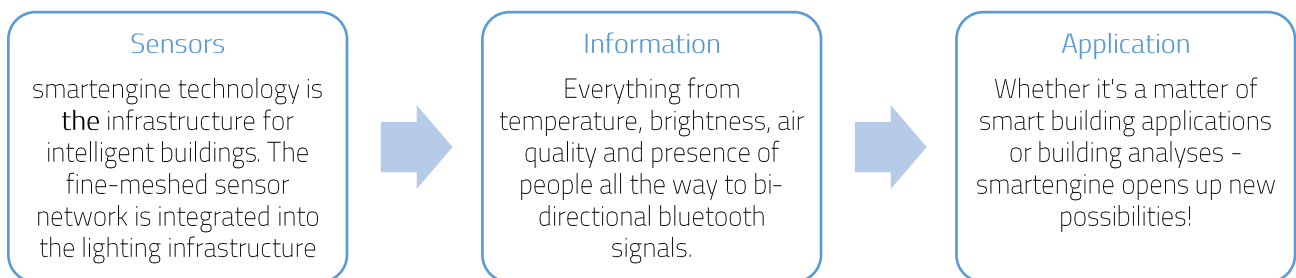# smartengine | wtec

Product information sheet

About the company

wtec GmbH is a solution provider in the field of smart building. The smartengine technology is an infrastructure for building intelligence and lighting control. Manufacturer-neutral LED luminaires are supplied with voltage by means of conventional data cables and multifunctional sensors are simultaneously integrated into this power infrastructure. The technology replaces and simplifies numerous infrastructures and achieves high operational savings. The solution also offers numerous applications / use cases for smart buildings and has already been successfully installed in over 500 projects and on more than 1.5 million square meters of built-out area.

Benefits of smartengine

The fine-meshed and multifunctional sensors (brightness, temperature, motion, bi-directional bluetooth and air quality) provide historical and real-time information. Via open interfaces (BACnet/IP and API) smartengine can exchange data with other applications (BMS integration, software applications) and thus becomes the "central nervous system" in the intelligent building.

Sensors	Information	Application
smartengine technology is **the** infrastructure for intelligent buildings. The fine-meshed sensor network is integrated into the lighting infrastructure	Everything from temperature, brightness, air quality and presence of people all the way to bi-directional bluetooth signals.	Whether it's a matter of smart building applications or building analyses - smartengine opens up new possibilities!

smartengine optimizes the consumption of light, heating, air conditioning and ventilation to achieve total energy savings of up to 30%. The analysis and evaluation of the collected information opens up new possibilities of building use for tenants, owners, operators and users. The focus of our applications is on the well-being and productivity of the users. Here are a few examples: The display of free meeting rooms and workplaces. The smartengine app and voice control for user-friendly interaction with the space. Space utilization analysis for efficiency gains. Cloud connection and integration into other systems thanks to a secure Open-API interface. All data is stored exclusively on site - based on current IT security standards.

Owner	Tenants
- Future viability and value stability of the property - IoT-ready real estate - Better rentability due to lower utility costs (-30 % energy usage) - Sustainability and CO_2 reduction	- Lower utility costs - Increased employee satisfaction - Information on space usage, free and unused capacities - Sustainability und CO_2 reduction
Operator	Users
- Information on the condition and use of the building in real time - Cloud building control supported	- Support of everyday office, e.g.: display room availability, room control via app - Optimized well-being climate, satisfaction and productivity

Architecture / Structure / Components

The smartengine technology is based on conventional data cables interconnecting LED lights, sensors and the central components „smartengine" and „smartdirector". The following diagram shows the topology of the smartengine system. A smartdirector clusters up to 40 smartengines / 2000 sensors for simplified management of a space and it also serves as the interface to external components, such as a BMS system. smartengines provide power and control for LED fixtures.

wtec produces and distributes following components / products:

Product	Description
smartengine	Power and Control for LED fixtures
smartdirector	Cluster and manage 40 smartengines / 2000 sensors. Open API and BACnet/IP interface for seamless system integration.
smartsensor	Multifunctional sensors (temperature, light level, motion, Bluetooth beacon)
Others	smartgateways, Emergency Lighting, Plug Load Control and Control of Line Voltage Fixtures
smartmanager	Control and monitor the system, evaluation of real-time data
App	Visual display of consumption data, light control and occupancy/utilization of space

Room distribution / required Hardware

Following approximate values can be used to determine the required components:

- smartdirector per 40 smartengines
- 1 smartengine per 2500 ft^2 – 3000 ft^2
- 1 sensor per LED fixture, in some cases 1 sensor per group of 2-3 fixtures

Lights

Nearly all LED fixtures can be produced smartengine ready. The fixtures light engine should meet the following technical requirements:

- Voltage = 18-48 Vdc (SELV protection class III)
- Current = 100-700 mA
- The Light Engine does not require any further components to function
- Drivers in the Fixture are not required
- Constant current supply
- Optional: consider installation space for smartsensor or smartgateway (RJ-45 connection)

Investment costs

Investment costs for the smartengine system include data cable installation, the smartengine components as well as the LED fixtures.

The smartengine system eliminates the need for several components, as they are replaced or become obsolete. These are:

- 3rd party dimming control
- Drivers in the luminaires
- Line Voltage lighting infrastructure
- Luminaire MC-PCS cable

- Emergency Lighting Relay Controls
- Temperature sensors
- Brightness sensors

The elimination of the corresponding services and components should be taken into account in the electrical planning as well as in the tendering and contracting process. The investment costs of the system can be significantly reduced by optimizing the lighting design. Please do not hesitate to contact us, we will advise you free of charge!