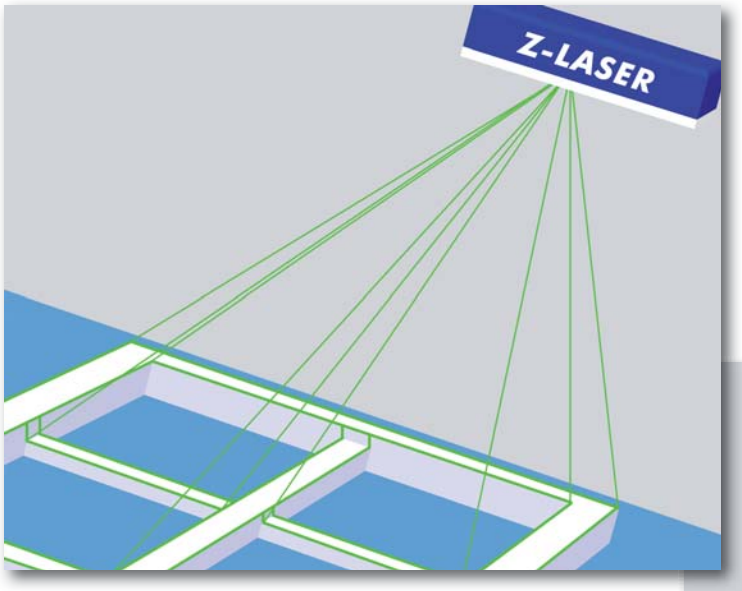
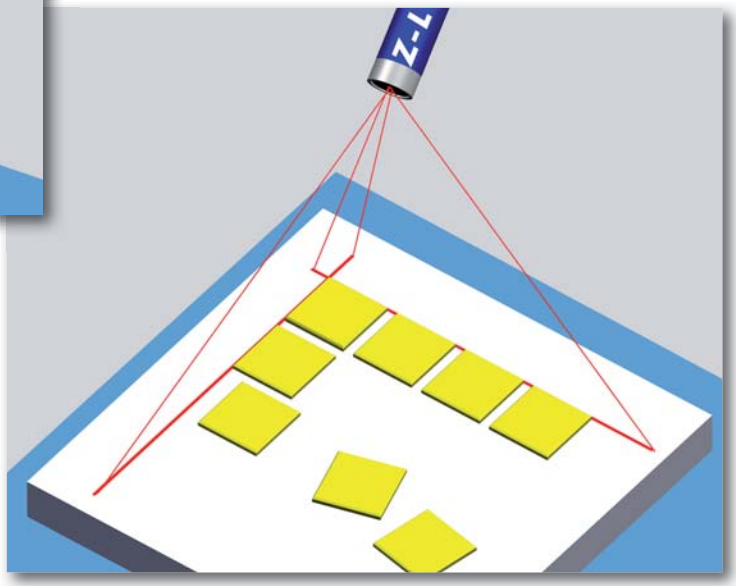
Z-LASER

Laser for positioning





See - Decide - Act

In the beginning man opened his eyes and saw.

His astonishment turned into understanding and he learned to use the light for his purposes: He carried it into the darkness and the invisible became visible. Gradually he began to bend and break the light and finally concentrated it to one point - the laser was born. Today, the pure concentrated light and optical instruments such as lenses and mirrors open up fascinating possibilities for us:

We stretch the laserpoint and lines of red or green light will arise.

We split up the point into many even smaller points and put them together again as crosses or circles.

We let the light spot move at a very high speed, so that the illusion of complex images arises in front of our eyes.

Please don't get us wrong: We have not invented the light, but we put it into the right form so that it will help you,

to see better,
to decide quicker,
to act more precisely.

Laser choice

Projection types and size

Line: You find the required power matching to the requested line length (0,3m up to 30m) next to each product. The specifications refer to a inclined mounting. It depends on the luminosity of the environment, the surface of the working material and its colour.
Point: Except for ZL all lasers are also available as point lasers.
Cross: ZRX projects big crosses up to 4x4 m, for all other laser models you need special optics, but projection size is much smaller.
Special optics: For nearly all models, samples see page 18.
Small patterns: ZT and ZL (mainly for applications in the textile industry).

Power supply

Battery: ZA
Built-in power supply: ZR, ZRX, ZPT and ZRG
Separate power supply: ZN-5V, ZV-5V, ZT, ZL and all modules
Driving voltage: ZN-24V, ZV-24V, Z-24 and Z-24G

Device size

small: modules
medium: ZN, ZV, Z-24, Z-24G, ZA, ZT and ZL
big: ZR, ZRX, ZPT and ZRG

Application examples see page 23
Laser projectors see page 26

Product families

Model	Operating voltage	Dimensions in mm	Wave-length nm*	Color	Power mW	Line length m	Features
ZA	1,5 V Battery or 1,2 V rechargeable	Ø 20 x 110	635	red	1 - 5	1 - 3	1,5V (patented), magnetic on/ off switch
ZN-5V **ZN-24V**	5 VDC 24 VDC	Ø 20 x 79 Ø 20 x 79	635 635	red red	3 - 40 3 - 40	1 - 15 1 - 15	5 VDC or 24 VDC machine voltage
ZV-5V **ZV-24V**	5 VDC 24 VDC	Ø 20 x 102 Ø 20 x 103	635 635	red red	1 - 40 1 - 40	1 - 15 1 - 15	very compact, free focusable optics
Z-24	9-36 VDC or 12-24 VAC	Ø 20 x 119	635	red	3 - 40	1 - 15	modulatable, self-locking, threaded M12-connector
Z-24G	12-24 VDC	Ø 20 x 218	532	green	5 - 20	4 - 15	self-locking, threaded M12 connector
ZPT	85-265 VAC	Ø 40 x 280	635	red	5 - 80	2 - 20	heavy duty power supply, temperature control (heating + cooling)
ZR	85-265 VAC	Ø 40 x 200	635	red	5 - 40	2 - 15	heavy duty power supply
ZRX	85-265 VAC	Ø 40 x 200	635	red	3 - 15	1 - 4	two integrated lasers
ZRG	85-265 VAC	Ø 40 x 330	532	green	5 - 60	4 - 30	heavy duty power supply
ZT	3,5-5,5 VDC	Ø 14 x 70	635 / 645	red	1 - 5 adjus-table	Optic heads	interchangeable optics, adjus-table light intensity
ZL	3,5 VDC	Ø 20 x 85 - 110		red green white		Optic heads	LED projector, free focusable optics, various patterns

*Standard wavelength for diode lasers: 635 nm. Other diode wavelengths from 405 to 1310 nm available upon request.

Modules see page 16, lasers for Machine Vision see page 17, or ask for separate catalogue.

For detailed information please ask for data sheets of our product families, or visit our internet homepage: www.z-laser.com

The Cableless

ZA

- **Operation with one AA battery (precharged or rechargeable)**
- **Maintenance-free magnetic on/off switch**

110 mm

Model	Output power	Line length	Optimal mounting height	Wavelength	Laser class
Z1A-pe	<1 mW	Point	0,3 - 2 m	635 nm	2
Z3A	3 mW	1 m	0,5 m	635 nm	2
Z5A	5 mW	2-3 m	1,2 m	635 nm	2 M

Dimensions: Ø 20 x 110 mm
Input voltage: Battery 1,5 V Mignon (AA) or 1,2 V Accu
Mountings: H0-20, H2-20, H3-20, H4-20, H6-20, H8-20, MXYZ-20, BK, BM

H3-20 bracket

ZN

The Allrounder

- **Integrated filter against current fluctuation**
- **Overvoltage protection**
- **5 VDC or 24 VDC machine voltage**

ZN-5V

ZN-24V

Model	Output power	Line length	Optimal mounting height	Wavelength	Laser class
Z3N	3 mW	1 m	1 m	635 nm	2
Z5N	5 mW	2-3 m	1,2 m	635 nm	2 M
Z10N	10 mW	3-5 m	2 m	635 nm	2 M
Z15N	15 mW	4-6 m	2 m	635 nm	2 M
Z40N	40 mW	11-15 m	3 m	635 nm	3 R

Dimensions: Ø 20 x 79 mm
Input voltage: 5 VDC or 24 VDC machine voltage
Mountings: H0-20, H2-20, H3-20, H4-20, H6-20, H8-20, MXYZ-20, BK, BM
Power supplies: WPS-5 (E, US or UK) for ZN-5V or NG-CW 12/24 for ZN-24V
Further accessory: AK 20 (dimming flap), special optics, rubber sealing

H2-20 bracket

power supply WPS-5
for 5 V version

power supply NG-CW
12/24 for 24 V version

The Compact

- **Hand focusable optics**
- **Very compact design**
- **High position stability of projection during focussing**
- **External screw thread M18x1 for easy mounting**

ZV-5V

102 mm

ZV-24V

103 mm

Model	Output power	Line length	Focus area	Wavelength	Laser class
Z3V	3 mW	1 m	0,3 - 15 m	635 nm	2
Z5V	5 mW	2-3 m	0,3 - 15 m	635 nm	2 M
Z10V	10 mW	3-5 m	0,3 - 15 m	635 nm	2 M
Z15V	15 mW	4-6 m	0,3 - 15 m	635 nm	2 M
Z40V	40 mW	11-15 m	0,3 - 15 m	635 nm	3 R

Dimensions: Ø 20 x 102 (5V), Ø 20 x 103 mm (24V)
Input voltage: 5 VDC or 24 VDC machine voltage
Mountings: H0-20, H2-20, H3-20, H4-20, H6-20, H8-20, MXYZ-20, BK, BM
Power supplies: WPS-5 (E, US or UK) for ZV-5V or NG-CW 12/24 for ZV-24V
Further accessory: Special optics, „VK" cable 2m (ZV-5V), „Z-24 Kable" cable 2m or 4m (ZV-24V)
Optional: Wavelength from 432nm to 1550nm on request

H2-20 bracket

power supply WPS-5
for 5 V version

power supply NG-CW
12/24 for 24 V version

Z-24

The Machine Companion

- **Operation in 12 - 24 VAC-mode or 9 - 36 VDC-mode**
- **TTL modulation up to 20 kHz**
- **Self-locking, threaded M12-connector**

Model	Output power	Line length	Optimal mounting height	Wavelength	Laser class
Z3-24	3 mW	1 m	1 m	635 nm	2
Z5-24	5 mW	2-3 m	1,2 m	635 nm	2 M
Z10-24	10 mW	3-5 m	2 m	635 nm	2 M
Z15-24	15 mW	4-6 m	2 m	635 nm	2 M
Z40-24	40 mW	11-15 m	3 m	635 nm	3 R

Dimensions: Ø 20 x 119 mm
Input voltage: 12 - 24 VAC or 9 - 36 VDC (without modification)
Mountings: H0-20, H2-20, H3-20, H4-20, H6-20, H8-20, MXYZ-20, BK, BM
Power supply: NG-CW 12/24
Further accessory: AK 20 (dimming flap), special optics

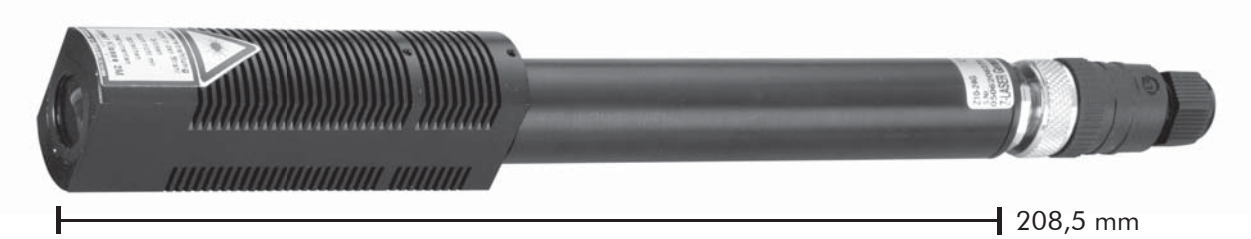
H2-20 bracket

power supply NG-CW 12/24

The Green Machine Companion

Z-24 G

- **Green laser with stable output power (PD feedback control)**
- **24 VDC operation**
- **Self-locking, threaded M12-connector**
- **High visibility as the human eye is more sensitive to green**



Model	Output power	Line length	Optimal mounting height	Wavelength	Laser class
Z5-24G	5 mW	4 m	1,2 m	532 nm	2 M
Z10-24G	10 mW	8 m	3 m	532 nm	2 M
Z20-24G	20 mW	15 m	3 m	532 nm	2 M

Dimensions: Ø 20 x 208,5 mm
Input voltage: 12 - 24 VDC
Mountings: H0-20, H2-20, H3-20, H4-20, H6-20, H8-20, MXYZ-20, BK, BM
Power supplies: NG-CW 12/24
Further accessory: AK 30 (dimming flap), special optics

H2-20 bracket

Power supply NG-CW 12/24

ZPT

The Titan

- **Asymmetrical line optics - at inclined mounting will result in long lines with balanced intensity**
- **Active temperature control (heating and cooling) for long lifetime operation from -20°C to +50°C**
- **Integrated "Heavy duty" wide range power input (85 to 265 VAC) for harsh environment**
- **Other wavelengths (e.g. blue) available upon request**
- **24 months warranty (for 5 mW up to 15 mW red)**
- **Optional: focusable optic**

Model	Output power	Line length	Optimal mounting height	Wavelength	Laser class
Z5PT	5 mW	2-3 m	1,2 m	635 nm	2 M
Z10PT	10 mW	3-5 m	2 m	635 nm	2 M
Z15PT	15 mW	4-6 m	2 m	635 nm	2 M
Z40PT	40 mW	11-15 m	3 m	635 nm	3 R
Z80PT	80 mW	> 20 m	5 m	642 nm	3 B

Dimensions: Ø 40 x 280 mm
Input voltage: 85 - 265 VAC
Mountings: H0-40, H2-40, H4-40, H6-40, H8-40, BD, BF
Further accessory: AK 40 (dimming flap), LZB (laser enhancement goggles), special optics

H0-40 bracket

The Runner

ZR

- **Asymmetrical line optics at - inclined mounting will result in long lines with balanced intensity**
- **Integrated reversible laser protection ("self-healing" fuse)**
- **Integrated "Heavy duty" wide range power input (85 to 265 VAC) for harsh environments**

Model	Output power	Line length	Optimal mounting height	Wavelength	Laser class
Z5R	5 mW	2-3 m	1,2 m	635 nm	2 M
Z10R	10 mW	3-5 m	2 m	635 nm	2 M
Z15R	15 mW	4-6 m	2 m	635 nm	2 M
Z40R	40 mW	11-15 m	3 m	635 nm	3 R

Dimensions: Ø 40 x 200 mm
Input voltage: 85 - 265 VAC
Mountings: H0-40, H2-40, H4-40, H6-40, H8-40, BD, BF
Further accessory: AK 40 (dimming flap), LZB (laser enhancement goggles), special optics

H0-40 bracket

ZRX

The Runner (Power Cross)

- **Cross projections up to 4 x 4 m**
- **High brightness due to 2 line lasers in one housing**
- **Integrated "Heavy duty" wide range power input (85 to 265 VAC) for harsh environments**

Model	Output power	Line length	Optimal mounting height	Wavelength	Laser class
Z3RX	3 mW	1x1 m	1 m	635 nm	2
Z5RX	5 mW	2x2 m	1,5 m	635 nm	2 M
Z10RX	10 mW	3x3 m	2 m	635 nm	2 M
Z15RX	15 mW	4x4 m	3 m	635 nm	2 M

Dimensions: Ø 40 x 200 mm
Input voltage: 85 - 265 VAC
Mountings: H0-40, H2-40, H4-40, H6-40, H8-40, BD, BF
Further accessory: AK 40 (dimming flap), LZB (laser enhancement goggles)

H0-40 bracket

The Green Runner

ZRG

- **Green laser with stable output power (PD feedback control)**
- **High visibility as the human eye is more sensitive to green**
- **Integrated "Heavy duty" wide range power input (85 to 265 VAC) for harsh environments**

Model	Output power	Line length	Optimal mounting height	Wavelength	Laser class
Z5RG	5 mW	4 m	2 m	532 nm	2 M
Z10RG	10 mW	8 m	3 m	532 nm	2 M
Z20RG	20 mW	15 m	3 m	532 nm	2 M
Z40RG	40 mW	20 m	3 m	532 nm	3 R
Z60RG	60 mW	> 30 m	3-5 m	532 nm	3 B

Dimensions: Ø 40 x 330 mm
Input voltage: 85 - 265 VAC
Mounting: H0-40, H2-40, H4-40, H6-40, H8-40, BD, BF
Further accessory: AK 40 (dimming flap), special optics

H0-40 bracket

ZT

The Textile Pro

- **Exchangeable optic heads: point, line, line with point, small cross, big cross**
- **Adjustable light intensity**

Model	Output power	Optimal mounting height	Wavelength	Laser class
Z3T	1-3 mW adjustable	1000 mm	635 nm	2 - 2M - 3R
Z5T	1-5 mW adjustable	500 mm	645 nm	2 - 2M - 3R

Dimensions: Ø 14 x 70 mm
Input voltage: 3,5 - 5,5 VDC
Mountings: H0-14, H2-14, H3-14, BK, BM, BT
Power supplies: SNG-1-3,5V, SNG-HD-4-3,5V or WPS-5 + VB1 or VB4 (USA, Japan)
Further accessory: OK (optic heads) line (-lg90), point (-pe), line with point (-lg90p), cross (-x180 or -xhc)

H3-14 bracket

power supply SNG-1-3,5V

The Luminator

ZL

- **Powerful LED light projector**
- **Red, white or green light**
- **Free focusable optic for a very sharp projection**

85 - 110 mm

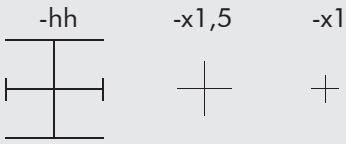
Model	Projection color	Optimal mounting height	Line width
Z5L	red, white or green	80 - 900 mm	depending on projection 0,3 - 2 mm

Dimensions: Ø 20 x 85 to110 mm
Input voltage: 3,5 VDC
Projection types: cross 2 x 2 mm to 50 x 50 mm or customer-defined
Mountings: H0-20, H2-20, H3-20, BK, BM, BT
Power supplies: SNG-1-3,5V, SNG-HD-4-3,5V or WPS-5 + VB1 or VB4 (USA, Japan)

H3-20 bracket

power supply SNG-1-3,5V

Optics for ZL



Modules

Z1F-peF (4-6 VDC) Ø 11 mm
very small focusable point laser

ZF (4-6 VDC) Ø 11 mm
smallest line laser

HX-11
very precise plate clip bracket,
for modules with Ø11 mm

ZD (4-6 VDC) or **ZD-24** (24 VDC) Ø 11 mm
small line laser with
manually adjusted optic

ZB (4-6 VDC) Ø 6 mm
smallest focusable point laser
in the world, in a robust
special steel housing
(special version: short uniform
line for short distances)

Lasers for Machine Vision

ZB Mini (for system integration)
Point and homogeneous line laser in very small stainless steel housing (6 x 30 mm) for applications with small object distances. Allows building of very compact laser banks consisting of several lasers which can be sequentially switched on and off.

ZV-TTL
Hand focusable laser with TTL-modulation / brightness adjustment.
Available with various special optics such as

- homogeneous and Gaussian lines
- multi lines
- grids
- circles

Special version can be modulated up to 60 MHz for synchronisation with camera pixel read-out. Raise/Fall-time < 1ns!

ZPT with active temperature control
For applications requiring very high projection and wavelength stability or applications in hot or cold environments.
Available with all available diode wavelengths from 405 nm to 1310 nm.

Separate Machine Vision catalogue on request.

Z Optics and Accessories

All laser models are available as point (-pe) and line lasers. Standard line lasers have a fan angle of ~ 90°. In vertical mounting, the main light intensity of these lasers is in the middle of the line (Gaussian distribution).

lg 3
lg 5
lg 10
lg 15
lg 20
lg 30

sl 20

sl 40

lp 30
lp 60
lp 90

L90

OK

Special line optics:

lg	Lines with Gaussian light distribution and fan angles of 3°, 5°, 10°, 15°, 20° and 30° (for red lasers)
sl 20	Lines with equal light distribution and fan angles of 20° (Raster lens), typically for short focus
sl 40	Lines with equal light distribution and fan angles of 40° (Raster lens), typically for short focus
lp	Lines with equal light distribution and fan angles of 30°, 60° and 90° (Powell lens)
L90	90° beam deflection for ZPT, ZR and ZRG line lasers
OK	DOE, line and point optics as interchangeable optic heads for ZT (-lg90 = line, -lg90p = line with point, -pe = point, -xhc = fine line cross, -x180 = small cross with thicker lines)

DOE patterns

-lg90p

-xhc

-x180

AK 20
AK 25
AK 30
AK 40

LB 11
LB 20
LB 40

LZB

AK	Dimming flap AK 20 for Ø 20 mm laser, AK 25 for Z-24F lasers, etc.
LB	Line limiting top LB 11 for Ø 11 mm laser, LB 20 for Ø 20 mm laser, LB 40 for Ø 40 mm laser
LZB	Laser enhancement goggles (improved visibility of the red laser line)

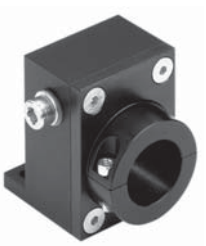
Mountings

Ø mm 11-20

H0-11
H0-14
H0-20

H2-11
H2-14
H2-20

H3-11
H3-14
H3-20



H4-11
H4-14
H4-20

AP-11

AP-14

H0	Aluminium mount horizontally twistable, mountable on a Ø 20 mm rod. H0-20 (Ø 20 mm). Optionally also for a Ø 22 mm rod: H0-20/22
H2	Aluminium mount, moveable. H2-11 (Ø 11 mm), H2-14 (Ø 14 mm), H2-20 (Ø 20 mm)
H3	Plastic mount with round head. H3-11 (Ø 11 mm), H3-14 (Ø 14 mm), H3-20 (Ø 20 mm)
H4	Aluminium mount coaxially twistable. H4-11 (Ø 11 mm), H4-14 (Ø 14 mm), H4-20 (Ø 20 mm)
AP-11	Adapter for all mountings with Ø 20 mm on Ø 11 mm
AP-14	Adapter for all mountings with Ø 20 mm on Ø 14 mm

Ø mm 40

H0-40

H2-40

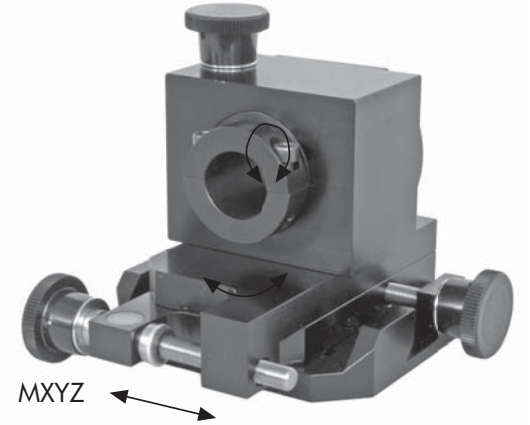
H4-40

H0	Aluminium mount horizontally twistable, mountable on a Ø 20 mm rod. H0-40 (Ø 40 mm). Optionally also for a Ø 22 mm rod: H0-40/22
H2	Aluminium mount, moveable in one direction. H2-40 (Ø 40 mm)
H4	Aluminium mount coaxially twistable. H4-40 (Ø 40 mm)

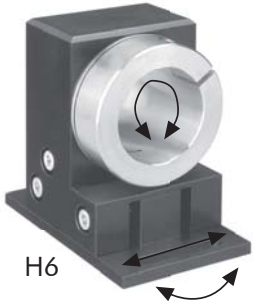
Z

Special mountings

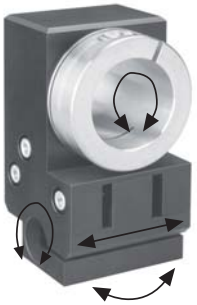
HX-11
HX-20



MXYZ



H6



H8

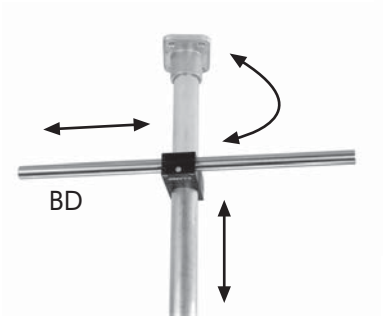
HX-11	Plastic laser bracket for Ø 11 mm lasers. Shock-free, very precise adjustment possible up to 1/10 mm in a distance of 1000 mm, regulatable in 6 laser projection directions, rotatable around +/- 5°
HX-20	Aluminium laser bracket for Ø 20 mm lasers. Shock-free, very precise adjustment possible up to 1/10 mm in a distance of 1000 mm, regulatable in 6 laser projection directions, rotatable around +/- 5°
H6	Aluminium laser bracket, coaxially twistable, angles rotatable, parallelly moveable
H8	Aluminium laser bracket, coaxially twistable, angles rotatable, parallelly moveable, mountable on a Ø 20 mm rod
MXYZ	Precision aluminium laser bracket, coaxially twistable, angles rotatable, parallelly moveable

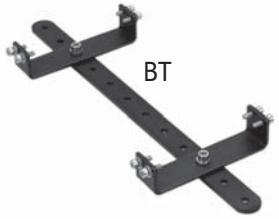
H6 and H8 are available for every laser family.
Examples for an order of the H6 bracket: please state the -Ø at the end
H6-**11** (for lasers with Ø 11 mm)
H6-**14** (for lasers with Ø 14 mm)
H6-**20** (for lasers with Ø 20 mm)
H6-**40** (for lasers with Ø 40 mm)

Auxiliary mountings

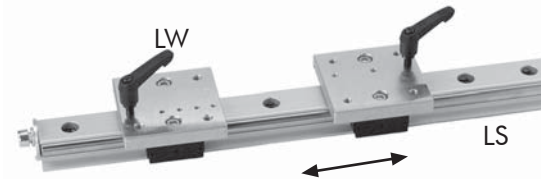
BK

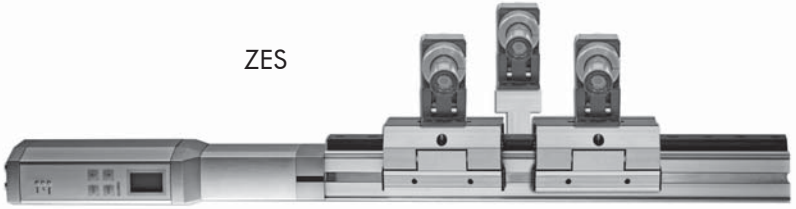
BM





Manual and motor driven displacement systems





BK	Mounting block for H2, H3, H4 brackets, to fix those on a Ø 20 mm rod
BM	Magnetic mounting block for H2, H3, H4 brackets, with an extremely strong magnet. For lasers with Ø 11 - 20 mm
BD	Wall and ceiling mount with console, 1m aluminium pipe Ø 40 mm, with a special steel cross bar Ø 20 mm
BT	Aluminium track to mount 4 lasers, only in connection with H2 and H3 brackets
BF	Panel saw mount, 45° inclination (also suitable for walls and ceiling)
LS	High precision slide for manual laser displacement
LW	Side tracking wagon with clamping lever
ZES	Motor driven displacement system with panel control or control via RS 232, 24 VDC operation

Power supplies

SNG-1-3,5V

SNG-HD-4-3,5V

WPS-5

SNG-1-3,5V	Power supply with EU-plug for one ZD, ZT, ZF, ZB or ZL. Input: 85-265 VAC, Output: 3,5 VDC.
SNG-HD-4-3,5V	Power supply "Heavy Duty" with EU-plug for four ZD, ZT, ZF, ZB or ZL. Input: 85-265 VAC, Output: 3,5 VDC.
WPS-5	Power supply for one ZN-5V or ZV-5V . Input: 100 - 240 VAC, Output: 5 VDC. Optional: Plug for E, US, UK

NG-CW-HD 3,5

NG-CW 12/24

NG-CW-HD 3,5	Power supply for C-track in the switch cabinet Input: 85-265 VAC, Output: 3,5 VDC.
NG-CW 12/24	Power supply for C-track in the switch cabinet Input: 90-230 VAC, Output: 12 VDC.

VB4

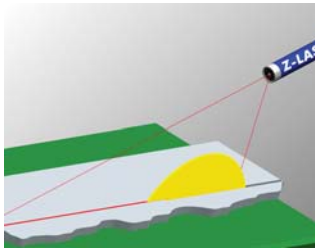
VK 2m

Z24 Kabel

VB1	Adapter for connecting WPS-5 with the lasers ZD, ZT, ZF, ZB or ZL (without picture).
VB4	Distributor box for up to 4 lasers ZD, ZT, ZF, ZB or ZL, including an On / Off switch.
VK 2m	2 m extension lead for ZD, ZT, ZF, ZB, ZL, ZV-5V or ZN-5V
Z24 Kabel 2m **Z24 Kabel 4m**	Cable for Z-24 or Z24G (2 m) Cable for Z-24 or Z24G (4 m)

Application examples

Sawing / Cutting



Wood
- Mitre saw
- Panel saw
- Window manufacturing machine
- Band saw
- Multiblade saw
- Frame saw
- Radial saw
- Veneer shearing machine
- CNC machining centre

Stone
- Tile cutting saw
- Bridge saw
- Block cutter

Metal
- Tin press
- Band saw

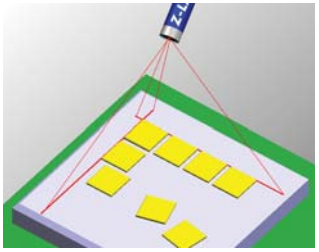
Paper
- Paper press

Food
- Ham / cheese
- Meat cutting machine

Glass
- Glas cutting

Synthetic material
- PVC cutting
- Acrylic glass cutting

Positioning



Medical
- Positioning of patients (CT, MRI, mobile and stationary X-Ray)

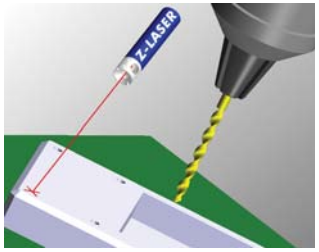
Textile
- Textile plotter
- Printing carroussel
- Pocket positioning
- Logo positioning
- Button hole positioning
- Button positioning
- Sewing machine
- Setting machine
- Riveting press
- Stitching machine
- Moulding machine
- Fusing machine
- Hot mangle
- Ironing machine
- Pressing machine
- Textile table

Automobile
- Seat cover layout
- Crash test dummies
- Screws in the car body
- Tire building machine

Metal
- Bolt positioning
- Pipe-bending machine
- Engraving
- Bending machine

Presentation
- Laserpointer

Drilling



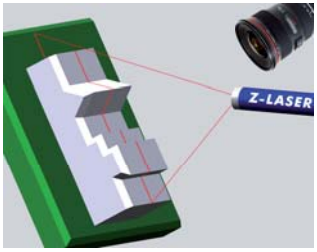
Wood
- Knot boring machine
- Rung boring saw
- Slot-motiser

Stone
- Drill hole positioning

Mining
- Drilling
- Blasting

Metal
- Drill press

Measurement aid



Automobiles
- Wheel alignment measurement
- Wheel alignment indication
- Straightening bench

Civil engineering
- Asphalting machine

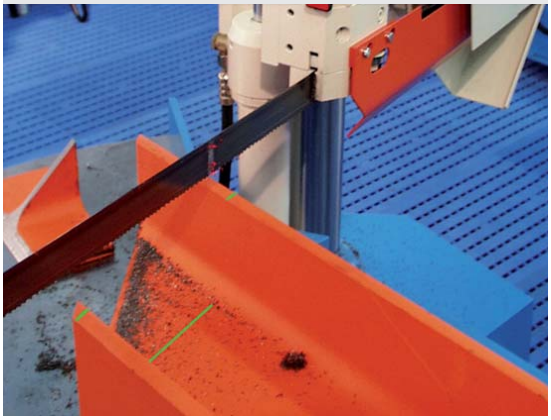
Measuring

Image processing

Application line laser

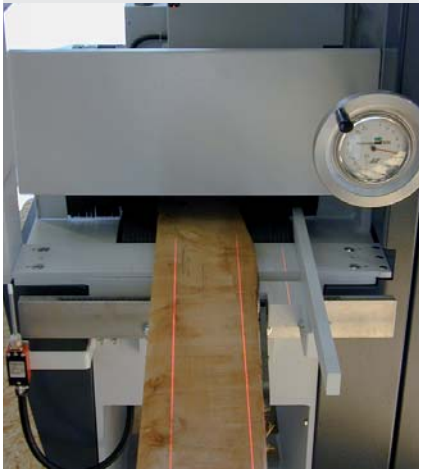
Panel saw
Z15R

Metal band saw
Z10N

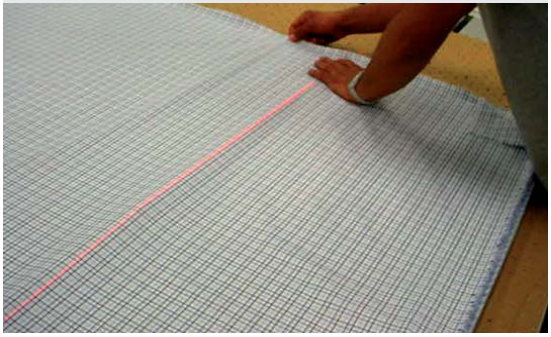


Bridge saw
Z40R or Z20RG

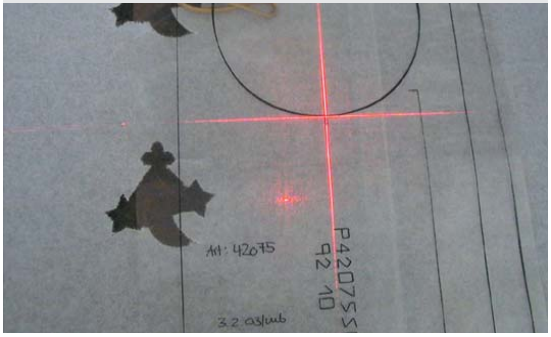
Multiblade saw
Z15-24 or Z40-24



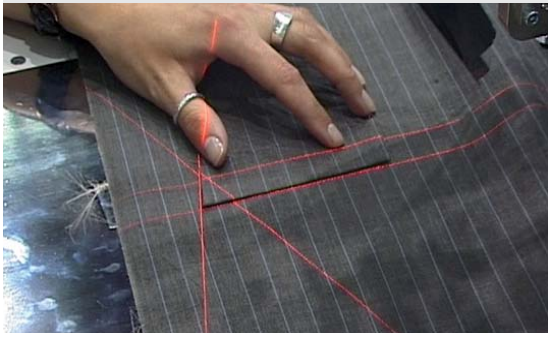
Textile table
Z15R (line), Z10RX (cross)



Fusing machine
Z5T-xhc



Sewing machine
Z5T-I or Z5L-G35-HH

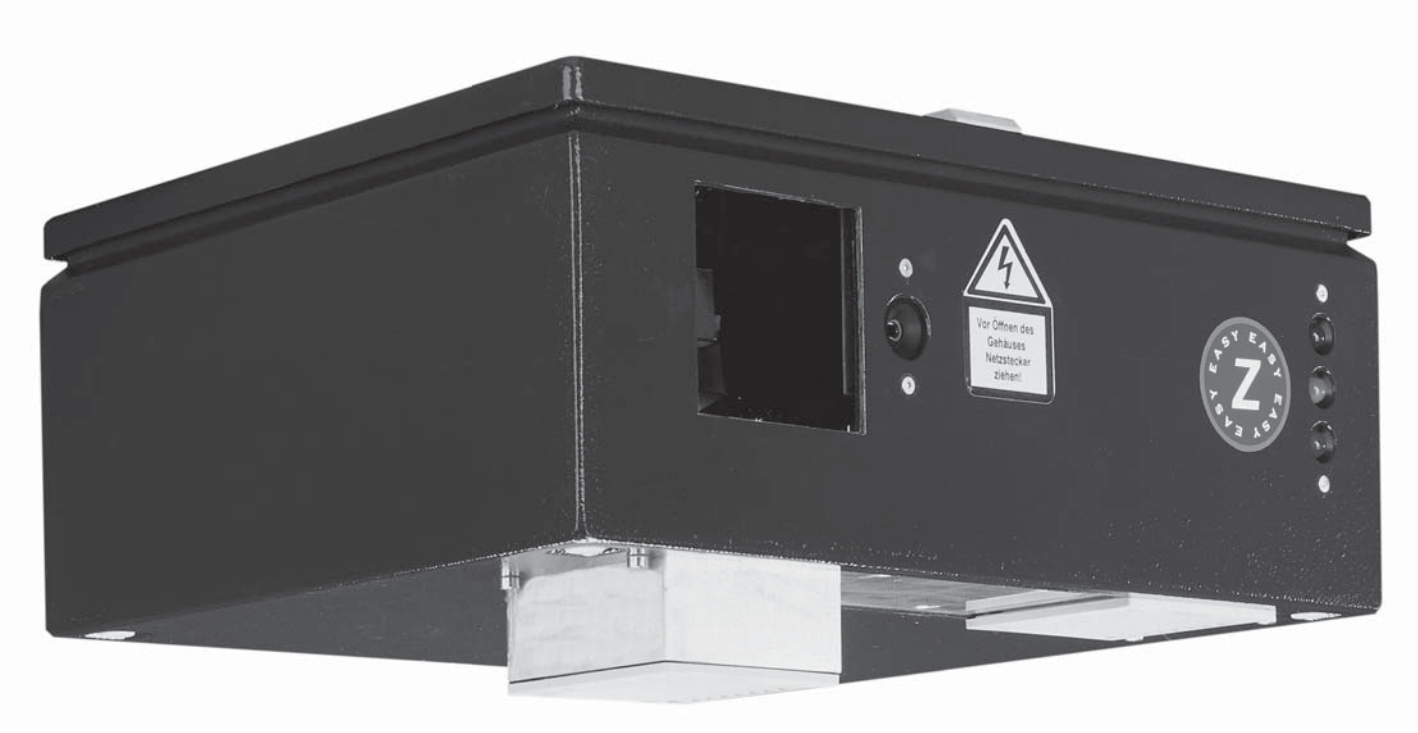


Paper press
Z5N

Tire building machine
Z5-24F or Z5-24G

LP

Laser projectors CUBE & LP



CUBE
For projections of simple polygones, with limited accuracy and limited numbers of objects.

LP
For projections of complex patterns with high accuracy and unlimited numbers of objects.

Laser projectors CUBE & LP

- **Shows contours, shapes or positions on arbitrary surfaces in arbitrary scales**
- **Projections in green or red**
- **Easy clustering of projectors to cover huge working areas**
- **Easy 2- or 4-point calibration**
- **Enormous time savings up to 50%**
- **Reduced human error and non-conformity**

CUBE

Weight	12 kg
Wavelength nm	635 +/-5 (red, modulatable)
Dimensions mm	400 x 300 x 193 (incl. fan)
Interface	RS 232
Fan angle	60° x 60°
Input voltage	95 - 240 VAC
Projection	limited numbers of polygons or lines
Working temperature	0° C to 35° C
Typical accuracy	1,5 mm/m dist. of projection
Accessories	Software LPM
Optional Accessories	- Gimbal mounting - Radio remote control

LP

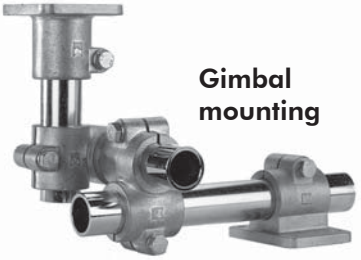
Weight	12 kg
Wavelength nm	532 (green) or 635 +/-5 (red, modulatable)
Dimensions mm	400 x 300 x 193 (incl. fan)
Interface	Ethernet or RS 232
Fan angle	80° x 80°
Input voltage	95 - 240 VAC
Projection	unlimited numbers of polygons
Working temperature	0° C to 40° C
Typical accuracy	0,5 mm/m dist. of projection
Accessories	Software LPM
Optional Accessories	- Gimbal mounting - Radio remote control

Accessories

Cable bound remote control

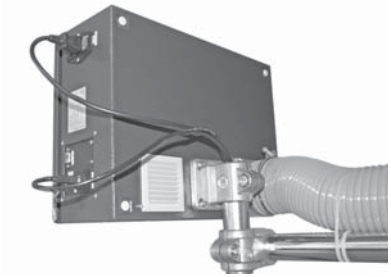
Bar code reader

Customer-designed laser menu



Gimbal mounting

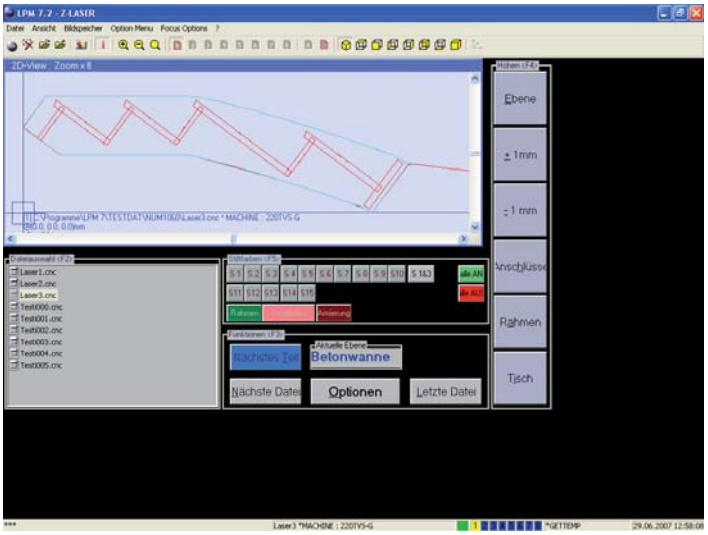
Radio remote control



Air cooling

Industrial PC cabinet

Windows™ based Control Software for CUBE and LP projectors



- Processing and transfer of graphical projection data by various import modules
- Visualization of the projection data on the screen
- Free definable user interface. Dialogue windows and buttons can be added, changed or removed as desired
- Communication with the laser projector(s) via a various number of direct commands
- All data- and position information at a glance
- Rotations and movements of objects can directly be processed on the graphical window
- Selection and projection of single lines or object sections by reflectors or mouse (LPM Klick)
- Direct processing of 3D-data and different perspective views on the graphical window possible
- Graphic-zoom-function
- Password protection for important software functions
- Generating a background image for defining different working areas

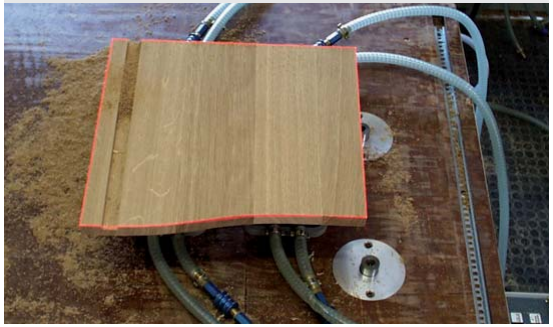
We offer import modules for the following data formats:

- HPGL format
- DXF 2D & 3D format
- IGES format
- Various NC formats such as BWO, Fanuc, NUM, Osai, Siemens etc.
- Master computer formats like Unitechnik, SAA etc.
- Truss formats like Alpine, MiTek, Trusswall, Wolf …
- and many more . . .

Easy contours may be teached manually and require no data file.

Applications for laser projectors

Furniture
CUBE / LP



Fixture positioning
CUBE / LP

CNC machining of composite parts, glass, metal, plastic, wood, stone etc.

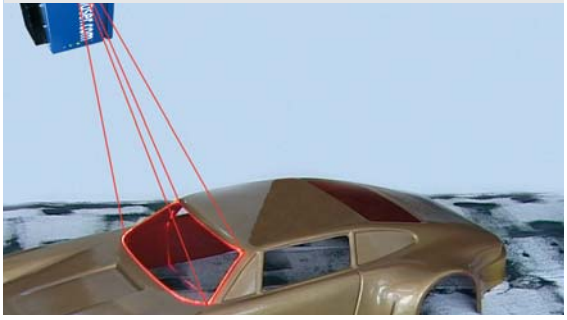
- Locating of proper placement of hold down fixtures
- Suitability test and determination of correct position of cut-outs
- Pre-visualizing of finalized work pieces

Precast Concrete
LP

Concrete casting

- Locating side forms
- Positioning of forms for cut-outs
- Positioning of anchor bolts and base plates
- Cutting of steel rod mats
- Positioning of mount parts

Aerospace, boat building & automotive
LP



Airplanes, helicopters, trains, racing cars, surfboards, rotor blades, helmets etc.

- Aligning fibre material in lay-up
- operations of composite parts
- Locating attachment points for reinforcements and cut-outs
- Construction of rotor blades for wind energy converters
- Positioning of moulded parts

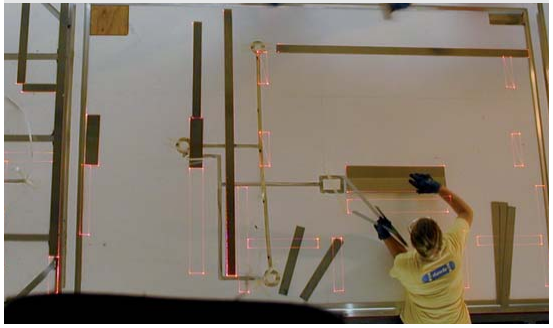
Nesting
LP

Cutting of fabrics, leather, stone, etc.
Arranging material segments in nested cutting

Wooden frame building
LP

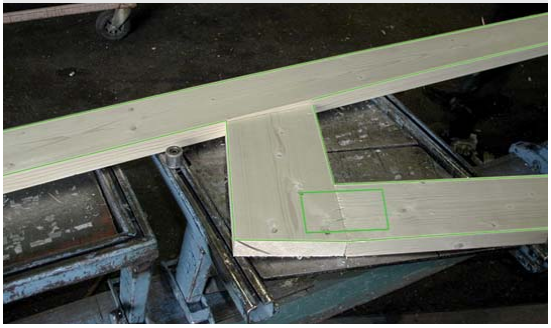
- Projection of frame structures, inlays and installation elements
- Display of structures covered by wind shield foils

Caravan
LP



- Positioning of part components
- Locating proper zones for pre-placement of adhesives and joinery elements

Truss
LP



Positioning of pedestals, nail plates and timber

Z-LASER Optoelektronik GmbH - Merzhauser Str. 134 - 79100 Freiburg - Germany
Tel.: +49 / 761 / 296 44 44 - Fax: +49 / 761 / 296 44 55 - info@z-laser.de - www.z-laser.com