Malmö drives seamless smart street lighting upgrade with TALQ

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TALQ

Tender scope

In 2020, the City of Malmö embarked on a transformative journey to modernize its streetlighting infrastructure. The project's primary goal was to achieve substantial energy efficiency and elevate performance standards by replacing approximately 62,000 lighting points throughout the urban landscape.

The city aimed to leverage its extensive fibre optic network by strategically deploying communication gateways in approximately 550 cabinets distributed across the city. The tender also called for solutions that could extend connectivity to areas beyond the reach of the existing fibre optic infrastructure. This approach was meant to guarantee a comprehensive and adaptable street lighting system across the entire city.

This initiative not only sought to enhance the lighting infrastructure but also to integrate a future-proof system designed for scalability and open integration, ensuring adaptability with various hardware suppliers. This approach was crucial to prevent vendor lock-in and to maintain system flexibility, enabling the city to adapt to evolving technologies and needs.

62,000
light points

2 systems
integrated

50%+
energy savings

Better light quality throughout the city

Enhanced safety for citizens

Why Malmö opted for TALQ-certified solutions?

Malmö's choice to adopt TALQ-certified solutions was influenced by their interest in the Exedra smart outdoor lighting control management software (CMS). Schréder provided the CMS and a robust radio-frequency mesh network for expansive city coverage. Areas covered by the fibre optic infrastructure were addressed through a collaboration with Capelon, another vendor with a TALQ-certified solution, who delivered a TALQ-Gateway-based solution.

This facilitated interoperability by means of the TALQ Protocol, which allowed the city to leverage its extensive fibre optic network through gateways installed in about 500 cabinets, each managing up to 200 light points, while also covering areas beyond fibre reach with a mesh network. The integration of both communication networks in the CMS enables both systems to be controlled seamlessly, creating a unified, efficient solution that minimises complexity and operational challenges and remains open to integrate other smart outdoor lighting and smart city solutions in the future.

Implementation and Learning

The implementation of Malmö's street lighting system began with the deployment of the Gateway in combination with the mesh nodes. Simultaneously, the CMS was integrated with Malmö's asset management systems, ensuring an updated and comprehensive view of all lighting assets. This integration facilitated efficient management and monitoring, laying a solid foundation for future scalability and enhancements.

One of the most innovative aspects of the project is Malmö's pioneering use of tunable white lighting along its major highway, Inre Ringvägen. As one of the first highways in Europe to adopt such technology, approximately 1,200 connected luminaires were installed, capable of dynamically changing color temperatures between 2,200 Kelvin and 3,000 Kelvin according to preset schedules. This not only enhances visual comfort and safety for motorists but also showcases the city's commitment to leveraging cutting-edge technology for public benefit. The integration of this feature required seamless communication between both systems, a challenge effectively addressed through the adoption of the TALQ Standard. TALQ enabled interoperability and allowed specific commands and control programs to manage the tunable white functionality, even though one of the two systems was not initially configured for this feature.

Since the pilot phase, which started with 600-700 luminaires in the first year, the project has seen steady and timely growth. Four years later, the network has expanded to include between 4,000 and 5,000 connected luminaires. With a total of 62,000 light points targeted, the project is well on its way to completion as additional budget allocations are secured each year. This gradual scaling ensures progress toward full city-wide coverage without significant delays, demonstrating a sustainable pace of implementation.

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Beyond network integration, the City of Malmö recognized the value of the TALQ Protocol as it offered a framework for seamless integration across various suppliers, platforms, and networks. This openness was crucial to Malmö's long-term vision of building a city-wide infrastructure capable of adapting to future technological advanceadvances without being restricted by vendor lock-in.

> "Malmö's commitment to sustainability and enhancing quality of life through innovation is clear in our smart street lighting project. With TALQ's open protocol and the integrator support, we've seamlessly integrated multiple systems, bringing our vision to life. It is still a work in progress, and we hope to reach the target for our vision by 2027."
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> **Johan Moritz**
> Lighting Designer IAL>D
> Malmö City

Outcomes

With the seamless integration of TALQ-certified solutions, Malmö's project has seen steady growth. The smart streetlighting initiative has led to energy savings of 50-60%, while enhancing the quality of light across the city, especially in high-traffic areas like Inre Ringvägen. The project's flexibility allows Malmö to continue integrating new technologies, such as waste bin monitoring and flood detection, once the lighting network is fully deployed.

Thanks to the interoperability enabled by the TALQ Protocol, Malmö now has a scalable, future-proof system that can integrate additional smart city applications, ensuring it remains at the forefront of innovation for years to come.