

OVERVIEW

The nLight SensorView greenscreen software plug-in module collects, records, and reports information about an nLight network. This software extension to nLight's SensorView software application utilizes an existing nLight network of lighting control devices to acquire the various data points and communicate them back to a SensorView server. This data is then analyzed and displayed in easy to read tables and interactive graphs. The GreenScreen module allows users to specify load size, electricity rates, and baseline runtime hours so that the calculated energy savings is customized for their particular network. This savings information, presented in kWh and/or dollars, shows overall system savings relative to a user specified baseline period.

FEATURES

- Software Plug-in Module to Existing SensorView
- Data Collection Abilities:
 - Relay Status
 - Occupancy Status
 - Photocell Status
 - Occupancy Time Delay
 - Measured Light Level
- Cost & Energy Calculations
- Customizable Parameters:
 - Load Size
 - Baseline Schedules
 - Up to 4 Electricity Rates
- Savings Shown in \$ or kWh
- Savings Scorecards
- Network Totals Screen
- Zone Details Screen
- Downloadable Reports
- Exports Data to .CSV Files
- Advanced Network Diagnostic Screens

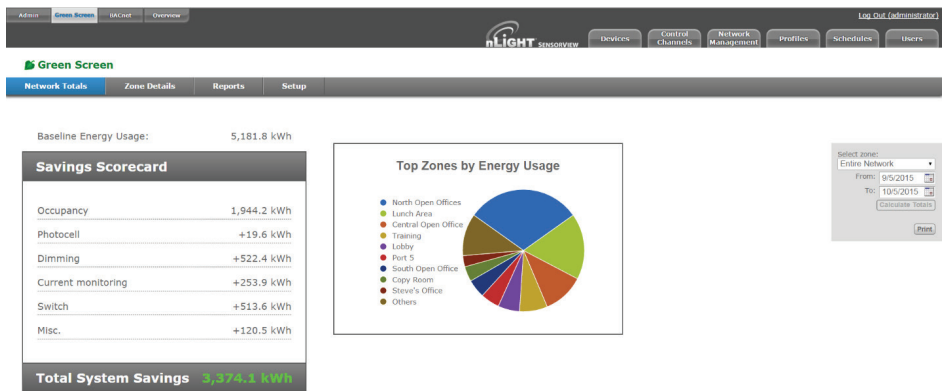


nLight®

GreenScreen Software

SensorView Energy Savings
Data Logging & Analysis
Plug-In

NETWORK TOTALS SCREEN



SPECIFICATIONS

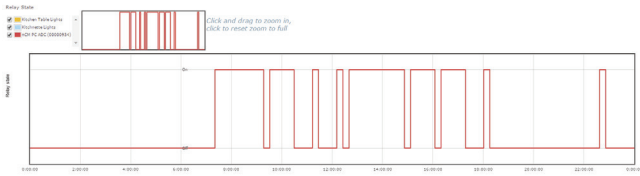
- Requires SensorView software with permanent connection to network gateway(s)
- Requires installation & configuration of PostgreSQL database

ZONE DETAILS SCREEN

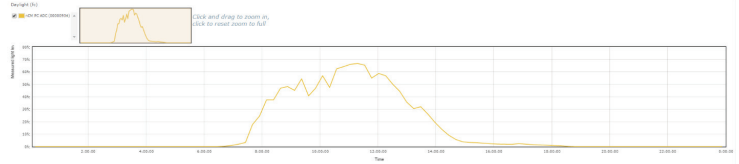
In addition to network level information, detailed performance information is provided for all nLight zones. Calculated runtime and savings data is presented for the entire zone as well as per control type (e.g. savings from occupancy sensors vs. savings from photocells). Further, values such as time delay, light level, and relay state are charted on a time scaled graph for simple readability.



TIME SCALED PERFORMANCE GRAPHS

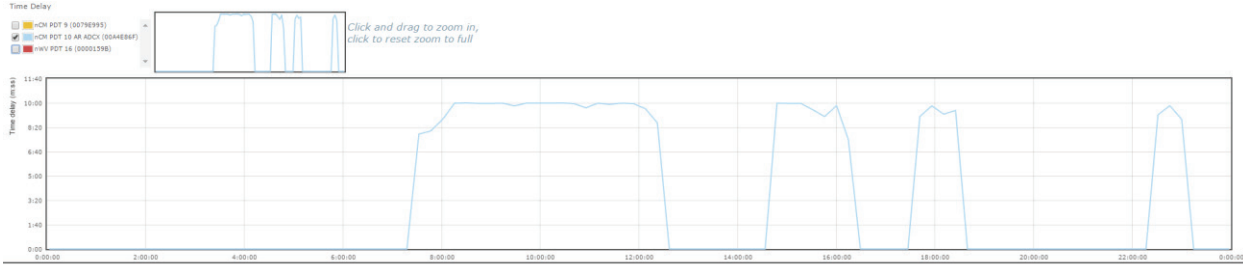


Relay State (On/Off) ▲



Light Levels ▲

▼ Occupancy Time Delay



ADDITIONAL SCREENS

◀ **GreenScreen Admin**

Reports
Please select report type, one of the zones, and desired date range. Click "Generate Report" button to create the report.

Report Downloading

Other features of the GreenScreen plug-in module include the ability to download all information to an excel file for further offline analysis.

GREENSCREEN IMPLEMENTATION DETAILS

Data Collection

The basic purpose of the GreenScreen Software is to collect data about how each individual zone is operating. Each zone is polled as often as possible in a linear manner, meaning every device is polled in a zone before the first device in the next zone is polled. The resulting data is then stored immediately in a database. The bulk of a device's status is used for diagnostic purposes only (such as foot candle, temperature, and time delay remaining) and is stored in a temporary table that will get periodically cleared. Other device data such as relay state and dimming values are permanently stored in a sparse manner as this data is used to compute the savings for the system. The storage is said to be sparse because only changes of value (such as when a relay's state has changed) are actually stored, which reduces the number of points that must be analyzed.

Data Analysis

The default user configurable baseline is 12 hours of runtime, 7 AM to 7 PM. Total runtime savings are calculated by subtracting actual monitored runtime from the total runtime specified by the user configurable baseline. Baseline energy costs are then computed by assuming that all relays are on for the entire duration of the baseline period (i.e. if a given zone has two relays the baseline cost calculation would assume those two relays are on for the entire duration of the period). The cost savings are then calculated by subtracting the calculated cost of the actual monitored on time during the baseline period from the previously calculated baseline cost value. Periods of time in which devices are offline are subtracted out of calculations, which assures that results are based entirely on known device states.

Device Management

With the GreenScreen Software, all devices will be monitored regardless of their current device state. However, if a device is offline or incompatible its potential savings will be subtracted out. If a device is removed via SensorView, the GreenScreen will record the removal and stop monitoring the device. If the device is plugged back into the network the GreenScreen will begin to monitor the device again, but will ignore the time between removal and addition. If a device has been added to the network the GreenScreen will automatically begin monitoring the device and will start tracking energy savings from the addition point forward. Device replace has no affect on the GreenScreen and will act purely as a removal of the old device. The GreenScreen will monitor all devices for all Gateways that are included in SensorView. Any Gateways purposely excluded, done via the Gateways tab on the SensorViewAdmin page, will not be monitored by the GreenScreen. If Gateways change state (e.g. go from being included to being excluded), the GreenScreen will automatically remove or add the relevant devices as necessary.

Combined GreenScreen & BACnet Data Collection

If an end user wishes to run the nLight BACnet plug-in and the GreenScreen plug-in simultaneously, all devices in a zone will be polled before moving onto the next zone. This may slow the BACnet change of value notification. The polling schedule will automatically switch to the algorithm described previously if the GreenScreen plug-in is stopped.