RAYTEC GEPARDbt™
for geometrical measuring and recording

### Transmitter
- **GEPARD 5bt**
  - Laser power: \( \leq 1 \text{ mW} \)
  - Laser class: 2
  - Laser wavelength: approx. 650 nm (red)
  - Laser beam profile: round
  - Laser beam \( \varphi \) in 20 m: approx. 6 mm
  - Power supply: Li-Ion battery 7,2 V
  - Dimensions L x W x H: 142 x 50 x 50 mm
  - Weight: 730 g incl. battery
- **GEPARD 20bt**
  - Laser power: \( \leq 1 \text{ mW} \)
  - Laser class: 2
  - Laser wavelength: approx. 650 nm (red)
  - Laser beam profile: round
  - Laser beam \( \varphi \) in 20 m: approx. 6 mm
  - Power supply: Li-Ion battery 7,2 V
  - Dimensions L x W x H: 142 x 50 x 50 mm
  - Weight: 730 g incl. battery

### Receiver
- **GEPARD 5bt**
  - Measuring range \((X/Y)\): 5 x 5 mm
  - Measuring range resolution: 0,1 \( \mu \text{m} \)
  - Linearity \(^1\) \(^2\): 0,4 \%\(^r\)
  - Reproducibility \(^1\) \(^3\): \( \pm 0,25 \mu \text{m} \)
  - Power supply: 7,2 V
  - Dimensions L x W x H: 155 x 50 x 50 mm
  - Weight: 640 g incl. battery
- **GEPARD 20bt**
  - Measuring range \((X/Y)\): 15 x 15 mm
  - Measuring range resolution: 0,5 \( \mu \text{m} \)
  - Linearity \(^1\) \(^2\): 0,4 \%\(^r\)
  - Reproducibility \(^1\) \(^3\): \( \pm 1,0 \mu \text{m} \)
  - Power supply: 7,2 V
  - Dimensions L x W x H: 155 x 50 x 50 mm
  - Weight: 640 g incl. battery

### System
- **GEPARD 5bt**
  - Measuring distance \(^4\): 0–15 m
  - Temperatur range \(^5\): 10–45°C
  - Case dimensions: 460 x 350 x 110 mm
  - Weight of case and contents: 4 kg
- **GEPARD 20bt**
  - Measuring distance \(^4\): 0–30 m
  - Temperatur range \(^5\): 10–45°C
  - Case dimensions: 460 x 350 x 110 mm
  - Weight of case and contents: 4 kg

### Accessories
- **GEPARD 5bt**
  - Data transmission range \(^6\): Up to 100 m
  - Pentagonal prism: Max. angular error 3 arc sec.
- **GEPARD 20bt**
  - Data transmission range \(^6\): Up to 100 m
  - Pentagonal prism: Max. angular error 3 arc sec.

---

\(^1\) Data at 20°C
\(^2\) Within 80 % of the measuring range
\(^3\) From Li-Ion battery or mains supply
\(^4\) Dependent on the environmental conditions
\(^5\) Changes in temperature may affect the measuring results
\(^6\) Inside buildings, dependent on the wireless environment

---

RAYTEC SYSTEMS AG, Triststrasse 8, Postfach 186, CH-7007 Chur, Schweiz
Tel. +41 (0)81 257 05 05, Fax +41 (0)81 257 05 09, sales@raytec.com, http://www.raytec.com
GEPA**RDTb™ Laser Measuring System

**FUNCTIONING PRINCIPLES**

The GEPA**RDTb™ 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 GEPA**RDTb™ receiver (PSD = position sensitive device).

**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

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

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 GEPA**RDTb™ receiver along the guide laser beam, straightness (X values / horizontal) 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.

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.

**APPLICATION SOFTWARE WIN-GEPA**RDTb™

The measuring data recording and evaluation software for the GEPA**RDTb™ 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.
**FUNCTIONING PRINCIPLES**

The GEPARD™ 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™ 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™ receiver along the guide laser beam, straightness (X values / horizontal) 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

**FIELDS OF USE**

- Mechanical engineering and the metal industry
- Railway industry (construction / operation / maintenance)
- Automotive industry
- Aircraft construction
- Paper and printing industry
### Laser precision geometry measuring

#### RAYTEC GEPARDbt™
**for geometrical measuring and recording**

![Image](image_url)

#### ... with Bluetooth wireless technology!

<table>
<thead>
<tr>
<th>Receiver</th>
<th>GEPARD 5bt</th>
<th>GEPARD 20bt</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Transmitter</th>
<th>GEPARD 5bt</th>
<th>GEPARD 20bt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laser power</td>
<td>≤ 1 mW</td>
<td>≤ 1 mW</td>
</tr>
<tr>
<td>Laser class</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Laser wavelength</td>
<td>approx. 650 nm (red)</td>
<td>approx. 650 nm (red)</td>
</tr>
<tr>
<td>Laser beam profile</td>
<td>round</td>
<td>round</td>
</tr>
<tr>
<td>Laser beam ø in 20 m</td>
<td>approx. 6 mm</td>
<td>approx. 6 mm</td>
</tr>
<tr>
<td>Power supply</td>
<td>Li-ion battery 7.2 V</td>
<td>Li-ion battery 7.2 V</td>
</tr>
<tr>
<td>Dimensions L x W x H</td>
<td>142 x 50 x 50 mm</td>
<td>142 x 50 x 50 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>730 g incl. battery</td>
<td>730 g incl. battery</td>
</tr>
</tbody>
</table>

| μ-fine adjustment | yes | yes |

<table>
<thead>
<tr>
<th>Receiver</th>
<th>GEPARD 5bt</th>
<th>GEPARD 20bt</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Measuring range (X/Y) | 5 x 5 mm | 15 x 15 mm |
| Measuring range resolution | 0,1 μm | 0,5 μm |
| Linearity | 0.4 % | 0.4 % |
| Reproducibility | ± 0.25 μm | ± 1.0 μm |
| Power supply | 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 |

<table>
<thead>
<tr>
<th>System</th>
<th>GEPARD 5bt</th>
<th>GEPARD 20bt</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Measuring distance | 0–15 m | 0–30 m |
| Temperatur range | 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 |

<table>
<thead>
<tr>
<th>Data processing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>System requirements</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Accessories</th>
<th>GEPARD 5bt</th>
<th>GEPARD 20bt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data transmission range</td>
<td>Up to 100 m</td>
<td>Up to 100 m</td>
</tr>
<tr>
<td>Pentagonal prism</td>
<td>Max. angular error 3 arc sec.</td>
<td>Max. angular error 3 arc sec.</td>
</tr>
</tbody>
</table>

---

1) Data at 20°C  
2) Within 80% of the measuring range  
3) From Li-ion battery or mains supply  
4) Dependent on the environmental conditions  
5) Changes in temperature may affect the measuring results  
6) Inside buildings, dependent on the wireless environment