



Radar-based Obstruction Light Control SCANTER 5202



TERMA®
ALLIES IN INNOVATION



Krampfer, Germany



Bollenhagen, Germany

Turn obstruction lights on – but only when necessary

We need more sustainable energy for a future less dependent on fossil fuels, and wind energy is a great contribution to a sustainable energy grid. At Terma, we have solutions to support the implementation of more wind energy, and at the same time reduce the visual pollution caused by wind farm obstruction lights. We make sure that the obstruction lights are turned on only when necessary, i.e. when an aircraft is nearby. The majority of the time when the obstruction lights are not needed, they will stay off.

Terma's Obstruction Light Control (OLC) vastly reduces light pollution, and increases public acceptance of wind farms, thus being a true enabler for a more sustainable energy grid.

Regulations and concerned neighbors

The increasing size of wind turbines is creating safety and societal challenges for the wind industry, the authorities, and the surrounding municipalities when it comes to complying with air traffic regulations. As wind turbines grow taller and enter the lower airspace, high intensity obstruction lights are needed. The high-intensity lights required for higher wind turbines can appear very intrusive to wind farm neighbors and to an otherwise pristine night sky. The high intensity lights cause a growing number of delays and cancellations of wind farms due to complaints from neighbors and municipalities

near planned wind farms. These problems can be overcome by turning the obstruction lights on only when necessary, i.e. when there is an aircraft in the vicinity of the wind farm. Terma's Obstruction Light Control (OLC) vastly reduces light pollution caused by wind farms and improves the success rate of wind farm deployments.

Solution capabilities

Terma is vendor-neutral, meaning that our OLC solution is compatible with wind turbines and lighting from leading vendors. Our OLC solution integrates seamlessly with existing infrastructure and obstruction lights monitoring control equipment. Our experience from both land and coastal surveillance enables our OLC solution to be used for land, near-shore, and off-shore wind farms, and even a mix of all three to bring down costs and increase flexibility and scalability. Combined with Terma's professional services, our turn-key solution is the preferred choice for wind turbine manufacturers, environmental consultants, and wind farm developers.

Approvals

Terma has an extensive track record with approval authorities providing documentation, standard safety cases, and support. Terma's know-how and domain leadership can be of great benefit in the approval process for planning and operational permits. Working with Terma is a long-term partnership from the approval process through to deployment or retrofit of the wind farm.

Terma's OLC solution is the most widely approved solution, and certified for deployment in the following countries;

- United States, certified by the FAA (Federal Aviation Administration)
- Germany, certified by DFS (Deutsche Flug Sicherung)
- Denmark, certified by TBST (Danish Transport, Construction and Housing Authority)

Key benefits

- Vendor-neutral. Terma's OLC solution integrates with existing infrastructure and lighting from leading WTG vendors.
- Scalability / Deployment flexibility. Terma sensor capabilities and deployment offerings enable flexible solutions, for land based, near-shore, and off-shore wind farms, bringing down the total cost of ownership.
- Terma's SCANTER 5202 is a commercial off-the-shelf product with more than 300 installations in service.

Product characteristics

Terma's SCANTER radars have fully digital signal processing and Solid State technology, providing extremely clear radar images with low probability of false alarms. Our SCANTER radars detect non cooperative targets such as small aircraft, including ultralights and birds in any conceivable weather condition. Therefore, obstruction lights are turned on only when needed.

Scalability

Our OLC solution provides 360° coverage (24/7) of up to 2,400 km² of wind farm surveillance. SCANTER radars for our OLC solution have an instrumented range of up to 26 km detection radius, making our solution ideal for both small and large wind farms. For wind farms with a scattered layout, and to accommodate for future developments

and expansions of the wind farm, additional SCANTER radars can be added.

Cost-effective

The scalability and flexible positioning of the SCANTER radar to mitigate multiple wind farms with a single radar is important to bring down the total cost and provide scalability to grow with future expansion of the wind farm.

Product sustainment

The Terma SCANTER radar family has proven its performance, reliability, and sustainability in security applications all over the world. Based on Terma's vast know-how and leading hardware and software technology, SCANTER radars provide our clients with a proven platform ensuring high availability (High Mean Time Between Failure).

Service & support

At Terma, we know the importance of keeping the blades spinning. That is why we offer global Support & Service Agreements for up to 25 years, supporting long time sustainability and obsolescence management of our SCANTER products throughout the life time of the wind farm.

World leader in detection technologies

Terma has been a world leader within radar detection technologies for more than 60 years. Our +3,000 Terma radar systems are protecting borders, harbors, airports, coast lines and wind farms worldwide. More than 85% of all major airports around the world and 65% of all coastal shores rely on Terma's sensor technology. Terma's OLC solution is based on our proven and reliable technology, ensuring continuous operation and low maintenance costs. Combined with our global service and maintenance capability, you obtain a proven high-performance system with very low risk.

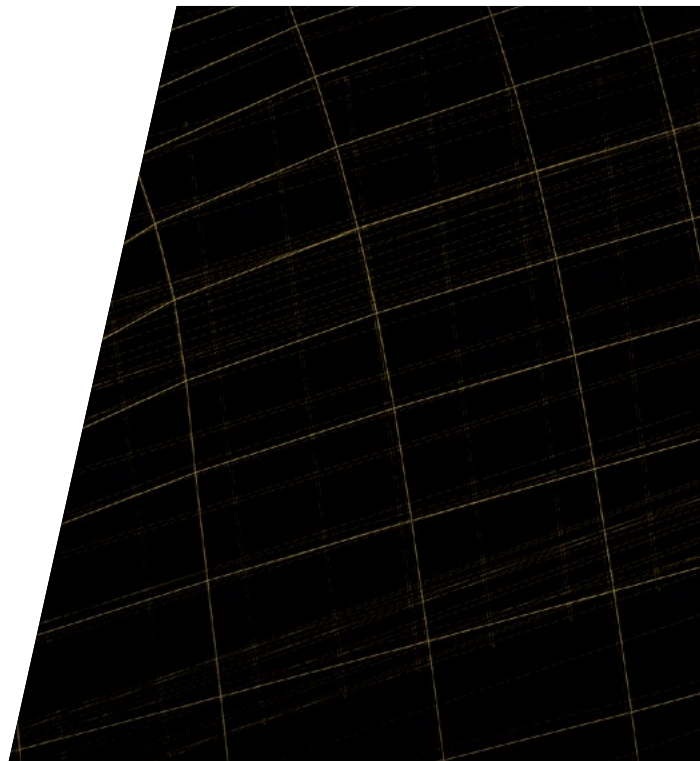
Operating in the aerospace, defense, and security sector, Terma supports customers and partners all over the world. With more than 1,400 committed employees globally, we develop and manufacture mission-critical products and solutions that meet rigorous customer requirements.

At Terma, we believe in the premise that creating customer value is not just about strong engineering and manufacturing skills. It is also about being able to apply these skills in the context of our customers' specific needs. Only through close collaboration and dialog can we deliver a level of partnership and integration unmatched in the industry.

Our business activities, products, and systems include: command and control systems; radar systems; self-protection systems for ships and aircraft; space technology; and advanced aerostructures for the aircraft industry.

Terma has decades of hands-on know-how in supporting and maintaining mission-critical systems in some of the world's most hostile areas. Terma Support & Services offers Through Life support of all our products to maximize operational availability, enhance platform lifetime, and ensure the best possible cost of ownership.

Headquartered in Aarhus, Denmark, Terma has subsidiaries and operations in the Netherlands, Germany, Belgium, UK, India, UAE, Singapore as well as a wholly-owned U.S. subsidiary, Terma North America Inc. Terma North America Inc. is headquartered in Arlington, in the Washington D.C. area, with other offices in Georgia, Texas, and Virginia.



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