

The Heliport Services GmbH was founded in 2002 by Holger Hoven and Peter Becker. As helicopter pilots they were at one with each other that it was urgently necessary to improve the obstruction lighting systems and the lighting at heliports. So the idea was born to found an own company and therefore to assure a first-class lighting of any aviation obstacle, first of all in order to increase the safety of the aviation for pilots and passengers.

Skilled and experienced personnel (engineers/foremen and technicians) in the field of lighting of heliports, lighting of masts, cranes, chimneys as well as wind power stations supports them in achieving their aim.

We are planning and realizing wind park projects in Germany and in Europe. This means not only the day and night marking of the wind power stations, but also the connection of the stations with each other. In doing so the wind power stations are synchronized, the light intensity is automatically adapted to the visibility conditions after regular measurements, in case of power breakdowns or other failures the signals are transferred automatically to the operators or the service companies and many other things.

In case of request also other aviation obstacles like transmitting masts, chimneys, radio towers of mobile network operators etc. are equipped by our company with obstruction lights.

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1. Obstruction Lighting

BT2018 - combined 20.000 White & W Red

The BT2018 is a dual lens obstruction light system, white light day and red light night which has been especially designed for wind power stations. The light complies with ICAO Annex 14 for "medium intensity white light type A" for day and "W red" for night.

Technical data

- o Clear UV stable polycarbonate dome
- o Supply voltage 230VAC
- o Power consumption 130 W
- o Dimensions Ø 330 x 560mm
- o Weight approx. 11.5 kg

White Strobe Light Day

- Built with xenon flash tube
- 380mm Fresnel lens
- Intensity 20,000 +25% cd (effective)
- 40 flashes per minute
- 3° vertical beam
- 360° horizontal coverage
- 10%, 30% or 100% intensity of light

Red LED Light Night

- Multi array LED light source
- Intensity > 100 cd (effective)
- 30 flashes per minute
- Flash character: 1+0,5+1+1,5
- Vertical beam according to "W red"
- 360° horizontal coverage

1.1. **BT180 - W Red**

BT180 "W Red" Obstruction Light is designed especially to comply with the requirements of the German Federal Ministry of Transport for night obstruction lighting.

The light engine is built as a multi array of high performance light emitting diodes (LEDs). Internal or external pulse generator for "W Red" sequence.

Also features: light monitoring circuit, external synchronization, day/night control from photoelectric switch or from external controller.

Technical data:

- Clear UV stable polycarbonate dome
- Supply voltage 230VAC
- Flash rate: 1s on - 0,5s off - 1s on - 1,5s off
- Colour: Red - 640 nm
- Intensity > 100 cd (effective)
- Horizontal angle: 360°
- Vertical angle: according to "W-Rot"
- Power consumption: approx. 25W
- Mechanical dimensions: Ø 465 x 420mm
- Weight: approx. 5 kg



The products are also available in 2,000 cd red and other intensities.

2. Obstruction Lighting

2.1. HPS-CWR150-LED - combined 20,000 White & W Red

The specification of the obstruction lights is certified according to CE, meets ICAO Annex14, table 6.3 Type A+B and approved by the German Federal Ministry of Transport.

Technical data

- Light emitting diodes (LEDs), white/red light source
- Supply voltage 230VAC
- Power consumption 90 W
- White 20,000 cd (effective, medium intensity type A)
- Red >100 cd (effective, W Red)
- Average service life up to 100,000 hours
- Surge voltage protector integrated in the light
- Environmental conditions between - 40 and +80°C
- Housing made of powder-coated, traffic white aluminium
- Fresnel-optics and mirror reflector
- Dimensions: Ø 330 x 560mm
- Weight: approx. 13 kg
- Mechanical stress: vibration-resistant

2.2. HPS-R15-LED – hazard beacon 'W-Red'

The specification of the obstruction lights is certified according to CE and approved by the German Federal Ministry of Transport.

Technical data

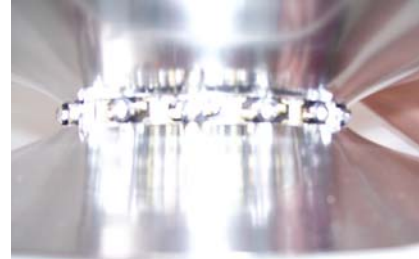
- Light emitting diodes (LEDs), red light source
- Supply voltage 230VAC
- Power consumption approx. 20 W
- Luminous intensity >100 cd (effective) red (W Red), horizontal 360°
- Average service life up to 100.000 operating hours
- Surge voltage protector integrated in the light
- Environmental conditions between - 40° and + 80° C
- Housing made of powder-coated, traffic white aluminium
- Optics: mirror reflector
- Dimensions: Ø 350 x 220mm
- Weight: approx. 4 kg
- Mechanical stress: vibration-resistant
- Design 2-stage hazard beacon

The products are also available in 2,000 cd red and other intensities.

3. Technology

3.1. LED-Technology

- Special lenses for protection from disturbing light influence on the ground under consideration of the ICAO-required photometric characteristics.
- Reduction of the light intensity is possible in accordance with valid regulations when using a visibility meter.
- Each LED is equipped with an additional failure bridging system, in order to ensure the function of the complete lighting system, even in case the LED is defective.
- A separate LED-control module is installed in the control unit.
- Therefore we reach a high reliability and an easy maintenance of the system. The use of screened feeding cable is inevitable to prevent surge voltages.
- In addition the obstruction light is equipped with pressure releasing elements to prevent the development of condensed water.



3.2. Pluggable cable bushing

- The cable bushing for the LED-System at the nacelle is a pluggable connector.
- Shielded cable is used to protect against surge voltages.
- Therefore this makes not only the installation and maintenance of the obstruction lighting system easier, but also necessary service works at the wind power station.



4. Control unit and its tasks

4.1. Emergency-power supply

- Extra long-life batteries used
- Integrated into the control unit
- 10 hours standard backup time

4.2. Failure indication

- The system provides two signals to diagnose the systems state:
 - Signal 1: Alarm – The system is not working - a system check should be carried out immediately.
 - Signal 2: Failure – The system is partly defective, but still working - a system check should be organized soon.
- Remote monitoring is realized by means of a connection to the operator's service monitoring panel, which is able to read the two provided dry contacts.
- Failure indication system works separately for each wind power station in order to allow the remote monitoring system to easily locate the relevant wind power station.
- Enhancing the system is possible for transferring all relevant signals via **Ethernet** and many other bus systems to the operator.



4.3. Synchronization

- The flashing cycle of all obstruction lights in each wind park is synchronized.
- Even synchronizing the lights on wind power plants from different manufacturers is possible by using **GPS** (global positioning system).



4.4. Switching between night- and day mode

- The system features a simultaneous switching of all wind power stations in a wind park from **night to day mode** and back again (photoelectric switch).
- The system recognizes defective light sensors, generates a failure signal and the installed astronomical clock continues the night-day-alternation.



4.5. Reduction of the light intensity

- When using a **visibility meter** for a complete wind park the reduction of the light intensity is possible in accordance to valid regulations.
- Depending on the visibility at day and night the intensity of the obstruction lights will be reduced automatically.

