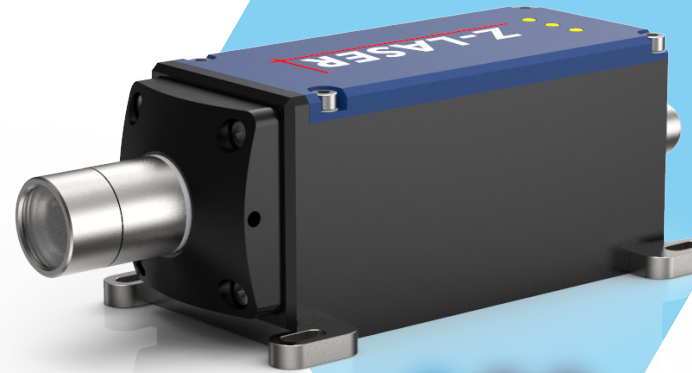


ZQ1

Compact high-performance laser

The ZQ1 series has been developed for the most demanding measurement applications in the market. Wherever a high output power, exceptional beam performance, and industrial-suited design is needed, the ZQ1 series is the right choice. The user can easily adjust the right working distance for the application with its manual focus option.

450 nm, 760 nm and 808 nm
now with **up to 2500 mW**



Wavelengths: 450 nm 760 nm 808 nm



IP 67



Manually
focusable



Active cooling
integrated



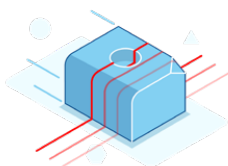
High Process
Reliability



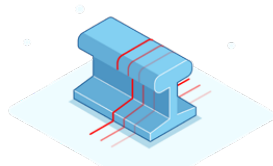
Output Power
up to 2500 mW

Highlights

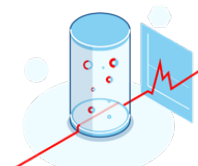
- Repeatable high product quality due to automated production processes
- Optical output power up to 2500 mW
- Manually focusable
- Active cooling integrated
- TTL modulation up to 200 kHz
- Analog intensity control
- IP 67
- Certified according to the railway standard:
DIN EN 61373:2011-04
- PC control via Graphical User Interface (GUI)



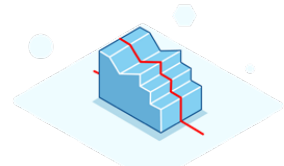
Machine Vision



Road and rail
inspection



Analytic



3D-Measurement

Order Code

Z??	Q1	?	?	?	?
Power	Product family	Electronics	F-Focusable	Wavelength	Optics

System specification

		750145024 (Z2500-Q1-F-808-elp90)	750145025 (Z1600-Q1-F-760-slp75)	750145028 (Z2500-Q1-F-760-elp90)	750115030 (Z2500-Q1-F-450-elp60)
Wavelength	nm	808	760	760	450
Wavelength tolerance	nm	±10	±5	±5	±10
Wavelength drift	nm	<1	<1	<1	<1
Output power	mW	2500	1600	2500	2500
Spatial mode		Multi Transverse Mode	Multi Transverse Mode	Multi Transverse Mode	Multi Transverse Mode
Boresight Error (typ)	mrad (Pitch)	≤ 5	≤ 5	≤ 5	≤ 5
Emission point height ⁽¹⁾	mm	28,3	28,3	28,3	28,3
Long-term power stability (24 h)	%	<1	<1	<1	<1
Warm-up time	min	<2	<2	<2	<2
Laser operation mode		CC, temperature controlled	CC, temperature controlled	CC, temperature controlled	CC, temperature controlled
Laser class (EN 60825-1)		3B	3B	3B	3B

Electrical specification:

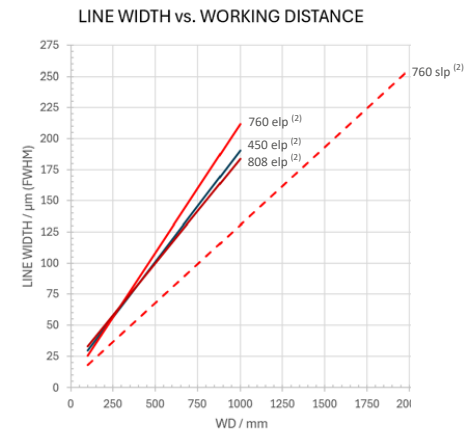
Supply voltage	VDC	12-24
Power consumption	W	<40
Protection		Overtemperature protection, LED fault indicator, reverse polarity and transient protection
Electrical isolation of housing		high-impedance to GND (1 MΩ)
Connection port		M12-5-Pin: A-Coding Male M12-8-Pin: A-Coding Male (communication)
Connection cable		M12-5-Pin: A-Coding female shielded 2m
Communication interfaces		RS-232 / I ² C discrete In/Out

Optical specification

Projection		line, homogeneous intensity distribution	line, homogeneous intensity distribution	line, homogeneous intensity distribution	line, homogeneous intensity distribution
Optics configuration ⁽²⁾		elp	slp	elp	elp
Fan angle ⁽⁷⁾	Degrees °	80	70	80	55
Line straightness ⁽³⁾	% (of line length)	≤0,06	≤0,06	≤0,06	≤0,06
Line orientation ⁽⁴⁾	mrad	< 13 parallel to the base plate	< 13 parallel to the base plate	< 13 parallel to the base plate	< 13 parallel to the base plate
Focus range	mm	100 to 10000	100 to 10000	100 to 10000	100 to 10000

Keynotes

⁽¹⁾ Emission point height	Offset of optical axis to ground plate
⁽²⁾ Optics configuration	slp = standard line Powell; with medium line width and depth of focus elp = extended line Powell; advanced depth of focus and thicker lines
⁽³⁾ Line straightness	Deviation from best fit line over the middle 80% of the line, for homogeneous lines
⁽⁴⁾ Line orientation	Also known as roll, with reference to the ground plate
⁽⁵⁾ FAIL OUT	open collector 47kOhm zu Vin; active low
⁽⁶⁾ Analog intensity	(0-2V/ 10-100%)/ open entrance = 100%
⁽⁷⁾ Fan angle	at > 13,5% I _{max}



LINE WIDTH ESTIMATION

$$LW=a*WD+b$$

Variant	a	b
808elp	0,16780	16,04853
760elp	0,20697	4,66315
760slp	0,12514	5,36794
450elp	0,17882	11,63769



DOF ESTIMATION

$$DOF=a*WD^2+b*WD+c$$

Variant	a	b	c
808elp	0,00033	-0,04709	12,46012
760elp	0,00056	-0,10815	12,78882
760slp	0,00011	0,04771	-5,78852
450elp	0,00029	-0,03500	10,33333

Digitale modulation

Maximum frequency	kHZ
Rise time	ns
Fall time	ns
Signaling levels	V
Max. Input voltage Vin	VDC
Analoge modulation	
Maximum bandwidth	Hz
Linearity (from 10 - 100% of laser power)	%
Active range	VDC

up to 200
< 500
< 350
VIL_max < +1,1 VIH_min > +2,5
27
<10
<5
0-2

Environmental Conditions:

Base Plate temperature	°C / °F
Humidity (max.)	%
Dissipated heat (max.)	W
Shock and vibration	

-10 to +50 / 14 to +122
< 90, non-condensing
35
According to DIN EN 61373:2011-04, cat. 2 Railway applications – Rolling stock equipment (IEC 61373:2010)

Mechanical Specifications

Net weight	kg / lbs
Diameter head Ø mm / inch	mm / inch
Dimension (L x B x H)	mm / inch
Material	
Protection class	
Mounting	
Conformity	

0,691 / 1.523
20 / 0.79
159 x 65,2 x 51,5 / 6.26 x 2.57x 2.03
Housing: aluminum (black anodized/blue painted), Optical head: stainless steel Mounting: stainless steel
IP67
4 x M4 screws (not included)
CE

