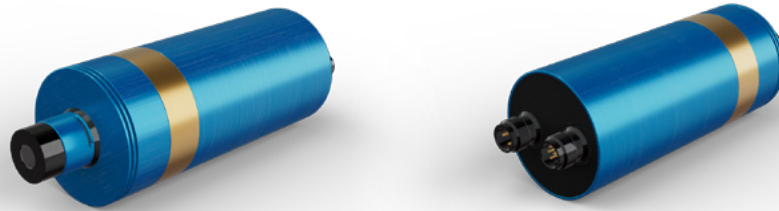


MVgoldHP WITH HIGH POWER AND TEC

FLEXPOINT® Machine Vision Laser



MACHINE VISION LASER MODULE WITH UNIFORM LINE INTENSITY AND HIGH OUTPUT POWER

The MVgoldHP offers high output power (up to 1.000 mW for 525 nm, 638 nm, 660 nm, 808 nm and even 2.000 mW at 445 nm) with a crisp uniform laser line well suitable for machine vision applications targeting challenging surrounding light conditions and decreased exposure times in combination with a camera. Higher output power and therefore higher light intensity can decrease exposure time and increase throughput (more frames per second, more parts to be inspected per second) for industrial inspection and quality inspection.

This laser module comes with an internal TEC (thermoelectric cooling) for temperature control of the module and to avoid overheating. The module is 48 mm in diameter and 146 mm in length and has two M12 connectors. It offers communication via RS-232 0-5 V (standard) or RS-485 (optional) and can be operated with digital Modulation (active high or active low).

FEATURES

- / Continuous wave laser module at 5 wavelengths:
up to 1W for 525 nm, 638 nm, 660 nm and 808 nm and up to 2 W for 445 nm
- / Adjustable focus
- / Two different focus options (standard and thin line)
- / Operating temperature -10 °C to +50 °C
- / Over-temperature protection
- / Digital modulation up to 1 MHz available

APPLICATIONS

- / 3D triangulation
- / Outdoor industrial inspection
- / Rail inspection
- / Steel inspection
- / Quality inspection hot metal

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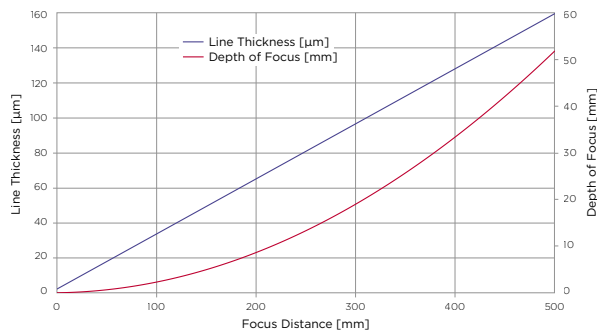
SPECIFICATIONS

Model	Line laser with uniform power distribution (FOV correction available)				
Wavelength [nm]	445	525	638	660	808
Wavelength tolerance (typ.) [nm]	±10	±7	±7	±7	±10
Output power [mW] ¹	500-2000	300-1000	300-1000	300-1000	300-1000
Power stability at 25 °C (after warm up) [%]	≤ 5				
Operating temperature (housing temp.) [°C] ²	-10 to +50	-10 to +50	-10 to +50	-10 to +50	-10 to +50
Storage temperature [°C]	-20 to +60				
Fan angle [°] ³	5, 10, 30, 45, 60, 75				
Focusing range [mm]	50-5000				
Line intensity variation (typ.) ⁴ [%]	≤ 30 related to average power (within 80 % of the line)				
Line straightness ⁴ [%]	±0.1				
Pointing stability [μrad/K]	≤ 10				
Boresight deviation [mrad]	≤ 10				
Operating voltage [VDC]	20-24				
Power consumption [A]	≤ 4 (VDC = 20 V)				
Communication interface ⁵	RS-232 (0-5 V) (Standard), RS-485 (Optional)				
Modulation	Digital Modulation 0Hz-1MHz active high (MI) or active low (M) Active high (MI), 0 V = Off; 5 V = On Duty cycle 0-100 % Pulse length > 500 ns				
Delay + Rise time [ns]	<200				
Laser class	3B or 4 (IEC 60825-1:2014, EN 60825-1:2014+A11:2021)				
Additional protections	ESD Over-temperature Over-voltage up to 26 VDC Reverse polarity up to 30 VDC				
Housing	Aluminium (blue anodized, potential free) D = 48 mm; L = 146 mm ±1mm (different interfaces at rear side instead of 2x M12 on request)				
Accessories available (optional, order separately)	Mount				
Connector ⁵	M12 connector 4-pin Pin 1: +VDC Pin 2: Modulation M/MI Pin 3: GND Pin 4: Reserved		M12 connector 8-pin Pin 1: RX (RS-232 0-5 V or RS-485) Pin 2: TX (RS-232 0-5 V or RS-485) Pin 3: GND Pin 4-8: Reserved		

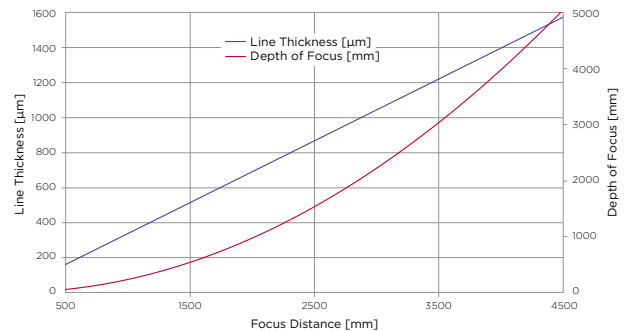
Foot Note

- 1 The output power is defined behind optics, which means at the beam exit of the laser module
- 2 Condensation must be avoided below 0 °C housing temperature (due to optical and electronic components).
In standard operation, especially at high ambient temperatures, the heat generated in the laser must be dissipated via the clamping area using a suitable cooling concept. The use of an adequate heat sink is strongly recommended.
- 3 Fan angle: Defined by the ends of the laser line using FWHM based on the average power (within 80 % of line)
- 4 Line intensity variation and line straightness are measured at 80 % of the fan angle
- 5 The details about connection and communication are explained in the White Paper

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

MVgoldHP 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 standard laser marked in red)			
λ	P _{out}	Δλ	STD		DL	
[nm]	[mW]	[nm]	LT	DOF	LT	DOF
445	2000	±10	0.70	0.71	0.57	0.48
525	1000	±7	1.01	1.31	0.71	0.64
638	1000	±7	0.91	0.86	0.63	0.41
660	1000	±7	1.00	1.00	0.69	0.48
808	1000	±10	1.28	1.35	0.88	0.64

Foot Note / Abbreviations

LT = Line Thickness DOF = Depth of Focus
DL = Thin Line FD = Focus Distance

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

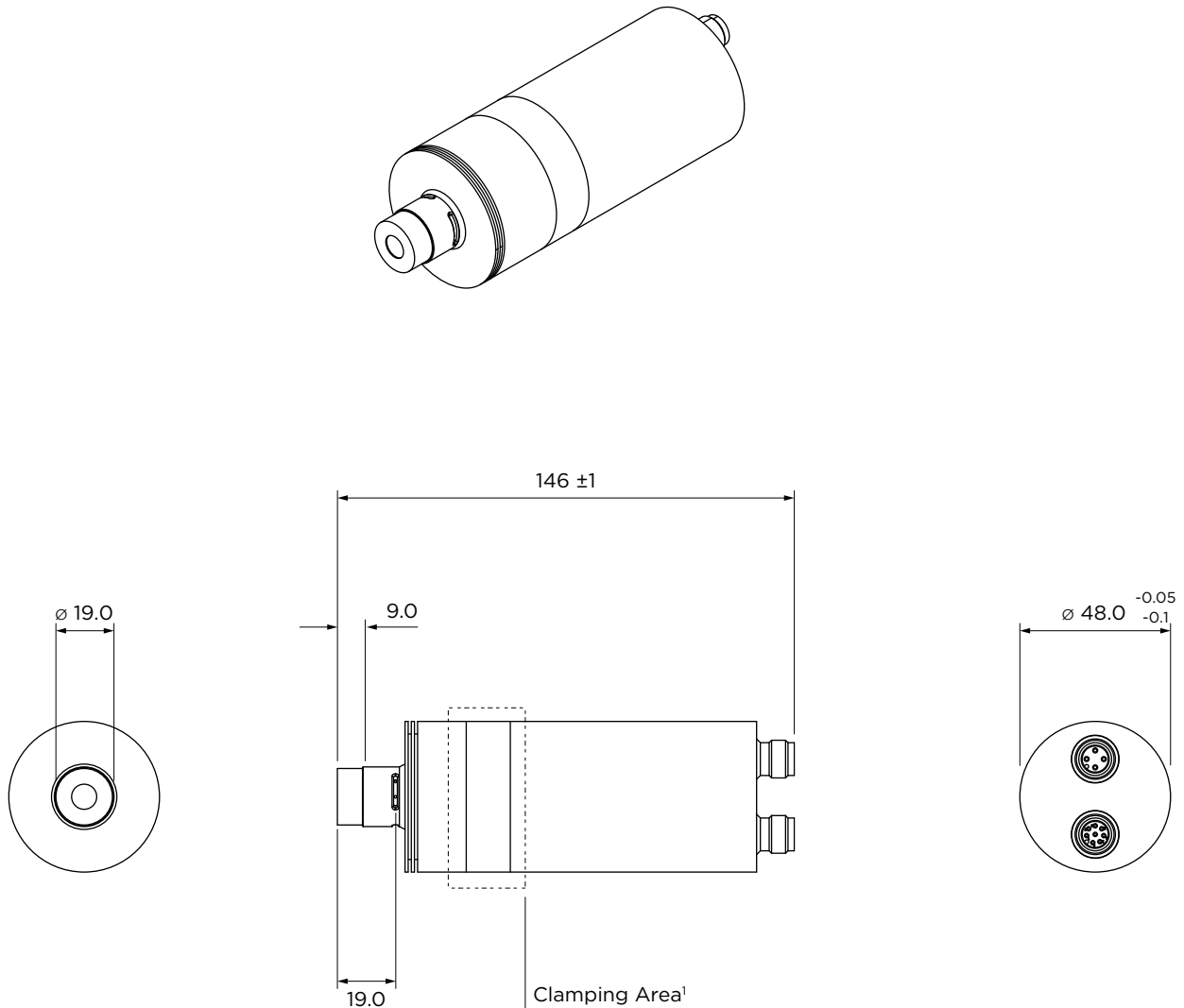
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TECHNICAL DRAWING

MVgoldHP with standard housing and adjustable focus (ST-F)



MVgoldHP ST-F

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

Units: mm

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ORDERING CODE

	Housing	Wavelength [nm]	Peak Power [mW]	Modulation	Fan Angle [°]	Focus [mm]	Optics
FP-MVgoldHP	X	X	X	X	X	X	X
	ST	445 525 638 660 808	1000 2000 (445nm only)	M Digital Modulation, active low MI Digital Modulation inverted, active high	5 10 30 45 60 75	F Focus- able	STD DL

Example: FP-MVgoldHP-ST-660-1000MI-60-F-STD

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Custom designed products are available on request.

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