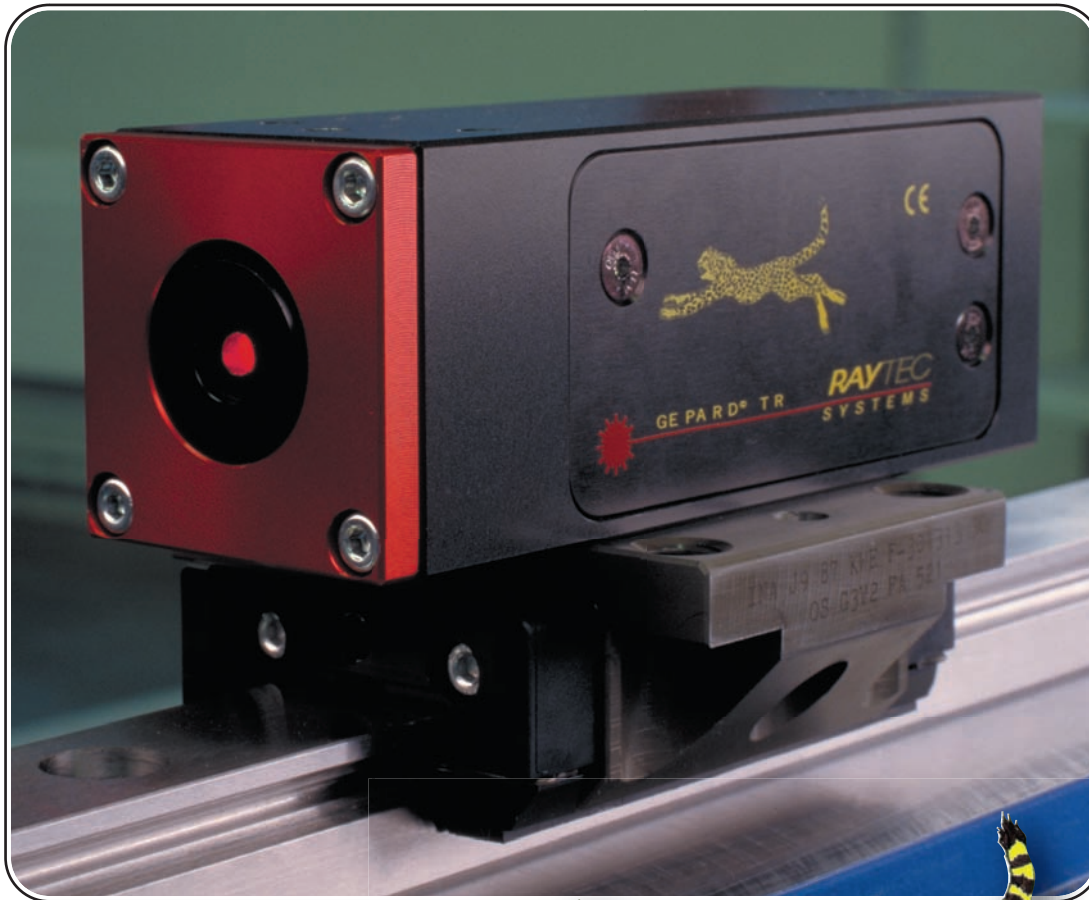
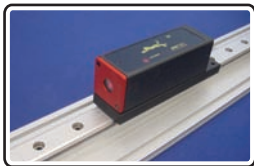


# Laser precision geometry measuring

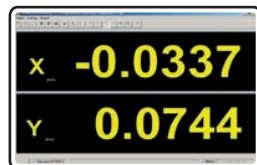


*... with Bluetooth wireless technology!*

<sup>TM</sup>  
**GEPARD<sup>bt</sup>**



*accurate*



*easy to use*



*comfortable*



*reliable*



*modern*



**RAVTEC**  
S Y S T E M S

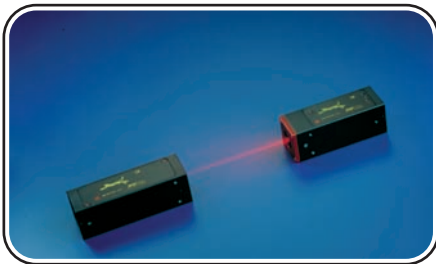


# GEPARD<sub>bt</sub><sup>TM</sup> Laser Measuring System

## LASER ALIGNMENT SYSTEMS

are the opto-electronic solution for measuring:

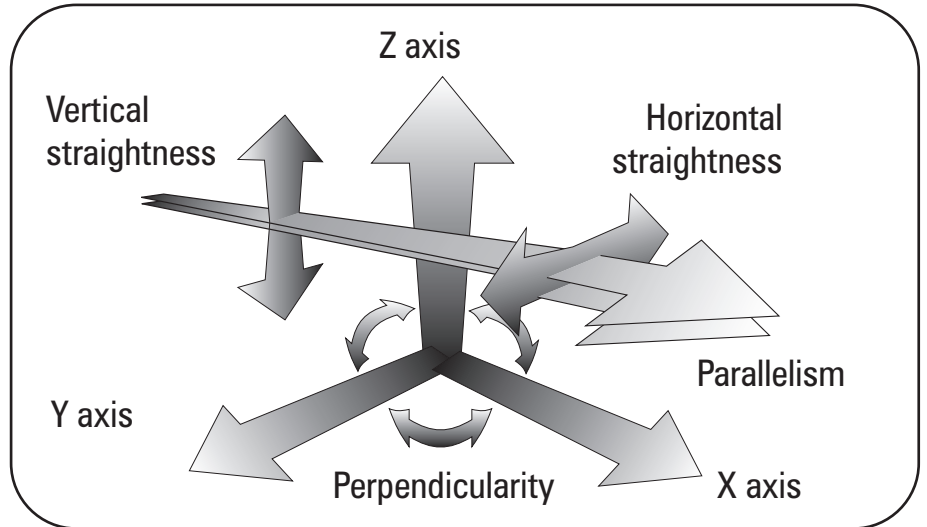
- \* straightness
- \* parallelism
- \* perpendicularity
- \* alignment
- \* angles
- \* flatness



The mechanical industry, automotive construction and mechanical engineering make daily use of opto-electronic laser alignment systems in manufacturing, quality assurance, assembly, maintenance and service. In both stationary and mobile applications, RAYTEC GEPARD<sub>bt</sub><sup>TM</sup> enables simple and rapid implementation of alignment and measuring tasks. The real-time display of measuring values allows objects to be aligned, adjusted or measured online. The results of measuring tasks are recorded directly into the application software and can be printed out simply and in compliance with standards.

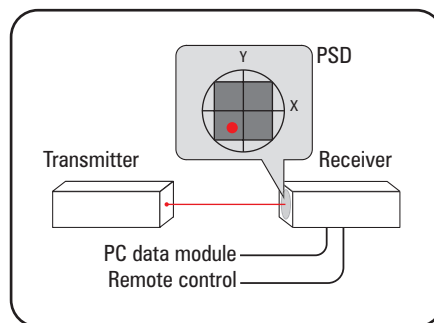
## FIELDS OF USE

- \* Mechanical engineering and the metal industry
- \* Railway industry (construction / operation / maintenance)
- \* Automotive industry
- \* Aircraft construction
- \* Paper and printing industry



## FUNCTIONING PRINCIPLES

The GEPARD<sub>bt</sub><sup>TM</sup> transmitter is a highly stable semiconductor laser, infinitely collimated and working in the range of visibility. Particularly fine settings and an installation module in the software ensure rapid and simple adjustment. A two-dimensional, laser-light sensitive position detector works inside the GEPARD<sub>bt</sub><sup>TM</sup> receiver (PSD=position sensitive device).



The signal of the laser beam which hits the PSD indicates the exact geometrical position while the mm-values of the X and Y scales provide a real two-axis measurement. By moving the GEPARD<sup>TM</sup> receiver along the guide laser beam, straightness (X values / horizon-

tal) and flatness (Y values / vertical) of a measuring object can be determined in only one measuring task. A comprehensive software package is available for recording and processing of the measuring data.

## APPLICATIONS

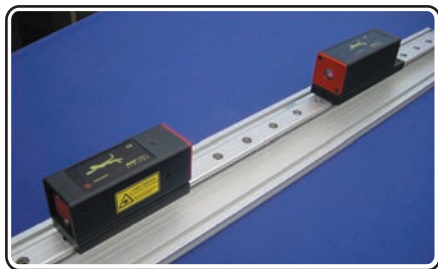
- \* Measuring of straightness and adjustment of guides, machine beds, guide rules
- \* Alignment of steel and framework structures
- \* Measurement of flatness of foundations and flat areas
- \* Measuring of parallelism and adjustment of rails, guides, rollers and ground waves
- \* Measurement / alignment and adjustment of bearing seats and drill bores
- \* Measurement of perpendicularity and all kinds of adjustment
- \* Positioning of work-pieces, machines, plants
- \* Long-term surveillance of deformation, deflection, movements
- \* Environmental analysis for improvement of measuring accuracy



# GEPARD<sub>bt</sub><sup>TM</sup> Components

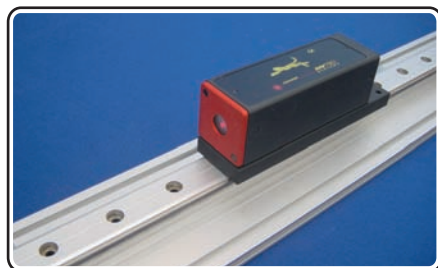
## GEPARD<sub>bt</sub><sup>TM</sup> LASER TRANSMITTER

The laser transmitter is the reference for an accurate measurement. We use a highly stable, fiber-coupled semiconductor laser with a visible beam. An ingenious adjustment device inside the device ensures rapid and accurate alignment of the laser beam.



## GEPARD<sub>bt</sub><sup>TM</sup> LASER RECEIVER

The opto-electronic position sensor detects very accurately (1ppm resolution) the position of the laser beam. Use of digital signal processors allows different environmental disturbances to be eliminated and measuring data to be processed perfectly. The values transmitted from the sensor are transferred to the evaluating computer via Bluetooth wireless technology. Along with this wireless connection, an optional fiber optic cable is also available.



## BLUETOOTH WIRELESS DATA TRANSMISSION

The receiver also communicates via a wireless Bluetooth standard connection with the evaluating unit. Bluetooth is characterised by fault-resistant transfer, high transmission safety and good user-friendliness.

## GEPARD<sub>bt</sub><sup>TM</sup> REMOTE CONTROL

This handy operating device allows the control functions of the application software to be operated directly from the measuring position during measuring and alignment work.

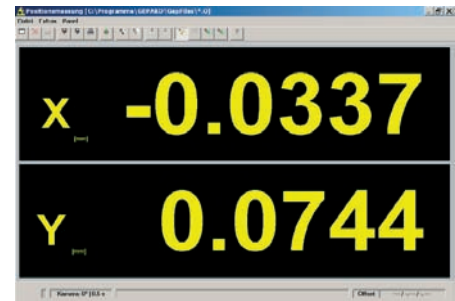


## APPLICATION SOFTWARE WIN-GEPARD<sup>TM</sup>

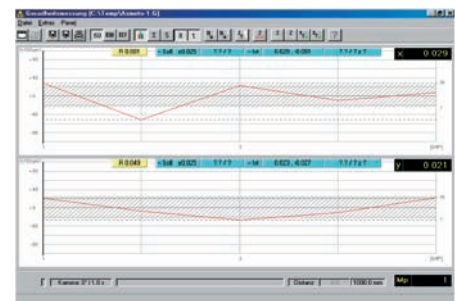
The measuring data recording and evaluation software for the GEPARD<sub>bt</sub><sup>TM</sup> system runs under Microsoft® Windows® on standard PCs, allowing fast and qualified measurements of:

- \* straightness
- \* parallelism
- \* perpendicularity
- \* alignment, and
- \* positioning

to be carried out. Alignment faults between the transmitter and receiver are automatically corrected by the software. Use of the „Adaptive measuring method“ can improve accuracy of measuring by a factor of 2–3 compared to standard methods.

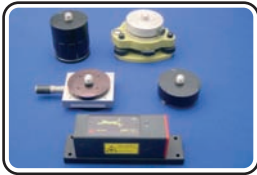


During recording of measuring values, these values are displayed graphically and numerically on the PC monitor. Extra large figures allow the numbers to be read from large distances. After completion of a measuring series, additional functions are available, for example, standardisation with freely selectable reference points (plumb-line method) or representation of the measuring values based on a regression line according to ISO 1101, as well as comprehensive statistical calculations. As standard setting, measuring series and setting parameters can be printed out as a measuring report and can be saved for later processing. As the archived measuring data is filed in ASCII format, these can be processed without problems using conventional spreadsheet or database software programmes.

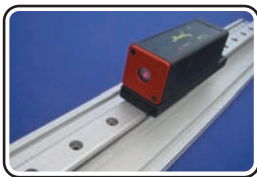




# RAYTEC GEPARD<sub>bt</sub><sup>TM</sup> for geometrical measuring and recording



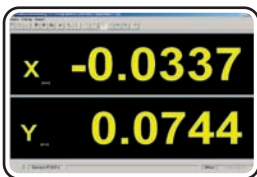
Receiver



Transmitter



System



Data processing

Transmitter	GEPARD 5 <sub>bt</sub>	GEPARD 20 <sub>bt</sub>
Laser power	≤ 1 mW	≤ 1 mW
Laser class	2	2
Laser wavelength	approx. 650 nm (red)	approx. 650 nm (red)
Laser beam profile	round	round
Laser beam ø in 20 m	approx. 6 mm	approx. 6 mm
Power supply	Li-Ion battery 7,2 V	Li-Ion battery 7,2 V
Dimensions L x W x H	142 x 50 x 50 mm	142 x 50 x 50 mm
Weight	730 g incl. battery	730 g incl. battery
μ-fine adjustment	yes	yes

Receiver	GEPARD 5 <sub>bt</sub>	GEPARD 20 <sub>bt</sub>
Measuring range (X/Y)	5 x 5 mm	15 x 15 mm
Measuring range resolution	0,1 μm	0,5 μm
Linearity <sup>1)</sup> <sup>2)</sup>	0,4 ‰	0,4 ‰
Reproducibility <sup>1)</sup> <sup>2)</sup>	± 0,25 μm	± 1,0 μm
Power supply <sup>3)</sup>	7,2 V	7,2 V
Dimensions L x W x H	155 x 50 x 50 mm	155 x 50 x 50 mm
Weight	640 g incl. battery	640 g incl. battery

System	GEPARD 5 <sub>bt</sub>	GEPARD 20 <sub>bt</sub>
Measuring distance <sup>4)</sup>	0–15 m	0–30 m
Temperatur range <sup>5)</sup>	10–45 °C	10–45 °C
Case dimensions	460 x 350 x 110 mm	460 x 350 x 110 mm
Weight of case and contents	4 kg	4 kg

Data processing	
Software	RAYTEC WIN-GEPARD <sub>bt</sub> with revolutionary adaptive measuring: Straightness, parallelism, perpendicularity, position, alignment
System requirements	Windows, current PC technology

Accessories	GEPARD 5 <sub>bt</sub>	GEPARD 20 <sub>bt</sub>
Data transmission range <sup>6)</sup>	Up to 100 m	Up to 100 m
Pentagonal prism	Max. angular error 3 arc sec.	Max. angular error 3 arc sec.

<sup>1)</sup> Data at 20 °C    <sup>2)</sup> Within 80 % of the measuring range    <sup>3)</sup> From Li-Ion battery or mains supply

<sup>4)</sup> Dependent on the environmental conditions    <sup>5)</sup> Changes in temperature may affect the measuring results

<sup>6)</sup> Inside buildings, dependent on the wireless environment

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