

## Case Study

# Energy-efficient lighting solutions for production halls ABB and Philips combine expertise in building automation and LED technology



The new LED lighting system from ABB and Philips ensures optimum illumination of production/logistic halls and warehouses as in Turgi, Switzerland.

For an ABB production facility in Turgi, Switzerland, ABB and Philips jointly developed a new lighting concept with modern LED technology. The new system provides better illumination of the hall and reduces electricity costs by half. In the future, ABB and Philips want to use their expertise in energy-efficient LED technology and modern building automation to provide innovative lighting concepts for production/logistic halls and warehouses.

Until 2014, 27 metal halide lamps illuminated the 1300 m<sup>2</sup> production hall of ABB in Turgi, Switzerland. For this they needed 30,800 kWh of electricity per year. In order to reduce operating and maintenance costs of the hall and to improve the lighting quality needed for fine assembly work over the long-term, ABB and Philips, the world leader in efficient lighting systems, developed an energy-saving lighting concept. The power consumption of the 43 newly installed LED module interior lights is 12 % lower compared to the old system. They provide uniform illumination intensity of approximately 500 lux. They can also be flexibly automated and controlled as required using KNX devices for building automation.

„With this collaboration, we want to not only simplify the integration of networked lighting systems and building control systems used for commercial buildings, but also integrate our lighting systems seamlessly into the KNX building control of ABB in order to jointly offer a holistic approach to production halls.“

Bojan Milutinovic, Key Account Manager,  
Philips AG Lighting.



Sensors detect the presence of people. If no one is in the hall, the LED lights are dimmed automatically in steps.

#### Energy-efficient lighting concept

Modern LEDs can be controlled digitally. In combination with the ABB i-bus KNX, the daylight and usage requirements of the hall can be taken into account: If the installed detection sensors detect that people are present, the lights remain on and are dimmed depending on daylight to a constant light intensity of at least 500 lux. If nobody is present for a longer period, power to the LEDs is gradually reduced before being switched off. In this way the LED lights are powered for 20 % less time compared to the previous solution. The system power is reduced by as much as 30% by temporarily dimmed LEDs.

For the energy-efficient lighting system in the production hall in Turgi, ABB and Philips use the following devices in addition to the individual concept:

ABB products:

- KNX control system and sub-distribution
- Miniature circuit breaker SMISLINE Classic
- Neutral disconnecter SMISLINE
- Operating hours and energy consumption meter
- KNX motion detector Busch-Watchdog
- Light sensor for light controllers for constant light level control

Philips product:

- Luminaire GentleSpace Gen2 LED 250

“Our lighting concept saves the production hall in Turgi 50 % off their annual energy costs. At the same time, the employees benefit from the improved brightness of the system, which greatly improves visual acuity for fine installation work,” says Eveline Szegedi, Head of Construction Management, ABB Immobilien AG.

#### More light, less consumption

With the new lighting concept, the annual electricity costs are cut in half – along with the CO<sub>2</sub> emissions of the production hall: Each year, ABB prevents the emission of 10 tons of carbon dioxide at the Turgi site. In addition, the installed LED lights are maintenance-free. In this way the brighter and more convenient new system will have paid for itself financially after 15 years – a service period that the LED lights will easily reach with their extended service life, which is five times longer than the previous halogen lights.