

## Energy Saving Illumination System

### DST's Combined System

The system produces a thorough solution for energy requirements within workplaces and classrooms. The system was designed according to the following emphases.

- **Optimal Lighting**, in terms of light intensity and quality. (view frame)
- **Maximal saving** of the devices' energy consumption by utilizing the most efficient technologies up to date.
- **Additional saving** by smart, sensor-based control that prevents activation of the illumination and air-conditioning system when unnecessary.
- **Simple and easy** installation, compatible to any hall, corridor or room with no regard to the existing power grid structure.
- **Maximal stability** by planning of the illumination devices and control system to work many years with no need of maintenance.  
The system's various components are designed so that a local failure will affect the entire system minimally.  
All of the system's components can be easily replaced by regular maintenance staff with no need for special training.



### 1. The Illumination system

#### 1.1. The illumination devices offer the following features:

- LED-Based and therefore offer a very long life span.
- More quality than fluorescent lighting (37% more efficient Color Rendering) that eases reading. Possibility of dimming when full lighting is not necessary. Continuous lighting with no flickering, which improves the employees or students' functionality.
- Over 70% more energy-efficient than fluorescent lighting.
- Modular structure and easy, simple access to all of the illumination components for simple and cheap maintenance.
- Illumination devices designed according to common light fixtures (For both surface mounting or lowered ceilings) which allow simple and easy replacement. Existing fixtures may also be converted.



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### 1.2. Illumination Control System

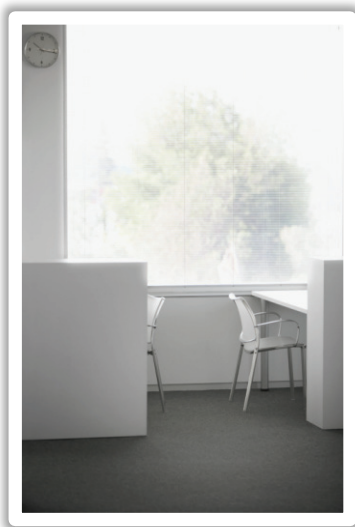
- Control system based on volume (Doppler) and light sensors.
- The system offers light intensity correspondence in rooms according to the amount of sunlight in the room, and shuts the lights out when the room is empty or parts of it are not in use.
- Decentralized system, with no central detector. The system allows any illumination device to act according to its local environment. (For example, the light intensity is determined by the amount of sunlight that reaches certain tables so that the lighting will be uniform and cases of over-lighting will be prevented).
- Another advantage of a decentralized system is that it will remain functional even if a single part of it malfunctions.

Most rooms are currently lit by fluorescent lighting. DST lighting has many advantages over fluorescent (and CFL) lighting:

- **Efficiency:** DST's illumination fixtures require about 1/3 of the energy required by fluorescent-based devices of similar light intensity.
- **Lighting Uniformity:** DST's illumination system offers a uniform level of lighting within the entire room or hall. For example: When someone opens a window and sunlight enters the room, by using other lightning systems you will receive too much light by that window (which is both tiring and wasteful). DST's systems include sensors installed in the devices that dim the intensity of the devices above over lighted areas so that the uniformity remains and no part is over-illuminated.
- **The quality and CRI (Color Rendering Index)** DST's illumination devices are much better than those of fluorescent bulbs. DST's illumination eases reading, does not flicker and does not tire. Researchers have shown that fluorescent lighting affects the nervous system and increases the risk of various illnesses. DST's illumination devices prevent such danger.
- **Safe Materials:** Fluorescent lighting harms both people and the environment. These bulbs contain mercury and other toxic materials that are dangerous when such bulbs are broken or replaced. DST's illumination devices are designed to meet the strictest of standards and made from recyclable, environment-friendly materials.

### 2. Air Conditioning Control System

- Volume-sensor based system that shuts the air conditioner down when the room is empty.
- The system is compatible to any infrared remote-controlled air conditioner.
- The system is wireless (Transmits the required signal to the air conditioner when needed) so that the installation does not require any physical connection to the air conditioner or its power grid.



### 3. Cost-Efficiency

- Approximately 70% saving in energy consumption!
- Additional saving due to the devices' dimming and shutting feature (approximately 30% of the time)
- Additional saving of dozens of KWh every year due to the automatic shut down of the air conditioning system.
- Very short ROI period.