



## GMINA RACIECHOWICE | POLAND

Gmina Raciechowice is a rural municipality located in the Lesser Poland voivodeship, only 40 km from Krakow. It has an area of 61 km<sup>2</sup>, 90% of which is covered by farmland, forests and woodlands. Only a small part of the area is urbanized, which is why the main focus in Raciechowice is placed on agriculture, tourism and recreation. The municipality is situated beyond the reach of severe air and soil pollution, is far from being classified as an "ecological hazard area", and can thus be considered an eco-municipality. Raciechowice was among the laureates of an ecological competition called "#ekoLIDERZY 2015 województwa małopolskiego" for leading ecologically-friendly companies from the Lesser Poland region organized by the voivodeship's Fund for Environmental Protection and Water Management in Krakow.

Care for the environment, savings and safety of residents and all road users was the underlying cause for the decision made by the authorities of this eco-friendly municipality regarding the modernization of street lighting.



## › THE SITUATION

In the era of urbanization, there is an increasing demand for electricity consumption, which unfortunately contributes significantly to higher CO<sub>2</sub> emissions. A very large portion of this energy is necessary to power street lighting, which plays a key role in ensuring safety.

*"Raciechowice is an eco-municipality, it's a place where we care very much about the environment and our residents' safety. The decision on the modernization was necessary and in line with the development strategy,"* explained Marek Gabzdyl, Mayor of the Raciechowice municipality.



## › THE CHALLENGE

The density of the road network in Raciechowice is 1.12 km/km<sup>2</sup>, and all road lighting generated a power consumption of 41.23 kW. The street lighting modernization was meant to ensure savings for the municipality by reducing the electricity consumption. In addition, the use of modern LED lighting was supposed to increase safety for the residents and road users.

The presented lighting modernization project involved the use of LED luminaires with a total power of 27.52 kW. This solution was supposed to guarantee savings of **69,328.08 kWh** and contribute to decreasing CO<sub>2</sub> emissions by **55 Mg** per year.

*"Energy-saving LED light ensures very good color rendering compared to solutions using sodium discharge lamps. The ability to distinguish colors and shapes faster ensures better visibility and increases the chances of reacting at the right time and avoiding an accident,"* sums up the Mayor of the municipality. *"In addition, these modern solutions allow for the use of advanced functionalities, such as wireless lighting control for groups of luminaires,"* he added.



## THE PROCESS

As a result of the tender allotment for this investment, the street lighting modernization began in January 2017 using **RACER SMART MINI** luminaires and the ZLight wireless lighting control system. *“ES-SYSTEM offered and delivered an assortment that was best suited to our needs. The products met the requirements of the tender as well as those set out in the applicable European standards. The modernization project provided energy savings of 34% and was realistic to achieve,”* explained the Mayor of the Raciechowice municipality.

The implementation of the project took 16 months and involved replacing the existing street lighting with **403 RACER SMART MINI** luminaires with **4000 K** color temperature and different power variants that are adjusted to the lighting needs, as well as the installation of 23 sector controllers responsible for communication between the luminaires and the ZLight lighting management system.

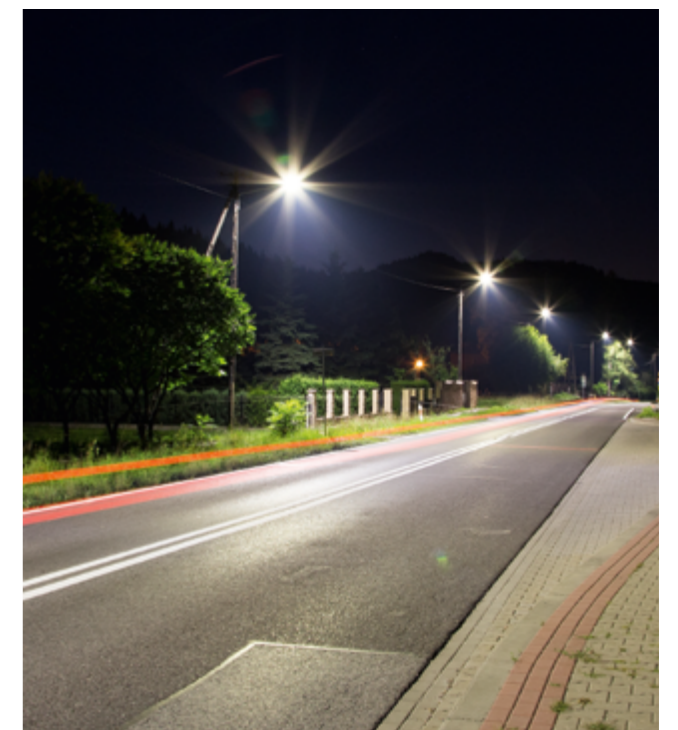
The selected **RACER SMART MINI** luminaires are designed for lighting streets, bridges, communication routes and parking facilities. They have a double-cham-

ber housing made of die-cast aluminum with a streamlined shape that prevents leaves from accumulating on top of it. ZLight is an innovative wireless street lighting control system that provides simple and reliable radio communication using the **2,4Ghz Mesh**.

*“The convenient and intuitive lighting control via any mobile device, such as a tablet or smartphone, is particularly noteworthy,”* says Marek Gabzdyla. *“The system makes it possible to prepare operation reports, perform data analysis and indicates any functioning errors. It’s very important that we can be sure that nothing is causing a threat to the safety of residents and road users,”* he adds.

The picturesque, beautiful, mountainous terrain of the rural municipality proved to be the biggest difficulty in installing the ZLight system. During work on the project, the Intelligent Lighting Control System Department at ES-SYSTEM had to develop a new, individual concept for the distribution of the sector controllers. These activities made it possible to complete the project on time and use the ZLight system to its full potential.

The street lighting modernization was successfully completed in May 2018.



# 403

RACER SMART MINI  
LUMINAIRES



## ➤ PROJECT SUMMARY

Name:	Street lighting modernization in Gmina Raciechowice
Sector:	Street lighting
Location:	Gmina Raciechowice, Poland
Products:	403 RACER SMART MINI luminaires with 4000 K color temperature and various power variants
	Wireless street lighting control - ZLight
Savings:	electricity consumption was reduced by <b>45%</b> after the modernization*
Project start and end date:	January 2017 - May 2018
Lighting designer:	The ES-SYSTEM street lighting team
<small>*Based on a data comparison of electricity consumption in the period between May and November of 2017 and 2018</small>	

