Interactive Electronic Systems

Insteon Enabled Lighting Control System Operating Manual

Rev 1.4

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Introduction

Insteon Enabled Lighting Control System

The Interactive Electronic Systems Insteon Lighting Control System is designed to allow the user to fully control the Insteon system via the EasyTouch-S Touch Panel. The Touch panel allows for manual control of each individual switch as well as full scene control and multiple scheduled events using our user friendly Graphical User Interface (GUI). The unit is self contained and battery backed up in case of power failure, thereby eliminating the need to have a computer running in the background. The IES system is comprised of three sections including the EasyTouch-S Touch Screen, the Insteon 2412S PLM and the IES PC based Insteon Configuration SW package.

Interactive Electronic Systems   EasyTouch-S Touch Screen

The EasyTouch-S is a cost effective full featured color 3.6 inch ¼ VGA Touch Panel unit. The device features an active matrix wide viewing angle LCD display with exceptional brightness and high contrast. The Touch Screen is available in two versions one mounting in a standard 2 gang electrical box and another in a table top enclosure.

An IR remote option is available allowing control of scenes via a handheld IR remote control

Insteon 2412S PLM

The 2412S PLM is supplied by Insteon and allows the IES touch panel to communicate to the powerline. The 2412S also supplies power to the IES Touch panel thus requiring only one standard CAT 5 cable to connect the Touch Screen to the Insteon PLM (no other external power supply is required).

Software Overview

Interactive Electronic Systems   Configuration SW package

The IES Insteon Configuration SW package is a PC based package that allows the user or installer to easily configure the Touch panel. The SW package is comprised of five sections including Modules, Scenes, Schedules, Location and Reports.

Location

Location allows the user or installer to define the location via a list of cities or latitude and longitude. This information is used to calculate dawn and dusk settings for the city as specified by the user or installer.

Modules

The Modules section allows the user to easily assign names and Insteon addresses to each individual Switch as well as define whether the switch is a dimmer or relay type.
Scenes

The Scenes section allows the user or installer to create and assign scene names by merely dragging and dropping selected switches from the list of defined switches. Scenes can be defined with selected switches as well as desired dimming levels.

Schedules

The Schedules section allows the user or installer to create and assign names to multiple schedules by merely dragging and dropping either selected switches or whole scenes. The Scheduling SW has several powerful features including dawn and dusk settings as well as daily, weekdays, weekends and settings for specific dates. Multiple schedules can be downloaded and enabled individually via the Touch Screen.

Reports

The report function allows the user or installer to get a printed report of the Modules, Scenes and Schedules.
How to Install

The Touch Screen should be removed from the box and the protective plastic coverings should be removed (there may be protective plastic on the front of the bezel as well as on the top of the LCD display. Be very careful when removing the protective covering of the LCD display).

Installation includes the connection of the 4 wires to the Touch screen connector.
In the case of the table top enclosure a standard CAT5 cable is connected directly from the RJ45 connector on the enclosure to the RJ45 connector on the Insteon 2412S PLM.
In the case of a wall mount unit the 4 CAT5 wires are connected to the 4 wire terminal block on the rear of the Touch panel. The Terminals are marked as follows and should be connected to the CAT 5 Cable colors as listed.

<table>
<thead>
<tr>
<th>568 B Cable Colors</th>
<th>568 A Cable colors</th>
<th>Insteon 2412S</th>
</tr>
</thead>
<tbody>
<tr>
<td>V+ ------- Orange</td>
<td>V+ ------- Green</td>
<td>Pin 2 (as shown below)</td>
</tr>
<tr>
<td>GND------- White/Brown</td>
<td>GND------- White/Brown</td>
<td>Pin 7 (as shown below)</td>
</tr>
<tr>
<td>TX-------- Brown</td>
<td>TX-------- Brown</td>
<td>Pin 8 (as shown Below)</td>
</tr>
<tr>
<td>RCV-------- White/Orange</td>
<td>RCV-------- White/Green</td>
<td>Pin 1 (as shown below)</td>
</tr>
</tbody>
</table>

Please follow wiring as specified on Insteon 2412S as shown below. Wiring should be checked and Voltmeter should be used to verify +12V and Ground before connecting to the Touch Screen.

Notes:
Use Insteon 2412S PLM with Firm 52 Rev 2.4 (check with Insteon for later versions)
Use Insteon Access Point model 2443 RF modules
Following connection of the cable, plug the CAT 5 cable into the Insteon 2412S PLM. The Touch Screen should beep and after a few seconds the Welcome screen will be displayed.
USB Driver Installation

Connect a cable from the USB port to the 5 pin mini 5 pin connector on the Touch Screen (Remove front cover and connector is located on top of the Touch Screen).

Please note that it is recommended to connect the mini 5 pin connector before powering the Touch Screen especially when using a Desktop PC. In addition it is also recommended to power the PLM using the same power outlet as the PC.

The PC will detect that new hardware is connected and the following screen will be displayed. Click No and then Next.

![Found New Hardware Wizard](image-url)

Welcome to the Found New Hardware Wizard

Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission).

Read our privacy policy

Can Windows connect to Windows Update to search for software?

- [ ] Yes, this time only
- [ ] Yes, now and every time I connect a device
- [ ] No, not this time

Click Next to continue.
Click Install from a list or specific location and click next.
Click Search for best driver in these locations and include this location in the search. Browse for C:PROGRAM FILES\IES\LIGHTING CONFIGURATION\USB and click next.

Found New Hardware Wizard

Please choose your search and installation options.

- Search for the best driver in these locations.
  - Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
  - Search removable media (floppy, CD-ROM...)
  - Include this location in the search: C:PROGRAM FILES\IES\LIGHTING CONFIGURATION\USB

- Don't search. I will choose the driver to install.
  - Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.

Click Continue Anyway

Hardware Installation

The software you are installing for this hardware:

IES Touch Panel

has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)

Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.

Continue Anyway  STOP Installation
Click Finish. It should be noted that this total procedure will be done twice by the computer and then the new hardware (IES Touch Panel) will be recognized and the installation will be complete.
IES Configuration SW Package

Opening Lighting Control Program

From Desk Top Open Lighting Configuration Icon:

The following screen is displayed containing the sample lighting configuration. Please note that the first time the program is launched you will be asked to enter the location and the Location screen will be displayed. After selecting the country, city and time zone press the modules tab to navigate back to the modules screen.
Location Setup

Left mouse click on location tab. Select country, city name or longitude and latitude as well as the time zone. Click update table to update the Dusk and Dawn schedule table. **Please note that city and Time zone must be selected.**
Add Modules

Left Click on Modules Tab.
From the file Menu select New. The following screen will be displayed.
Add Room

Highlight Modules Tab:
Right mouse click on white background area.
The following screen will be displayed.
Add Room

Left mouse click on Add room
The following screen is displayed
Enter Room Name (i.e. Kitchen) and click OK
Add Module

Highlight Kitchen with left mouse click.
Right Mouse Click on white background screen
The Module menu will be displayed.
Left mouse click on Add Module.
The following Screen will be displayed. Enter Module name (i.e. Light) and click Ok.
Left Mouse Click on Light to highlight. Right Mouse click to get Module menu scroll to Edit and right mouse click to choose edit.
Module Edit Screen

The module Edit Dialogue box will be displayed
Enter Module name (i.e. Kitchen) and click enter.
Enter Module Type. Choose from Lamp, Relay or Appliance and click enter.
Module Options are as follows:
“DIMMER” is used for dimmable devices.
“RELAY” is used for non dimmable devices
“GROUP” is used to Set Group numbers.
Enter the device address as written on the module for example 004CEB (no decimal points should be entered in address). It should be noted that device address can also be automatically entered in Discovery mode as described later. Click OK.
The completed screen is shown below.
Scenes

From file menu open sample.lighting. Left Mouse click on Scenes tab. The following screen will be displayed.
Add Scene

Right mouse click on white background screen and left mouse click on add from the menu.
Enter new scene name (i.e. Good Morning) Click OK.

The following screen will be displayed
Left mouse click on desired module (i.e. Master bedroom light) and drag to desired scene (i.e. Good Morning).

Enter desired intensity and left mouse click OK
The following screen will be displayed. Add more modules or scenes as desired.
Schedules

From file menu open sample program left Mouse click on schedule tab. The following screen will be displayed.
Add Schedule

Right mouse click on white background screen and left mouse click on add schedule from the menu.
Enter new schedule (i.e. Night Time). The following screens will be displayed. Click OK.
Left Mouse click on Night Time to highlight Right Mouse on highlighted schedule (i.e. Night Time) then Left mouse click on Add Event. The following screen will be displayed.
Enter desired frequency for event (i.e. Daily) and click OK
Left mouse click on desired module (i.e. Kitchen Light) and drag to scheduled event (i.e. Daily). The following screen is displayed. Enter desired time and click OK.

Enter desired intensity and click OK.
Options Menu

The options menu consists of 4 choices including Download, Calibrate, Serial and Clear PLM (Clear PLM is only displayed when PC is connected to the PLM)

**Download**

The download choice downloads the Insteon Configuration developed to the Touch Screen. To download connect a cable from the USB port to the 5 pin mini din connector on the Touch Screen (Remove front cover and connector is located on top of the Touch Screen). Click download.

**Calibrate**

The calibrate function allows the installer or user to recalibrate the Touch Screen touch area (this may be necessary if the user determines that the touch areas do not align properly with the graphics (i.e. you can touch outside of the selected area or in the selected area and there is no response from the Touch Screen). To calibrate connect the cable from the USB port to the 5 pin mini din connector on the Touch Screen (Remove front cover and connector is located on top of the Touch Screen). Click calibrate. You will see the Touch Screen go into calibrate mode and you will be asked to touch the screen in the four corners with a stylus. The Touch Screen will then indicate to you that calibration is completed and will go back to the main menu screen.
Serial

Serial allows the user to set the correct serial port that is connected to the Insteon 2412S PLM. Connecting to the PLM allows the user to use the Discovery method to identify module addresses as well test SW configuration. To set the serial port the user should connect the cable from the PC serial port (It should be noted that some PCs that do not have a serial port will require a USB to serial converter that will have to be purchased separately) to the PLM using the Insteon cable provided. The user will then select the serial port and left click the mouse to select. The following screen will be displayed. The text **Connected** will appear next to the text PLM on the upper right of the screen indicating that the PLM is connected properly.

Clear PLM

The clear PLM option will only appear when the PLM is connected to the PC. The function when chosen will clear the linking information stored in the PLM.
Reports

The reports menu prints a written report of the SW configuration including modules, Scenes and Schedules. See example below.

**Lighting Configuration**

<table>
<thead>
<tr>
<th>Room</th>
<th>Module</th>
<th>Address</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kitchen</td>
<td>Light</td>
<td>04CE7B</td>
<td>Lamp</td>
</tr>
<tr>
<td></td>
<td>Table light</td>
<td>04C12B</td>
<td>Lamp</td>
</tr>
<tr>
<td></td>
<td>Crock Pot</td>
<td>07CC41</td>
<td>Relay</td>
</tr>
<tr>
<td>Living Room</td>
<td>Main Light</td>
<td>04CE7B</td>
<td>Lamp</td>
</tr>
<tr>
<td></td>
<td>Fireplace Light</td>
<td>04C12B</td>
<td>Lamp</td>
</tr>
<tr>
<td>Master Bedroom</td>
<td>Light</td>
<td>04CE7B</td>
<td>Lamp</td>
</tr>
</tbody>
</table>

**Scenes**

- **Good Night**
  - Module Kitchen-Light=0%
  - Module Kitchen-Table light=78%
  - Module Living Room-Main Light=95%
  - Module Kitchen-Crock Pot=On

- **Movie**
  - Module Living Room-Main Light=56%
  - Module Living Room-Fireplace Light=25%

**Schedules**

- **Holiday**
  - Daily
    - Kitchen,Light,78% @09:00
    - Kitchen,Crock Pot,On @09:05
  - Tuesday
    - Living Room,Main Light,98% @11:57
PLM Functions

The PLM functions allow the user to use the Insteon 2412S PLM for discovery as well as adding Group commands and other testing functions. In addition the commands that are actually being transmitted to PLM are listed at the bottom pane of the screen.

The PLM is connected to the PC using the setup described in the Option Menu – Serial (page 32). Please note the serial cable for the PLM is in one of the side pockets in the PLM 2412S box.

Discovery

Discovery mode allows the user to identify a selected Insteon module without directly entering the device address manually. Left mouse click on the Modules Tab. From the file menu select the sample_lighting file and open this file. Left Mouse click on selected device to be discovered (i.e. Night Light in the Kitchen) and right mouse click to display the menu as shown below.
Left mouse click on Discover in the Module Menu and the following screen will be displayed. In addition LED on PLM should start blinking slowly. The address of the selected module will be displayed as written on the module.
Group Linking to PLM and Touch Screen

Please note that at this time because of time constraints due to product release the addition of group linking is required be done manually using the paddle or toggle buttons. We will be working on SW to implement this automatically in the next release, however we think that this will be a valuable option at this time.

Group linking allows the user to construct groups that are stored in the PLM and controlled by the Touch Screen. The user sets the groups as per standard Insteon procedures using the paddles and toggles. Once the group information is stored in the PLM the information is used by the Touch Screen to control the groups.

As an example we will link the PLM to a dimmer address 04CE7B and Keypadlink button D address 0AD496. The procedure is as follows:

Standard Insteon linking procedures include pressing and holding keypad button D for 10 seconds until light blinks. Then press and hold dimmer until the units are linked. Cross link by holding dimmer for 10 seconds until blinking then press keypad D until units are linked. To Link keypad to PLM press and hold keypad D for 10 seconds until blinking then push PLM button until units are linked. To link dimmer to PLM press dimmer toggle for 10 seconds until blinking and then push PLM button until units are linked. At this time you are now ready to link PLM to the Keypad and dimmer using the IES configuration SW.

Before proceeding be sure that the 2412S PLM is connected directly to the PC via the cable supplied with the PLM (The cable is included in the side pocket of the PLM box). In addition set the proper serial port using the serial selection on the options tab. The PLM Connected should be seen on the top right of the PC screen indicating that the PC is connected to the PLM.
Go to module tab from the file menu load sample.lighting. The following screen is displayed.
Select the Kitchen and right click the mouse and select the Add Group. The following screen is displayed.
Enter Kitchen Group and click ok.
After clicking ok the following screen is displayed.
To edit Group number highlight the group and right click on edit as shown on the following screen. The following screen is displayed.
Enter group number. Please note that the group number can be set to an available value between 1 and 255 (no relationship to the group numbers used in other devices).
Highlight the Kitchen Group right click on the group and select “PLM Group Link”. This will put your PLM in linking mode for that group number. The PLM should start blinking. Now go to the switch (as an example dimmer 04CE7B) and hold the button to be linked for 10 seconds. It has to be done from the PLM to be used in the system because the group data must be stored inside the PLM. The messages intercepted while linking are also downloaded to the touch panel during download. The following screen is displayed.

Add additional device to this group (Keypad button A, or Dimmer or Switch…..) using this same sequence for all members that you want added to the group.

As an example repeat this sequence for keypadlink switch D at address 0AD496
To display group members highlight the group (i.e. Kitchen group) right click mouse and select Group members. The following screen is displayed.
Select Group Members and the following screen is displayed.

"Group Members" will show the devices you have linked thus far with their local group number.
Module Testing using PLM

The user can now highlight each module and use the test functions on the right side of the screen to test the functionality of each module (Test On, Test Off, Bright, Dim, and Status). Please note that intensity status will be displayed when status button is clicked or Test on/Test Off is clicked (Bright and Dim controls will function but intensity will be displayed as 0 until status is clicked)
Scenes Testing using PLM

The user can test scenes using the PLM as follows:
Select the Scenes tab and highlight a Scene (i.e. Good Night). Right mouse click on the Scene menu and the following screen will be displayed. Left mouse click on Test and the selected scene will be executed.
Schedule testing using PLM

The user can test schedules using the PLM as follows: Select the Schedules tab and highlight a Scene (i.e. Holiday). Right mouse click on the Schedule menu and the following screen will be displayed. Left mouse click on Test and the selected schedule will be executed. It should be noted that the schedule is executed immediately and not at programmed times.

Similarly Events can be tested individually from within a schedule by highlighting and clicking on the Test command.
Touch Screen Operation

The Bezel is magnetically attached to the inner metal panel. It can be removed by simply pulling at the sides. The front panel contains the USB connection as well as the Reset Switch.
Welcome Screen

The Welcome screen contains 3 buttons including Scenes Manual and Scheduled events. The Scenes button will navigate to the scene control. The Manual button navigates to the Manual control screen allowing individual controls for each device. The Scheduled Events button navigates to the Schedule events screen.

In addition placing your finger over the IES Icon and holding for approximately 3 seconds will navigate to the Setup Screen.

Scenes Screen

The Scenes screen allows the user to activate the Scenes that were programmed via the configuration Software. Simply push on the desired button to activate.

Please note that when Touch Screen communicates to the Insteon 2412S PLM a red indicator is seen on the top right corner of the display. This indicates that the Touch Screen is transmitting to the PLM or waiting for a response.
Manual Mode

The manual button navigates to the Rooms screen. The user can choose the desired room and navigate to the devices in that room.
Manual Control

The user can manually control a device by simply choosing the device to be controlled (the button will highlight as shown. The user can then control the following:

On
Off
25% Intensity
50% Intensity

Use Up/Down arrows to control Intensity manually.

Pushing on the device button and holding for about a second (i.e. Light) will toggle the state of the device (On or Off) without the necessity of using the On/Off buttons.

Please note that if a relay module is chosen only the On Off will be displayed.

The Intensity bar shows the level of intensity of the actual lamp.

Additional Notes:
1. When you navigate from Rooms screen you will see red indicator in right upper corner indicating that Touch Screen is communicating to the PLM. In addition the respective buttons will flash between device name and status until PLM returns the current status.
2. If a device is not responding to the PLM the device name will flash between device name and No Response. In this case the device should be examined for correct address and operation.
3. If Lamp is out the button will flash between device name and Lamp Out. The user should investigate the lamp condition.
4. At this time status is requested when navigating to the manual control screen. When the user is on the manual control screen status is updated only when a request is made from this screen (i.e. push the on or off buttons). This means that if another control was to turn a light on when the user was on this screen, the intensity bar would not be updated until the user changed a parameter for that button or navigated out and back into this screen.
Scheduled Events Screen

The Scheduled events screen allows the user to enable scheduled events as programmed via the configuration software. **To enable a scheduled event simply click on the desired schedule and the green LED in the button will highlight (the schedule will only be enabled if the Green LED is ON).** Please note that multiple schedules can be enabled.

In addition pressing on the header Schedules will allow the user to see a list of scheduled events. The list contains one week of events and is updated weekly.

<table>
<thead>
<tr>
<th>#</th>
<th>Day</th>
<th>Time</th>
<th>Sch#</th>
<th>Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>000</td>
<td>Mo</td>
<td>09:00:00</td>
<td>001</td>
<td>Mo-Crock Pot</td>
</tr>
<tr>
<td>001</td>
<td>Mo</td>
<td>09:15:00</td>
<td>002</td>
<td>Mo-Cock Pot</td>
</tr>
<tr>
<td>002</td>
<td>Tu</td>
<td>09:00:00</td>
<td>003</td>
<td>Mo-Cock Pot</td>
</tr>
<tr>
<td>003</td>
<td>Tu</td>
<td>09:15:00</td>
<td>004</td>
<td>Mo-Cock Pot</td>
</tr>
<tr>
<td>004</td>
<td>We</td>
<td>09:00:00</td>
<td>005</td>
<td>Mo-Cock Pot</td>
</tr>
<tr>
<td>005</td>
<td>We</td>
<td>09:15:00</td>
<td>006</td>
<td>Mo-Cock Pot</td>
</tr>
<tr>
<td>006</td>
<td>Th</td>
<td>09:00:00</td>
<td>007</td>
<td>Mo-Cock Pot</td>
</tr>
<tr>
<td>007</td>
<td>Th</td>
<td>09:15:00</td>
<td>008</td>
<td>Mo-Cock Pot</td>
</tr>
<tr>
<td>008</td>
<td>Fr</td>
<td>09:00:00</td>
<td>009</td>
<td>Mo-Cock Pot</td>
</tr>
</tbody>
</table>
Setup Screen

The setup screen displayed by pushing on the IES icon on the welcome screen for approximately 3 seconds. The Setup screen allows the user to set the following:
Brightness: Display brightness
Contrast: Display Contrast
Time: The time that the display is on before backlight is shut off (setting to off (0) will keep display on all the time).
Click: Turns audible key click on and off

User should press Save button to save these settings

Set Time Screen

The set time screen allows the user to set the time and date.

The user should press the Save button to save these settings.
Firmware and Screen Loader Programs

Firmware Loader Program

The program loader program allows the user to update the firmware in the Touch Screen. The update is downloaded to the Touch Screen via the USB to mini 5 pin cable. The procedure is as follows:
Run the bfloader program that is found in the Utilities folder (navigate to program files\IES\Lighting Configuration\ utilities)
The following screen will be seen.

From the file dropdown choose the file to be downloaded to the Touch Screen. The file will be in the firmware folder (navigate to program files\IES\Lighting Configuration\ utilities\firmware)
The file will be a .ldr file.
Click on program to download the file (The display may turn white or change colors during the download).
Please note that after the file is downloaded the Touch Screen will beep. After initializing the version number will appear on the display (i.e. for version rev n, you will see v1.32n in the upper left hand corner).
Screen Loader Program

The Screen Loader Program allows the user to update the screens in the Touch Screen. The update is downloaded to the Touch Screen via the USB to mini 5 pin cable. The procedure is as follows:

1. Run the scrloader program that is found in the utilities folder (navigate to program files\IES\Lighting Configuration\utilities)
2. The following screen will be seen.

![Screen Loader Utility - Default Screens.ies](image1)

Check the Reboot Touch Panel at Program Completion box. The following screen will be seen.

![Screen Loader Utility - Default Screens.ies](image2)

3. From the file menu choose the screen to be downloaded. The file will be in the screens folder (navigate to program files\IES\Lighting Configuration\utilities\screens)
4. The file will end in .ies (i.e. Defaultscreens.ies).
5. Click on program to download the file (The display may turn white or change colors during the download).
6. Please note that after the file is downloaded the Touch Screen will beep. The new screen should now be loaded.

Please visit the IES website at [www.iescorp-usa.com](http://www.iescorp-usa.com) for Updated Graphics and Firmware.