Z-LASER
An Exaktera Company

ZQ1-MagicLine

More performance and visibility with certified eye safety

The Z-LASER ZQ1-MagicLine sets new standards in line laser technology. With an optical output power of 600 mW in compliance with laser class 2M safety standards, the ZQ1-MagicLine combines unrivalled performance with reliable safety. This combination makes it the world´s brightest eye-safe laser in its class.

Specially developed for industrial applications where visibility and safety are paramount, the ZQ1-MagicLine is characterized by its wavelength of 520 nm (green laser light), which is particularly well perceived by the human eye. The aperture angle of 70° enables long and clearly visible laser lines, while the adjustable line width offers additional customization options through manual focusing. Integrated TTL modulation provides optimal adjustment for different applications.

Wavelength: 520 nm

600 mW optical power

Eye-safe according to laser class 2M

70° fan angle

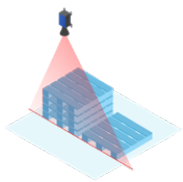
Adjustable line width through focusing

Integrated TTL Modulation*

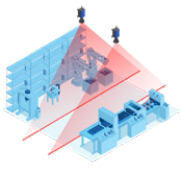
12-24VDC connection and power supply: WPS-24-M12-65W

Highlights

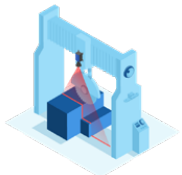
- 600 mW optical output power
- Eye-safe according to laser class 2M
- 70° fan angle
- Connection via 5-pin plug (12-24VDC) or 110-230VAC power supply unit
- Manually focusable
- IP67 RATED
- Integrated TTL Modulation*



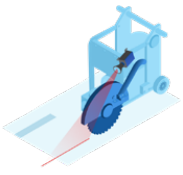
Logistics



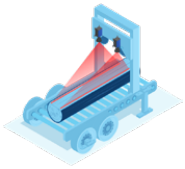
Safety areas



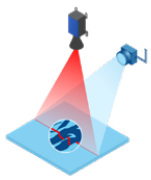
Bridge saws



Concrete saws



Saw mills



Surface Inspection

Order Code:

Z600	-	Q1	-	F	520	MV70* ML70
Power		Product family		F-Focusable	Wavelength	Optics

DB2409

*Variant for Machine Vision

System specification

Wavelength	nm	520
Wavelength tolerance	nm (typical)	±10
Wavelength drift	nm (temperature stabilized, over total operating temperature)	< 1
Output power	mW	≤600
Laser class	DIN EN 60825-1:2015-07	2M
RMS noise (20 Hz to 20 MHz)	%	< 0.5
Peak-to-Peak Noise (20 Hz to 20 MHz)	%	< 1
Pointing stability over temp.	µrad / K	< 6
Long-term power stability (24h)	%	< 1
Warm-up time	min	< 2
Laser operation mode		APC

Electrical specification

Operating voltage	VDC	12 - 24
Operating current (max. at 25 °C)	A	< 4
Protection		Over temperature protection and LED pre-failure indicator, reverse polarity and transient protection (ESD, burst & surge)
Electrical isolation of housing		high-impedance to GND (1MΩ)
Connection		5-pin M12 plug
Power consumption	W	< 40

Optical specification

Fan angles [1]	° Degrees	70 (Gaussian line profile)
Line straightness [2]	% (of line length)	< 0.1
Focus range	mm / in	100 up to 10,000 / 3.94 up to 393.70

Keynotes

[1] Line length / fan angle	at > 13.5 % Imax
[2] Line straightness	Deviation from best fit line over the middle 80% of the line

Analoge modulation

Maximum bandwidth	Hz	< 10
Linearity		<5 % (from 10 % to 100 % of laser power)
Active range	VDC	0 - 2
Impedance		240 kΩ to internal VCC (3.6 V)
Operation range	VDC	0 - 30

Digital modulation*

Maximum frequency	kHz	up to 200
Rise time (Mod High ➡ 90 %)	ns	< 500
Fall time (Mod Low ➡ 10 %)	ns	< 350
Signaling levels		VIL_max < +1.1 V VIH_min > +2.5 V
Operation range	VDC	0 - 30

Environmental conditions

Base Plate temperature	°C / °F	-10 to +50 / 14 to +122
Storage temperature	°C / °F	-40 to +60 / -40 to +140
Humidity	%	< 90, non-condensing
Dissipated heat	W	Max. 35
Shock and vibration		DIN EN 60068-2-64:2009-04, DIN EN 60068-2-27:2010-02

Mechanical specifications

Weight	g	740
Dimension	mm / in	205 x 65.2 x 53.3 / 8.07 x 2.57 x 2.1
Diameter head Ø	mm / in	50 / 1.97
Material		Aluminum (black anodized/blue-lacquered)
Protection class		IP 67
Mounting		4x M4 screws (not included)

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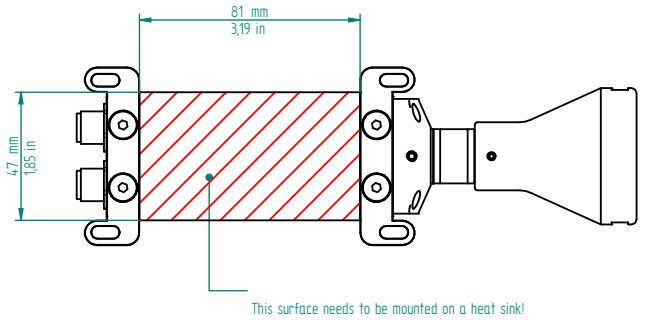

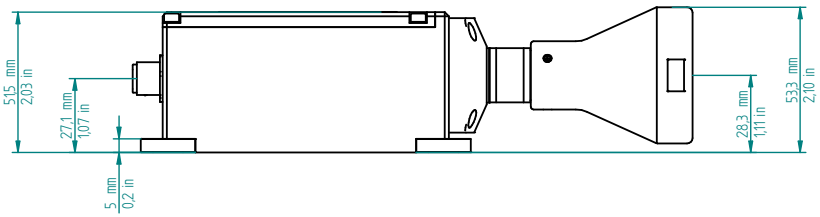

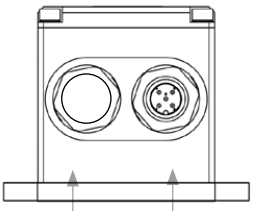

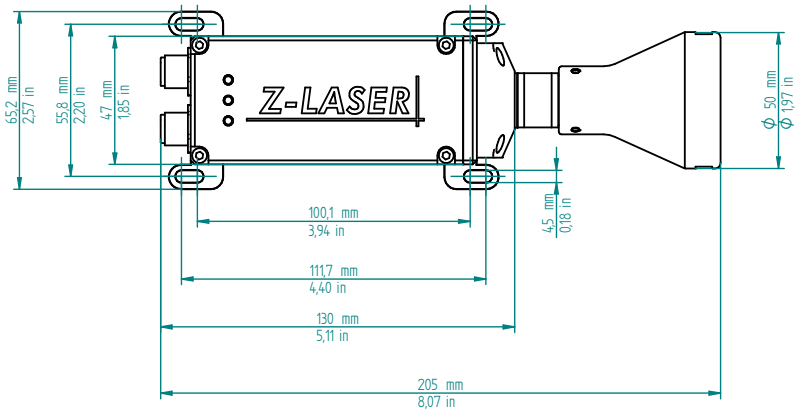

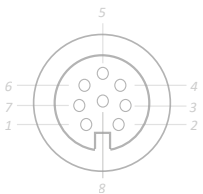

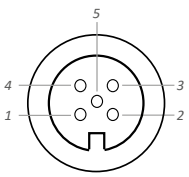

M12 8-Pin Connector A-Coding Male*

1	RX IN (RS-232)
2	TX OUT (RS-232)
3	SCL (I^2C)
4	SDA (I^2C)
5	RDY FAIL OUT
6	System Enable OUT
7	GND
8	System Enable IN

M12 5-Pin Connector A-Coding Male

1	12-24 VDC, 40 VA
2	Digital-Modulation TTL*
3	GND
4	Analog-Modulation (0-2 VDC)
5	[not active]

*Variant for Machine Vision

CE CE-Conformity according to the directives 2014/30/EU, 2011/65/EU and 2006/25/EU. Subject to technical change. Version: June 2024

Legal Notices: Please note that due to the current patent situation, the following countries are excluded from using this product:
USA, China, Japan, and South Korea.

Subject to technical changes.