New! MLD 9000

DIGITAL HEADLIGHT TESTER FOR FUTURE HEADLIGHT SYSTEMS AND LEGISLATIONS
Beissbarth MLD 9000
Digital headlight measurement and adjustment

Adjustment of a headlight on rail system, combined with LTB 100 leveled test bay

Advantages of headlight testing with MLD 9000
- For all light sources and glare-free high-beam systems (DLA, Matrix beam, Matrix beam 2, ILS etc.)
- Alignment and cross laser for precise alignment to vehicle and positioning to headlights
- Digital image processing in real-time,
- 5-Megapixel CMOS camera
- Interfaces: LAN, USB, RS232
- Mechanical stability of +/- 0.1% (optional: alignment with the accuracy of 1 angular minute)
- 7” touch display, TFT-LED high resolution, swivel mounted

TPN 100148827 TÜV certificate in line with StVZO § 50:
MLD 9000 is TÜV-certified by prototype technical release examination in accordance with the directives for testing headlight adjustment/test equipment (German Road Traffic Type-Approval Law StVZO §50 paragraph 5).

5-Megapixel CMOS camera
Green cross laser for enhanced visibility
Ford laser-kit (optional)
**Wheelbase fitting for all common rail systems**

**New!** Optional: fine adjustment of the measuring unit – accuracy of 1 angular minute

**New!** Compact laser visor for the alignment to the vehicle

**New!** Robust sliding system for precise height adjustment and optimized user experience

**New!** Aluminium column for highest mechanical precision +/-0.1%

**New!** Measuring system with a fresnel lens – designed for future headlight systems

**New!** Wide precise fresnel lens – two-dimensional level for the horizontal leveling of the lightbox

**New!** Swivel mounted 7” touch display – workshop proof design

**New!** Optional: upgradable with Ford laser-kit for the alignment to the vehicle’s centre axis

**New!** Robust and durable counter weight system with toothed belt

**New!** Levelable rail system (optional)

**New!** Rail-kit 3 m (above and inground installation)

**New!** Uneveness compensation up to 3% – depending on the configuration

**New!** software and user interface designed for live-adjustment

**New!** Swivel mounted 7” touch display – workshop proof design

**New!** Cross laser for the alignment to the headlight

**New!** Measuring system with a fresnel lens – designed for future headlight systems

**New!** Height marker and adjustable aluminium scale or (optional) automatic height-measurement sensor to measure the installation height of the headlight

**New!** Robust sliding system for precise height adjustment and optimized user experience
Workshop proof mechanical design for precise alignment and measurement

Top precision thanks to precise mechanics
- Lightweight optical box design thanks to the optimized combination of an aluminium structure and injection moulded plastic covers.
- A new developed torsion-free and specially hardened aluminium column.
- Easy to use, robust sliding system for precise height adjustment and comfortable working.
- Determination of the headlight installation height via adjustable, specially made aluminium scale or use of the optional height measuring sensor.
- Optional: fine adjustment of the column with 1 angle minute accuracy.

Precise alignment thanks to laser technology
- The optimized designed alignment laser on the upper part of the MLD 9000 column helps aligning the light box with the vehicle.
- To assure the highest laser security regulation inside the workshop is achieved, the MLD 9000 is equipped with a low-class green laser. Green laser diodes are particularly well visible to the human eye because the eye has its maximum spectral sensitivity in the green range.
- The cross laser function for precise positioning in the center of the headlight is realised with the same optimized green laser diodes.
- Optional: to increase the accuracy of the alignment, an additional vertical green laser is available to increase accuracy in the alignment to the vehicle’s symmetrical axis.
Test results via WLAN
with quick and aptly arranged results on the PC

Optional: visualization on the workshop computer
• Data transfer to PC via WLAN
• All relevant values at a glance
• Database function
• Printing and archiving
• Adjustment of the colour scheme by the user:
  Light/dark background depending on the lighting conditions

Test results on the tablet computer
Light and dark background can be selected
Reliable check and adjustment of permanent high beams

Adjustment of headlights with glare-free high beam (e.g. Dynamic Light Assist DLA, Matrix and Matrix HD beam)

- All the MLD 9000 versions assist the operator in most of the common procedures. (DLA, Matrix, Matrix HD, ILS)
- Mechanical adjustment of the vertical cut-off line (e.g. DLA, ILS)
- Position of the cut-off line read out by means of the MLD 9000 software – with an accuracy level based on angular minutes (e.g. Matrix and Matrix HD beam)

Communication with the vehicle

- Vehicle preparation and activation of the basic setting via OBD.
- Triggering individual test images (see illustration above) using an application for ECU diagnoses.
- Information on the position of the cut-off line is sent back to the vehicle via application for ECU diagnoses (in the case of Matrix and Matrix HD beam).
Headlight testing bay unevenness correction with built-in inclinometer

Unevenness correction thanks to built-in inclinometer
- The MLD 9000 is equipped with a built-in inclinometer for correction of the unevenness of headlight testing area in both longitudinal and lateral direction (MLD 9000 Standard with inclinometer, Order number 1 692 104 346).
- The inclinometer serves to compensate the wrong measurement values caused due to an inaccurate headlight testing area.
- The measurement value displayed on MLD 9000 touch screen shows the values which would be on an accurate headlight testing area.

Glare-free high-beam adjustment
- The intelligent lighting systems require a very accurate alignment of the headlight tester compared to the use on other vehicles.
- The mechanical position of the alignment laser is defined by the real position of the wheel base. This position is not influenced (corrected) through the inclinometer which causes inaccurate measuring values (see the image on left).
- For an accurate alignment of the glare-free high beam functionalities Beissbarth recommends a correctly leveled headlight tester area with levelable rail system.

### MLD 9000 – Versions

<table>
<thead>
<tr>
<th>Description</th>
<th>Version</th>
<th>Order numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>MLD 9000 Standard</td>
<td>RAL 7040 (grey)</td>
<td>1 692 104 345</td>
</tr>
<tr>
<td>MLD 9000 Standard with inclinometer</td>
<td>Including inclinometer RAL 7040 (grey)</td>
<td>1 692 104 346</td>
</tr>
<tr>
<td>MLD 9000</td>
<td>Including onboard printer RAL 7040 (grey)</td>
<td>1 692 104 347</td>
</tr>
</tbody>
</table>

### MLD 9000 – Optional accessories

<table>
<thead>
<tr>
<th>Description</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Rail-kit (3 m)</td>
<td>1 692 105 080</td>
</tr>
<tr>
<td>Rail-kit extension (1.5 m)</td>
<td>1 692 105 112</td>
</tr>
<tr>
<td>Vertical Laser-Kit</td>
<td>1 692 105 252</td>
</tr>
<tr>
<td>Height-measurement sensor</td>
<td>1 692 105 066</td>
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<tr>
<td>PC software (September 2019)</td>
<td>1 692 105 253</td>
</tr>
<tr>
<td>Dust protection cover</td>
<td>1 692 105 201</td>
</tr>
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### Technical data

#### MLD 9000

<table>
<thead>
<tr>
<th>Measuring range</th>
<th>Top and bottom</th>
<th>-8 % – +8 % (-800 mm – +800 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orientation</td>
<td>Top and bottom</td>
<td>-8 % – +8 % (-800 mm – +800 mm)</td>
</tr>
<tr>
<td></td>
<td>Right and left</td>
<td>-10 % – +10 % (-1000 mm – +1000 mm)</td>
</tr>
<tr>
<td></td>
<td>Low beam</td>
<td>-10 % – +10 % (-1000 mm – +1000 mm)</td>
</tr>
<tr>
<td></td>
<td>High beam</td>
<td>-10 % – +10 % (-1000 mm – +1000 mm)</td>
</tr>
<tr>
<td>Intensity</td>
<td>Candela</td>
<td>0 – 150 000</td>
</tr>
<tr>
<td>Illumination</td>
<td>Lux/1 m</td>
<td>0 – 150 000</td>
</tr>
<tr>
<td></td>
<td>Lux/25 m</td>
<td>0 – 150 000</td>
</tr>
</tbody>
</table>

#### Measuring units

<table>
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<tr>
<th>Intensity</th>
<th>Candela</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illumination</td>
<td>Lux / 1 m ; Lux / 25m</td>
</tr>
<tr>
<td>Orientation</td>
<td>° ; % ; cm</td>
</tr>
</tbody>
</table>

#### Operating conditions

<table>
<thead>
<tr>
<th>Adjustment lens centre</th>
<th>240 – 1500 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plug voltage</td>
<td>100 – 240 V / 50 – 60 Hz</td>
</tr>
<tr>
<td>Battery voltage</td>
<td>12 V</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>5 °C – 45 °C (41 °F – 113 °F)</td>
</tr>
<tr>
<td>Air humidity</td>
<td>30 % – 60 %</td>
</tr>
</tbody>
</table>

#### Packaging

<table>
<thead>
<tr>
<th>Width – height – length</th>
<th>1800 – 700 – 650 mm</th>
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</thead>
<tbody>
<tr>
<td>Rail-Kit extension (1,5 m)</td>
<td>40 kg</td>
</tr>
<tr>
<td>Vertical Laser-Kit</td>
<td>CE; TÜV; EMC; FCC; FDA</td>
</tr>
</tbody>
</table>

#### Safety information / laser warning

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Laser category</th>
<th>Description</th>
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<tbody>
<tr>
<td><img src="symbol.png" alt="Laser" /></td>
<td>Laser 2</td>
<td><img src="description.png" alt="Laser" /></td>
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</tbody>
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