

MV18 SERIES (EDITION 2025 WITH IMPROVED FOCUS MECHANICS)

FLEXPOINT® Machine Vision Laser



THE RUGGEDIZED MACHINE VISION MODULE WITH M18 THREADED HOUSING FOR EASY INTEGRATION

The MV18 series comes with M18 threaded housing for easy integration and M12 connector for quick electrical connection. The module is available in various wavelengths of 405–850 nm with output powers up to 100 mW.

The MV18 can now also be ordered with improved focus mechanics (Edition 2025) with increased dust- and moisture proofness, an even shorter design and an improved beam drift while focusing the laser. The established, easy focusing method will remain untouched. The focus can also be fixed at our factory to a defined working distance.

A variety of focus options provide the right combination of line thickness and depth of focus for various applications.

FEATURES

- / M18 threaded housing for easy integration
- / Fixed and adjustable focus available
- / Improved focus mechanics for the adjustable focus
- / Ruggedized housing and M12 electrical connector
- / Many optics options for the right match of line thickness and depth of focus
- / 24 V Modulation available

APPLICATIONS

- / 3D machine vision
- / Industrial inspection
- / Structured lighting
- / Food inspection
- / Timber industry

/ Germany and Other Countries LASER COMPONENTS Germany GmbH Tel +49 8142 2864-0 info@lasercomponents.com www.lasercomponents.com
 / France LASER COMPONENTS S.A.S. Tel +33 1 39 59 52 25 info@lasercomponents.fr www.lasercomponents.fr
 / United Kingdom LASER COMPONENTS (UK) Ltd. Tel +44 1245 491 499 info@lasercomponents.co.uk www.lasercomponents.co.uk
 / Nordic Countries LASER COMPONENTS Nordic AB Tel +46 31 703 71 73 info@lasercomponents.se www.lasercomponents.se
 / USA LASER COMPONENTS USA, Inc. Tel +1 603 821-7040 info@laser-components.com www.laser-components.com

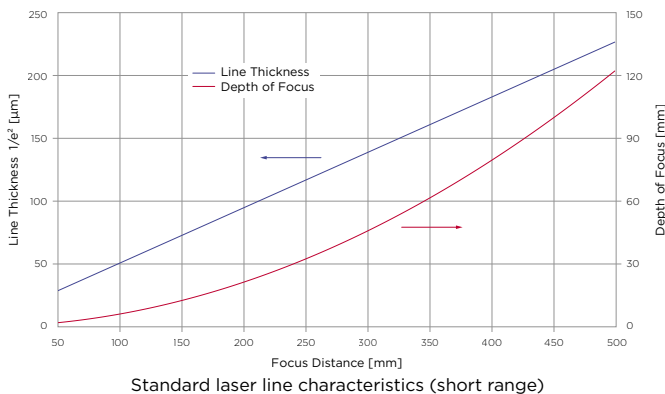
SPECIFICATIONS

Model	Line laser with uniform power distribution (FOV correction available)								
Wavelength [nm]	405	450	520	640	660	685	785	830	845
Wavelength tolerance (typ.) [nm]	± 5	± 10	± 10	± 5	± 5	± 10	± 10	± 10	± 10
Output power [mW] ¹	1-100	1-70	1-80	1-100	1-100	1-40	1-100	1-80	1-40
Power stability at 25 °C (after warm up) [%]	≤ 5								
Operating voltage [VDC] ²	10 – 30 ²			4.5 – 30					
Operating temperature (housing temp.) [°C] ³	-20 to +50								
Fan angle [°] ⁴	1, 5, 10, 15, 20, 30, 45, 60, 75, 90								
Focussing range [mm]	50 – 5000								
Line intensity variation (typ) [%] ⁵	±20 (optional ±10) related to average power (80 % of the line)								
Line straightness [%] ⁵	±0.1 (optional ±0.05)								
Pointing stability [μrad/K]	≤ 10 (improved pointing stability on request)								
Boresight deviation [mrad]	≤ 10 (optional ≤ 3 or 5)								
Shock tolerance	30 G, 6 ms 75 G, 4 ms								
Housing	Aluminium (blue anodized, potential free)								
	Fixed focus (fixed at factory to defined working distance) or adjustable focus								
Accessories available (optional, order separately)	Power Supply with M12 connector; Connector Cable; 12 V mobile power packs								
Connector	M12 connector Pin1: +VDC Pin2: Digital Modulation (M/MI) Pin3: GND Pin4: Analog Modulation (D/DI)								

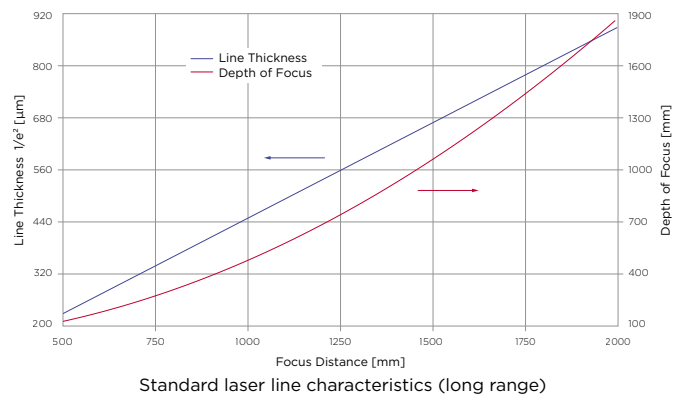
Foot Note

- 1 Output power: The output power is defined behind optics which means at the beam exit of the laser module
- 2 5 V Option (»StepUp« electronics 4.5-6 V) available for 405 nm, 450 nm and 520 nm
- 3 Below 0 °C condensate formation must be avoided (due to optical and electronic components)
- 4 Fan angle: Defined by the ends of the laser line using FWHM based on the average power (within 80 % of line)
- 5 Line intensity variation and line straightness are measured at 80 % of the fan angle

Line Thickness and Depth of Focus (DOF) for Standard (STD) Focus Option at 660 nm



Standard laser line characteristics (short range)



Standard laser line characteristics (long range)

Focus Options

MV18 is available with different focus options to achieve the right combination of line thickness and depth of focus depending on the application.

The values shown in the table below are the factors which should be used in combination with the graph above.

P _{out} and λ			Focus options (conversion factor related to reference laser marked in red left side - optimized for thin line / right side - optimized for high DOF)											
			DLSE		DLE		DL		STD		TS1		TS2	
λ	P _{out}	Δλ	LT	DOF	LT	DOF	LT	DOF	LT	DOF	LT	DOF	LT	DOF
[nm]	[mW]	[nm]												
405	1–30	±5	0.27	0.12	0.35	0.20	0.49	0.39	0.71	0.81	1.04	1.76	1.53	3.80
405	30–100	±6	0.27	0.12	0.35	0.20	0.49	0.39	0.71	0.81	1.04	1.76	1.53	3.80
450	1–70	±10	0.25	0.10	0.33	0.16	0.45	0.30	0.69	0.69	1.49	3.25	2.20	7.06
520	1–10	±10	0.29	0.11	0.39	0.19	0.53	0.36	0.78	0.78	1.71	3.69	2.55	8.23
520	11–40	±10	0.29	0.11	0.39	0.19	0.53	0.36	0.78	0.78	1.71	3.69	2.55	8.23
640	1–20	±5	0.39	0.16	0.51	0.27	0.69	0.48	1.02	1.07	1.65	2.79	2.43	6.08
640	21–30	±5	0.39	0.16	0.51	0.27	0.69	0.48	1.02	1.07	1.47	2.23	2.18	4.87
640	31–100	±5	0.47	0.23	0.59	0.36	0.80	0.67	1.20	1.47	1.65	2.79	2.43	6.08
660	1–30	±5	0.39	0.15	0.49	0.24	0.67	0.44	1.00	1.00	1.51	2.27	2.25	5.07
660	31–100	±5	0.51	0.26	0.65	0.42	0.88	0.78	1.31	1.72	1.51	2.27	2.25	5.07
685	1–40	±10	0.45	0.20	0.57	0.31	0.76	0.56	1.14	1.24	1.43	1.97	2.12	4.31
785	1–10	±10	0.35	0.10	0.45	0.17	0.61	0.31	0.90	0.68	1.65	2.28	2.43	4.96
785	11–100	±10	0.65	0.35	0.82	0.57	1.12	1.05	1.65	2.28	2.00	3.36	2.98	7.45
830	1–40	±10	0.69	0.37	0.88	0.62	1.22	1.17	1.78	2.53	2.29	4.18	3.39	9.13
845	1–40	±10	0.35	0.10	0.45	0.16	0.61	0.29	0.90	0.63	1.63	2.05	2.41	4.51

Foot Note / Abbreviations

DLSE = Thin Line Super Enhanced

DLE = Thin Line Enhanced

DL = Thin Line

STD = Standard, good compromise for Line Thickness and Depth of Focus

LT = Line Thickness DOF = Depth of Focus

TS1 = Enhanced Depth of Focus TS2 = Enhanced Depth of Focus, higher factor

/ Germany and Other Countries LASER COMPONENTS Germany GmbH Tel +49 8142 2864-0 info@lasercomponents.com www.lasercomponents.com

/ France LASER COMPONENTS S.A.S. Tel +33 1 39 59 52 25 info@lasercomponents.fr www.lasercomponents.fr

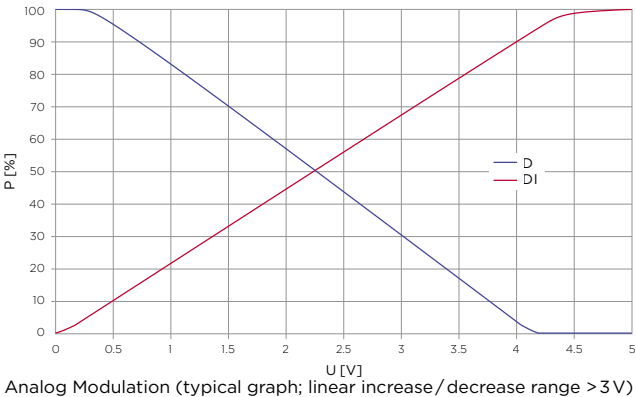
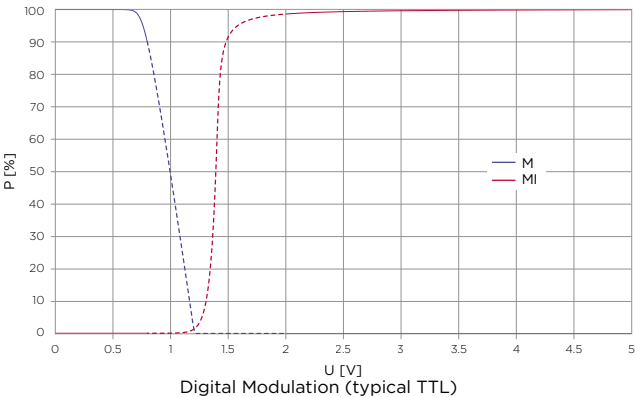
/ United Kingdom LASER COMPONENTS (UK) Ltd. Tel +44 1245 491 499 info@lasercomponents.co.uk www.lasercomponents.co.uk

/ Nordic Countries LASER COMPONENTS Nordic AB Tel +46 31 703 71 73 info@lasercomponents.se www.lasercomponents.se

/ USA LASER COMPONENTS USA, Inc. Tel +1 603 821-7040 info@laser-components.com www.laser-components.com

Modulation Options

The standard module comes without modulation and power adjustment.



	Digital Modulation < 20kHz active high and active low available 0/5V 24 V Version available (0/24 V)		Analog Modulation high/low by control wire 0-5V	
	M active low	MI active high	D active low	DI active high
Delay + Rise time (max.) [μs]	10	10		
On [V]	0-0.5	4.5-5	0	5
Off [V]	4.5-5	0-0.5	5	0
Linear range [V]			>3	>3

Available combinations of options M and D are listed in the table below. For the combined modulations (last four columns), the properties of the modulation components apply according to the columns of M, MI, D and DI. The standard module comes without modulation and power adjustment.

P _{out} and λ			Modulation options							
λ	P _{out}	U _{oper}	M	MI	D	DI	MD	MID	MDI	MIDI
[nm]	[mW]	[V]								
405	1-25	10-30	■ a	■ b, e	■ a, d	-	■ a, a, d	■ b, e, a, d	■ a	■ b, e
405	1-25	4.5-6	■ a, e	■ b, e	-	-	-	-	-	-
405	25-100	10-30	■ a, e	■ b, e	■ c	■ b, d	■ a, e, c	■ b, e, c	■ a, e, b, d	■ b, e, b, d
405	25-100	4.5-6	■ a, e	■ b, e	■ c	-	■ a, e, c	■ b, e, c	-	-
450	1-70	10-30	■ a, e	■ b, e	■ c	■ b, c, d	■ a, e, c	■ b, e, c	■ a, e, b, c, d	■ b, e, b, c, d
450	1-75	4.5-6	■ a, e	■ a, e	■ b, e	■ b, c	■ a, e, b, e	■ a, e, b, e	■ a, e, b, c	■ a, e, b, c
520	1-8	10-30	■ a, e	■ b, e	■ a	■ b, c	■ a, e, a	■ b, e, a	■ a, e, b, c	■ b, e, b, c
520	1-8	4.5-6	■ a, e	■ b, e	■ a	■ c	■ a, e, a	■ b, e, a	■ a, e, c	■ b, e, c
520	9-45	10-30	■ a, e	■ b, e	■ a	■ b, c	■ a, e, a	■ b, e, a	■ a, e, b, c	■ b, e, b, c
520	9-45	4.5-6	■ a, e	■ b, e	■ a	■ c	■ a, e, a	■ b, e, a	■ a, e, c	■ b, e, c
520	45-80	10-30	■ a, e	■ b, e	■ c	-	■ a, e, c	■ b, e, c	-	-
520	45-80	4.5-6	■ a, e	■ b, e	■ c	-	■ a, e, c	■ b, e, c	-	-
640	1-20	4.5-30	■ a	■ e	■ a	■ c, d	■ a, a	■ e, a	■ a, c, d	■ e, c, d
640	20-100	4.5-30	■ a, e	■ b, e	■ c	■ b, c, d	■ a, e, c	■ b, e, c	■ a, e, b, c, d	■ b, e, b, c, d
660	1-30	4.5-30	■ a	■ e	■ a	■ c, d	■ a, a	■ e, a	■ a, c, d	■ e, c, d
660	30-100	4.5-30	■ a, e	■ b, e	■ c	■ b, c, d	■ a, e, c	■ b, e, c	■ a, e, b, c, d	■ b, e, b, c, d
685	1-40	4.5-30	■ a	■ e	■ a	■ c, d	■ a, a	■ e, a	■ a, c, d	■ e, c, d
785	1-9	4.5-30	■ a	■ e	■ a	■ c, d	■ a, a	■ e, a	■ a, c, d	■ e, c, d
785	10-100	4.5-30	■ a, e	■ b, e	■ c	■ b, c, d	■ a, e, c	■ b, e, c	■ a, e, b, c, d	■ b, e, b, c, d
830	1-100	4.5-30	■ a, e	■ b, e	■ c	■ b, c, d	■ a, e, c	■ b, e, c	■ a, e, b, c, d	■ b, e, b, c, d
845	1-40	4.5-30	■ a	■ e	■ a	■ c, d	■ a, a	■ e, a	■ a, c, d	■ e, c, d

Foot Note / Abbreviations

■ = Standard availability

■ = Available with modification

a = On@float (if the modulation cable or pin is not connected the module is on (cable is loose))

b = Off@float (if the modulation cable or pin is not connected the module is off (cable is loose))

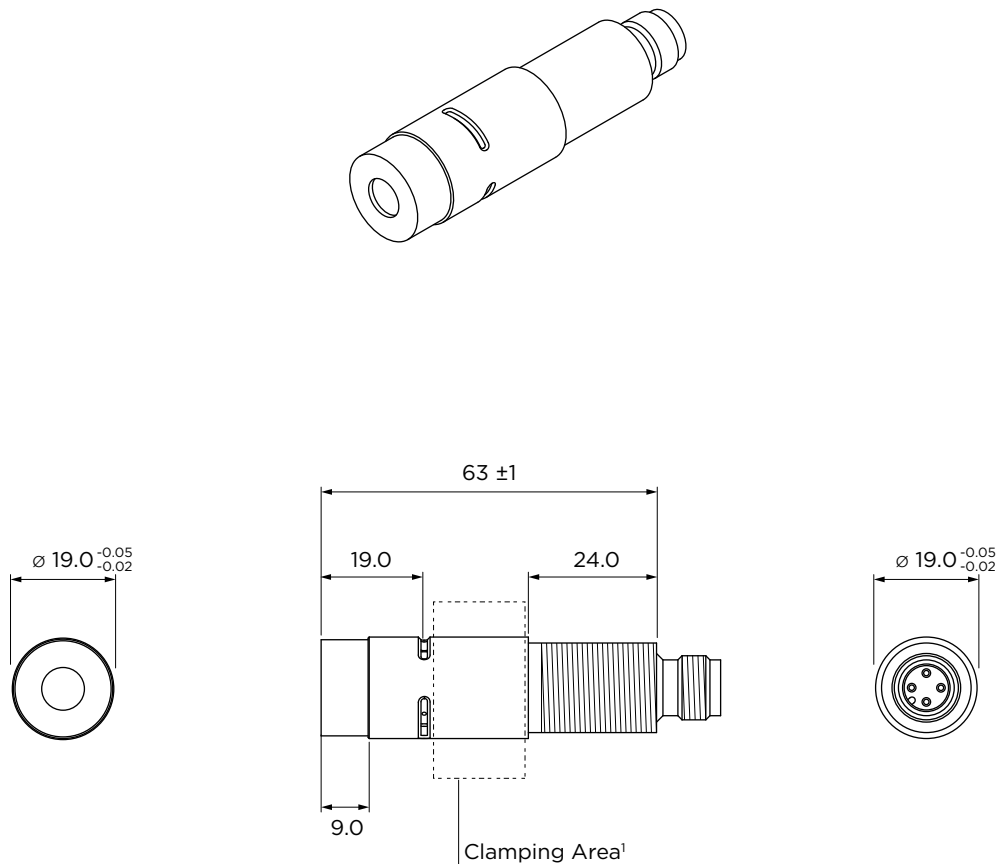
c = Non-linear response (the curve in the diagram for D and DI indicates an ideal line / linear behaviour but in reality the response is not linear)

d = No Off (module is always glowing / always on at least with very low intensity)

e = TTL (TTL Logic: TTL 5V has two threshold values - 0.8V and 2.0V)

TECHNICAL DRAWING

MV18 2025 standard housing, focusable (ST-F)



MV18 ST-F

¹For optimal heat dissipation in a mount, we recommend to apply thermal paste on the surface overlap.

Units: mm

ORDERING CODE

	Housing	Wavelength [nm]	Output Power [mW]	Modulation / Power Adjustment	Fan Angle [°]	Focus [mm]	Optics
FP-MV18-25	- X	- X	- X	- X	- X	- X	- X
	ST	405	1-100	M Digital Modulation, active low	1	F Focusable	STD
		450			5	FYYY Prefocused to YYY mm, but	DL
		520		MI Digital Modulation inverted, active high	10	still focusable	DLE
		640			15	FIXYYY Fixed focus to YYY mm	DLSE
		660		D Dimmable, active low	20		TS1
		685		DI Dimmable inverted, active high	30		TS2
		785			45		
		830			60		
		845			75		
					90		

Example: FP-MV18-25-ST-785-50M-30-F-DL

Not all combinations which can be created by the ordering code above are possible. For the output power please refer to the table on page 2 (possible combinations wavelength and output power) and for Modulation refer to the table on page 5. Please contact us for any additional combinations you may require.