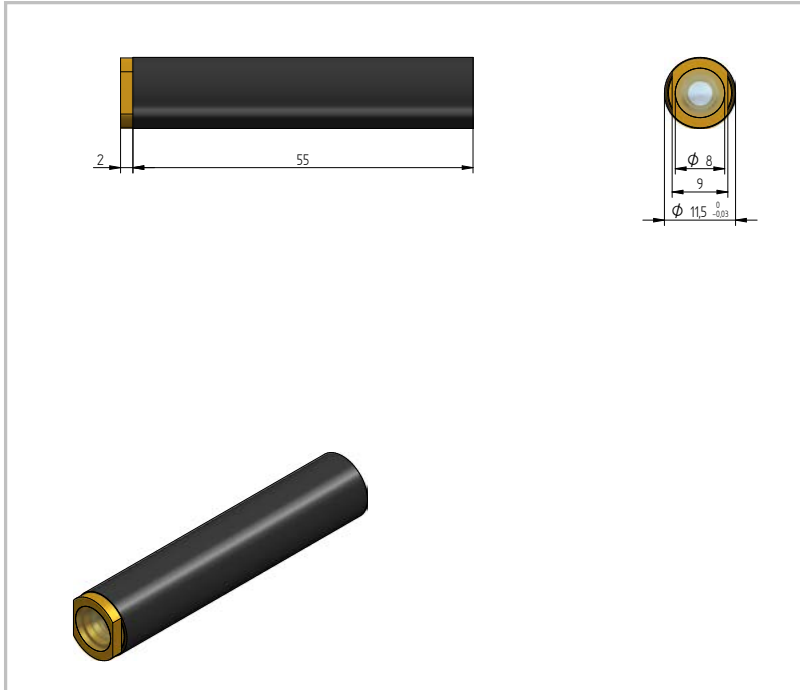
The random patterns are also available inside our FP-DOE module series with 11.5 mm Ø housing.

### Ordering Code FP-DOE Series



## Mechanical Drawings FP-DOE Modules

Standard (small) housing (Ø 11.5 mm)



Ruggedized housing (Ø 19 mm)

