Measuring systems based on the roundtrip time of emitted and reflected infrared laser beams can calculate the speed of vehicles precisely. Cameras take pictures of the vehicle and driver if they have committed a traffic offence.

**SPEED CAMERA COLUMN UNIT**

- camera unit
- laser measuring unit

**SPEED CAMERA COLUMN**

- measuring area of laser
- area camera 1
- area camera 2

- simultaneous measuring of cars in several lanes
Measuring systems based on the roundtrip time of emitted and reflected infrared laser beams can calculate the speed of vehicles precisely. Cameras take pictures of the vehicle and driver if they have committed a traffic offence.

**infrared laser light:**
- over 100 laser beams
- 100 times per second

Light impulses emitted from the speed camera column are reflected by the passing car and received again by the device.

Maximum measuring distance: 75 m
Intelligent LED lights, camera-based assistance systems, and information displays ensure a greater security in all driving situations.
Intelligent LED lights, camera-based assistance systems, and information displays ensure a greater security in all driving situations.

- **Camera for traffic sign recognition**
- **Rear-view mirror camera**
- **LED interior lighting** (color temperature and brightness can be chosen)
- **Rear-view camera**
- **LED reading lights**
- **Interior light sensor**
- **LED rear lights**
- **Dynamic LED indicator**
- **Rain sensor**
- **Exterior light sensor**
- **LED indicator**
- **Head-up display**
- **Thermal imaging camera**
- **Adaptive LED headlights**
- **Dynamic LED indicator**
- **Front camera**
- **Driver information display**
- **Infotainment display**

**Front View**
CAR HEADLIGHTS

Seeing further ahead: the combination of LED and laser light sources enables an optimum for roadway illumination in every traffic situation.

LIGHT CONE OF HEADLIGHTS

LED headlights
intelligent illumination to prevent glaring for oncoming traffic

LED high beams
large-scale illumination of the traffic situation

Laser high beams
wide illumination for an optimal vision

LASER HIGH BEAMS

3 blue laser diodes
beam combiner
deflection mirror
color converter
parabolic mirror
Millions of new LED lamps lower the operation and maintenance costs of airports around the globe.

**LED vs Halogen**

<table>
<thead>
<tr>
<th></th>
<th>LED</th>
<th>Halogen</th>
</tr>
</thead>
<tbody>
<tr>
<td>hours shelf life</td>
<td>60,000</td>
<td>2,500</td>
</tr>
<tr>
<td>typical connected load per lamp (W)</td>
<td>18</td>
<td>65</td>
</tr>
</tbody>
</table>

**PAPI**

(Precision Approach Path Indicator)

The PAPI display signals the correct approach angle.

- too high (more than 3.5°)
- slightly too high (from 3.2°)
- correct approach angle (3°)
- slightly too low (from 2.8°)
- too low (more than 2.5°)

**Airport Lights**

- Runway threshold lights
- Touch-down zone lights
- Taxiway edge lights
- Runway end lights
- Taxiway centerline lights
- Touch-down zone lights
- Stop bar lights
- Runway guard lights
- Side row lights
- Approach lights

**Notes**

- Runway at least 1.8 km
- Touch-down zone lights around 900 m
- Side row lights around 300 m
- Runway at least 1.8 km
- Touch-down zone lights around 900 m
- Approach lights around 900 m

**TRAFFIC**

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**AIRPORT LIGHTING**

- LED vs Halogen
- Hours shelf life 60,000 vs 2,500
- Typical connected load 18 W vs 65 W
- PAPI (Precision Approach Path Indicator)
- The PAPI display signals the correct approach angle:
  - too high (more than 3.5°)
  - slightly too high (from 3.2°)
  - correct approach angle (3°)
  - slightly too low (from 2.8°)
  - too low (more than 2.5°)

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