

Systemel Expands the Energy Saving Lighting System, its Outstanding Solution for Total Building Energy Management Control using Power Line Communication

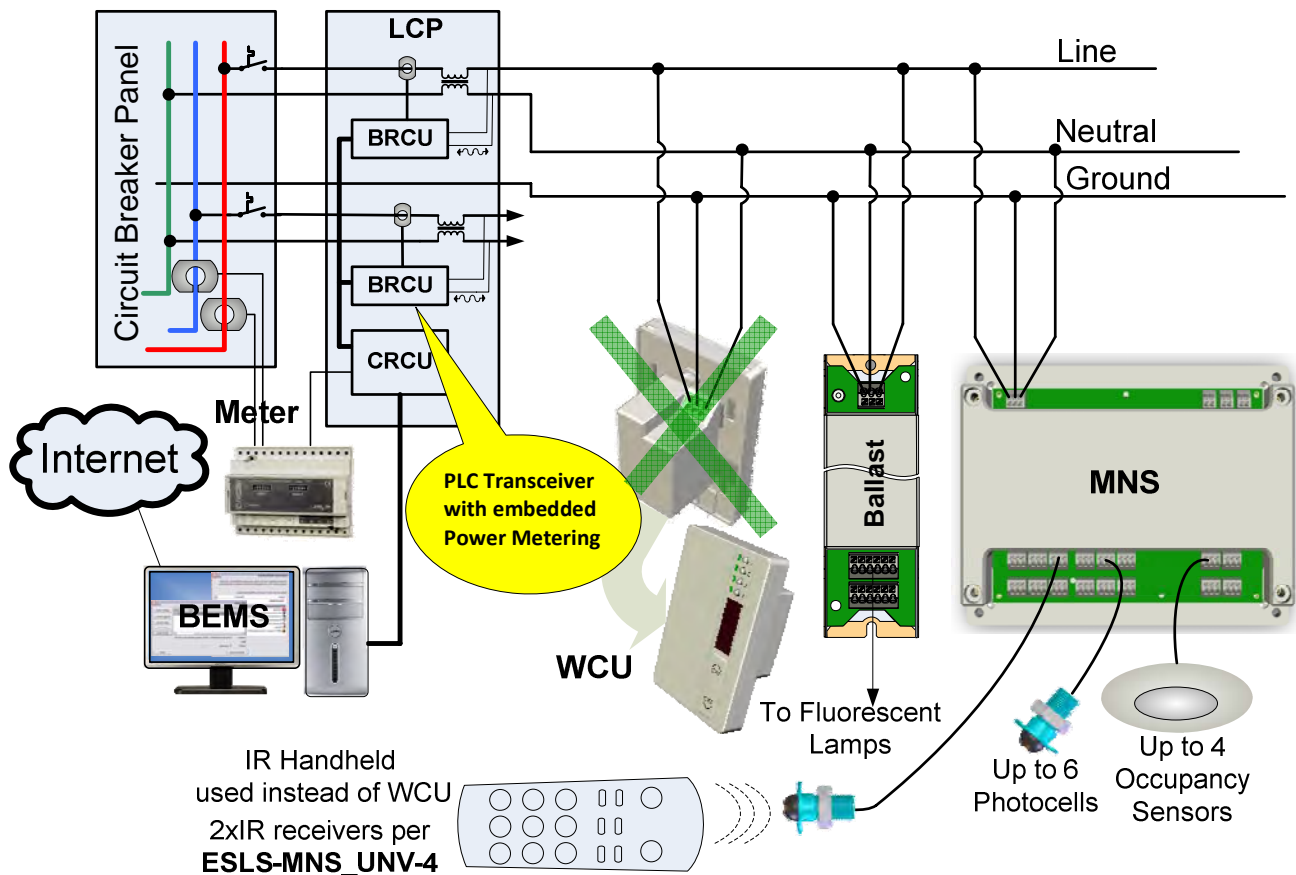
PRESS RELEASE

Nes Ziona, Israel, May 5, 2009; Systemel is expanding the capabilities of its Energy Saving Lighting System (ESLS). Systemel will unveil a number of exceptional new solutions and additional implementations of the ESLS based on the company's IPs and its IDC2000 ICs.

Systemel is introducing the ESLS **Lighting Control Panel (LCP)** with embedded metering capability, a **Multiple Network Sensor (MNS)** device integrated with infrared remote handheld control interface and **Multichannel Power Line Controlled Dimmable Ballast - ESLSb** series designs with standards certification for T5, T8 and CFL lamps.

The core technology of the ESLS and its addressable building blocks (**Ballast, WCU and MNS**) connected within the autonomous lighting branches is Systemel's second generation SoC IDC2000 power management controller with embedded 2-way powerline communication using Systemel's PLC-Link[™] protocol.

ESLS Building Blocks in an Autonomous Lighting Branch - The Simplest Solution
Compact Solution without Wall Control Unit



This compact application uses only two types of devices without the need for Master Units, Wall Controls and discrete light sensors, provides same total control and implements all the envisioned energy saving and load shedding strategies.

The LCP is now being introduced with cost-free power metering capability. Each branch is measured individually by the BRCU's embedded power meter and an integrated metering interface measures power consumption and demand of the breaker panel to which branches are connected.

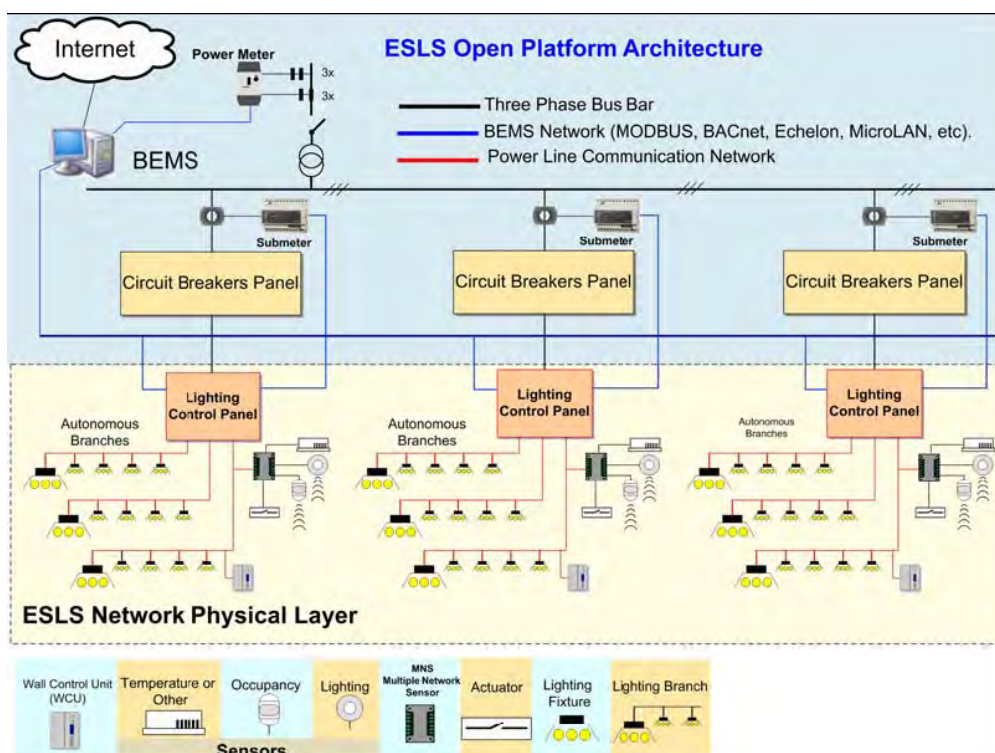
The LCP intercommunicates between lighting branches by means of Branch Remote Control Units (BRCU's), a gateway device based on the IDC2081 IC that also serves to interface between the lighting branches and the central remote control unit (CRCU) or to the BEMS (Building Energy Management System) via the CRCU. Both the CRCU and BEMS can interface between the ESLS devices and the Web. The CRCU stores the global load shedding programs (scenes) and log files of the ESLS devices within the lighting branches.

During installation and commissioning the BRCUs metering of each branch is available to the commissioner together with the breaker panel metering data and onwards to the BEMS. This allows perfect optimization of load shedding programs and follow-up for the adopted energy saving strategies' effectiveness.

The ESLS ability to load shed via the web discrete groups of loads programmed to operate at specific settings e.g. down-stream to each lamp or HVAC thermostat in a building according to different load shedding levels allows Utilities and the National Grid, to reduce the power demand of large areas of the country in real time and in selective mode, by sending simple broadcast commands without affecting building activities and occupants or the stability of the grid.

The Multiple Network Sensor (MNS) is now being introduced with infrared (IR) interface, integrating all user control capabilities operating from a handheld IR transmitter thus replacing the wall control device. The MNS is a ceiling-mounted box, based on the IDC2040. It is a global junction controller sensing light intensity, occupancy and other parameters, interfacing via power line communication between ballasts, wall control, HVAC elements, blinds and performing all signal processing and logic control within associated zones. This solution further enhances the economical advantages of the ESLS operating all the ballasts with only one device.

Systel also introduces the ESLSb series ballasts from its OEM manufacturers, a premium powerline multi-channel dimmable fluorescent electronic ballast based on the IDC2040 IC controller. This single ballast controller IC provides ALL power control and communication interface functions. The ESLSb series includes 10 US and European ballast models for 2, 3 and 4 x T8, T5 and CFL lamps based on Systel manufacturer files (reference designs) and standard UL and CE certifications.



The ESLS, an innovative patented open system platform using powerline communication (PLC), enables the industry to deploy premium energy saving building control systems at radically low cost with no extra control wiring and discrete sensor devices thus overcoming present barriers to the massive penetration of efficient control systems. The ESLS sets a new level of system cost-effectiveness, allowing implementation of all envisioned energy saving strategies and more, including selective power demand control capability via the web, while maintaining user comfort, with a typical retrofit payback of 2 years in commercial buildings and very short down time. **The savings potential offered by the ESLS is 50-70% of p.a. costs**

The ESLS open platform architecture is based on Systel's IP, a unique completely distributed architecture where lighting branches act as independent stand-alone control sub-systems and are the power line communication medium. The ESLS devices within a branch communicate autonomously and independently of any master control unit.

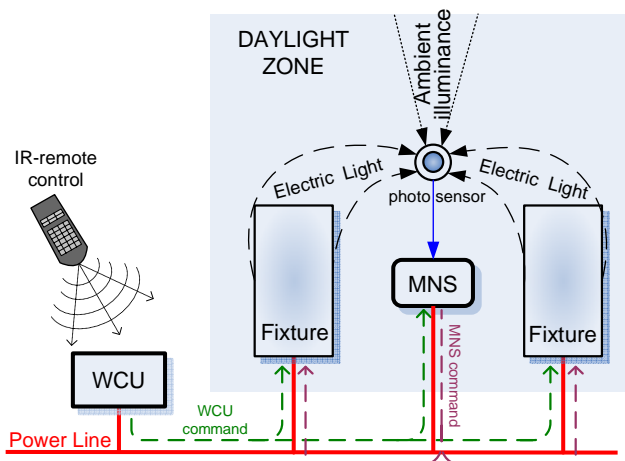
The LCP is extendable to up to 256 branches, each containing up to 256 addressable device and 2048 addressable zones (network nodes). The LCP also operates as a power meter. The BEMS is capable of directly interoperating with each ESLS network node (ESLS device), sending commands or getting status down to a single lamp or sensor in the system.

Systel's ESLSb series ballast reference designs, allow ballast OEMs to rapidly introduce digital-power-based ballasts with added value such as high power factor, configurable top specified program start, cutoff cathodes combined with smooth increase of cathode voltage as a function of dimming level, addressability and individual control (dim, on/off) of an individual lamp/channel in a fixture associated to up to 16 different zones of 2048 within a each lighting branch, field changeable ballast factor (BF) via powerline and many other inherent control features such as direct interoperability with light and occupancy sensors, wireless or IR interface. All these features grant ESLSb ballasts with capabilities to implement outstanding energy saving methods and load shedding programs.

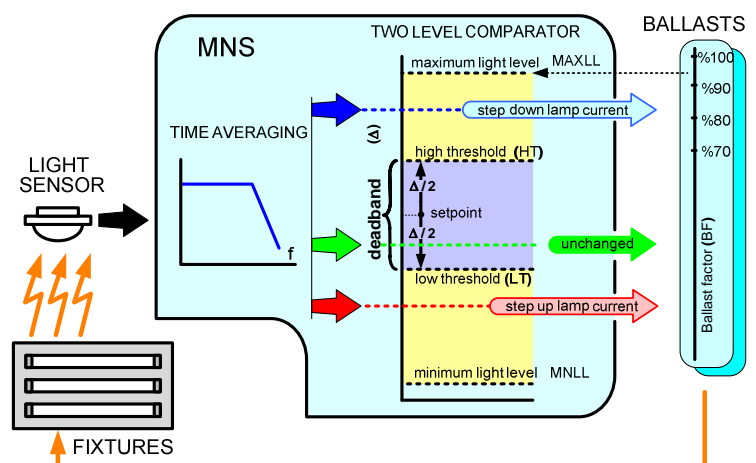
Daylight Harvesting System

The MNS allows implementation of high quality and extremely low cost daylight harvesting system. It accommodates up to 6 photocells hooked up via twisted wire. The MNS controls the ballasts in the rooms or desired zones via PLC communication, enabling the daylight harvesting self-calibration closed control loop for each photocell lighting zone, ensuring stable illumination with maximum tapping of daylight. When the ballast factor (BF) is configured at commissioning to the required maximum light level required by each task or workspace, the closed loop control self calibrates to this level. When the user sets a lower level via the WCU, or via the MNS, in a "compact" installation, the control loop locks at the new level.

ESLS Daylight Harvesting System



Self-calibrating Closed Loop Mechanism



The ESLS is bringing unusual energy saving strategies to the market in addition to the ability to configure the ballast factor at commissioning to the maximum light level required by each task or workspace. In compensation for daylight, when lights dim to under 50%, a fixture with an ESLSb two channel ballast will shut down one channel and keep the other at full light. If daylight intensity requires further dimming, the remaining channel will dim further. This algorithm increases savings by at least an additional 15% in comparison to any other traditional dimming solution.

The BEMS reduces lighting levels for load shedding according to scenes programmed at commissioning, overriding the user defined level.

The MNS integrates any conceivable occupancy triggered scene, e.g. only one lamp switched on and dimmed to 3-5% in a fixture, to attain maximum savings and maintain occupant comfort. The MNS includes additional features such as command of blinds, 12-24VDC internal power supply to feed up to 4 occupancy sensors, optional 1-10V or 4-20mA analog control outputs for HVA and integrates IR receivers to allow the MNS to serve as a full functionally WCU for two rooms or spaces.

The ESLS open platform allows OEMs to integrate different daylight harvesting methods, combined with blinds and occupancy control and deploy all other possible energy saving strategies. OEMs can develop different ballast models, based on the IDC2000 IC family including the multi-fixture topology offered by Systel, which will be compatible with the PLC-Link™ communication protocol.

The ESLS open platform allows energy management companies to upgrade their systems, and lighting industry experts to exploit their extensive knowledge, using Systel patents, ICs and support, to quickly develop unmatched sustainable designs and solutions.

Systel is offering commissioning tools including automatic software tools for mapping, ESLS device location, zone address assignment, ballast factor modification, setting of daylight, occupancy and other sensing parameters via PLC.

About Systel

SYSTEL is a pioneer in the development of proprietary comprehensive SoC solutions for mixed-signal power control and management for the power electronics industry. Its first application in power electronics was in 1993 when it unveiled a true on-line high performance UPS system implementing unique control functions in logic engines. In 1992 a line of electronic ballasts was developed by the company and the first generation of its configurable SoC IDC digital power management solution for lighting was unveiled in 1998. The present second generation IDC2000 IC family was launched in 2006. Systel holds 14 key patents and has more than 20 patent applications pending that range from core technology, power control functions and communication methods to power topologies and building control systems supported by digital control.

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