



XICATO[®] GalaXi[™]

Demo Kit Guide

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Preparation

What you need

- The GalaXi demo kit
- An active AC outlet (110-240VAC, 50-60Hz)
- A computer with standard browser, running Windows (version 7 or later) or MacOS (Sierra or later)
- (OPTIONAL) An Apple iPhone or iPad running iOS 10 or later

Optional Preparation

Download the **XIMtroller** iOS app from the Apple iTunes App store to your Apple iPhone or iPad.

- This is a free app that allows you to control and retrieve operating data from GalaXi nodes.

Request and download the Xicato Control Panel for Windows (version 7 or later) or MacOS (Sierra or later)

- You will need the Silicon Labs BlueGiga BLED112 BLE-USB dongle and associated driver. The BLED112 is available from Digikey or Mouser for less than \$12.
- Instructions are at www.Xicato.com/support/video-training and on the Xicato YouTube channel

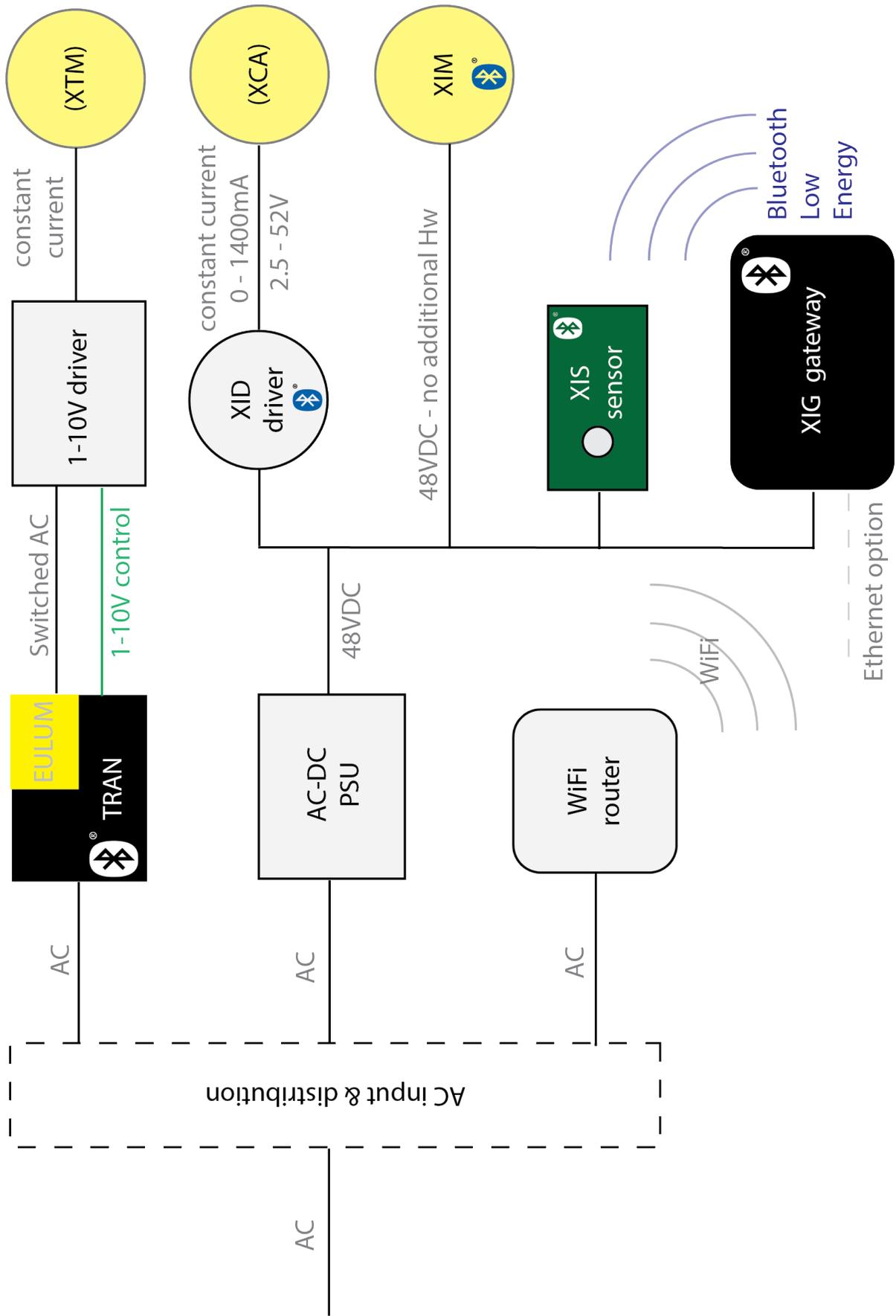
Demo Kit Inventory

See wiring diagram to see how these are connected:

- Pelican case with high density foam insert
- IEC 3-Conductor power cable
- AC junction box with IEC power entry
- 48V DC power supply unit (PSU)
- 24V DC power supply unit (PSU)
- 700mA LED driver with 1-10V dimming
- Panel voltmeter connected to driver dimming leads
- Wifi hotspot
- Xicato Intelligent Gateway (XIG)
- Xicato Intelligent Module (XIM) mounted on heatsink with globe optic
- Xicato Thin Module (XTM) mounted on heatsink with globe optic
- Xicato Core Array (XCA) mounted to heatsink using XSA-401 holder, with globe optic
- Xicato Intelligent Sensor (XIS), with PIR occupancy, lux, temperature and humidity sensor elements
- Eulum TRAN 1-10V bridge
- Associated wiring and connectors
- Documentation

Demo Kit Wiring Diagram

See next page



Getting Started

Insert standard AC power cord into side of case.

- This will power all of the units in the case – there are no batteries

Demo with the EnOcean switch

The EnOcean switch is a battery-less, energy-harvesting switch that uses the energy of the button press to generate a data packet and send it to the Bluetooth network.

Press the upper left button labeled “DIM TO MAX”

- A quick press will cause all three globes to dim to 100% over 5 seconds. Press and hold, then release to stop the dimming part-way up.
- Note that min level of the 1-10V driver is 10%, so there is an audible click and a sudden step from 0% to 10% as the Eulum TRAN AC relay connects power to the driver

Press the lower left button labeled “DIM TO OFF”

- A quick press will cause all three globes to dim to 0% over 5 seconds. Press and hold, then release to stop the dimming part-way up.
- Note that min level of the 1-10V driver is 10%, so there is an audible click and a sudden drop from 10% to 0% as the Eulum TRAN AC relay cuts the power

Press the upper right button labeled “10% 1% 0.1% (SCENE 102)”

- The XTM (top) will go to 10%, the XCA (middle) to 1%, and the XIM (bottom) to 0.1%, to show you the dramatic differences between these levels.

Press the lower right button labeled “SENSOR MODE”

- The three lights will turn off, and the XIM (bottom) will begin listening to the XIS sensor

When the XIS detects motion, it immediately broadcasts a packet, then refreshes that state as long as it continues to see motion. XIS also periodically sends out the lux level detected by its lux sensor.

OCCUPANCY SENSING WITH DAYLIGHT COMPENSATION: Wave your hand about 4’ away from the sensor

- When XIM hears that XIS has detected motion, it will begin to dim up to a configured level as seen by the lux sensor.

VACANCY SENSING: Cover the XIS with a cup or with your hand and hold it still for 8-10 seconds

- Because the lux level drops, you may see the XIM grow brighter (daylight compensation).
- However, the XIM has been programmed with a short time-out interval. Leave the cover in place. If the sensor does not see motion for 8 seconds, the XIM will turn off.

Remove the cover

- When you remove the cover, the sensor will again see motion, and the light will turn on again.

Press any other button to leave sensor mode.

Demo with XIMtroller

XIMtroller is a simple iOS app that can manually control the intensity of individual lights or lighting groups, and monitor operational data from them.

Install the Xicato XIMtroller app from the Apple iTunes App Store on your iOS device (iOS 10 or later), and open the app.

- XIMtroller immediately starts listening for GalaXi products and builds a list of devices it can control.
- You will soon see a network named "Public". This is the network of nodes that are unsecured, meaning that their data is unencrypted and anyone with XIMtroller can see them. This includes the nodes in the demo.
- Normally, nodes would be assigned to secure networks, in which case you would see a darkened row for each network for which the Network Name and Network Password have been configured into XIMtroller (on the Settings page).

Tap on the icon in the upper right to go to the Setting screen

- At the top, you will see the arrow pointing back to the previous page, followed by the XIMtroller version number.
- Below that is a slider that you can use to control the appearance of your XIMtroller screen
- Below that is a switch that toggles whether a light will "Indicate" (flash) when you touch its name in XIMtroller. This helps you know what light belongs to what node name.
- Below that is where you set the On and Off Fade Time for on/off commands in XIMtroller
- Below that is an area where you would see the name of a secure network, and which allows you to configure XIMtroller for secure networks, if there were any

Return to the previous screen by tapping the button in the upper left

- If you reached the Settings page from something other than the Groups page, you can keep touching the return button until you get to it.

Tap Public to expand its Groups

- There is only one group: number 1. The row will include the group number, group name, and the number of nodes in the group (3).
- You can edit the group name tapping "Edit" in the upper left, then tapping the row you want to edit. Click Done in the bottom right when you are done editing. Note that this changes the name of the group in your XIMtroller app, but not in the node itself or in any other device. Groups are stored as numbers in the nodes; the name is not stored there.

Tap the group to expand the list of nodes in the group

- **XIM module**, **XID driver** and **Eulum TRAN** should appear on the list (it may take several seconds)
- Each row will show the Signal strength bars, the Intensity, and the Name of a node. You can sort by tapping on the header of any of these columns – this is helpful if you have dozens to thousands of nodes in your display.
- You can control the dim level of the entire group by using the slider bar at the top, or turn the entire group on and off using the switch button to the right of the slider. Note that your XIMtroller controls the dimming rate.

Tap on a node to select it

- If you use the slider when a single node is selected, the slider will only control that node.

Tap on “Deselect” to deselect the node and return to controlling the group

Tap twice on the XIM Module row to see some of its real time operating data

- In XIMtroller, you can see the module’s Signal Strength, Intensity, DC Power consumption, DC supply voltage, LED temperature, and total Operating Hours (hours at intensity > 0%)
- Note that you can also indicate the light from this screen

Tap on More Information at the bottom of the screen

- Here is where you can see information about the device itself – programmed Device ID, firmware and hardware versions, module model number, group membership and scene membership

Hit the Back button three times to return to the top

- Your XIMtroller demo is complete

Demo with the XIG web GUI

Wait a minute or two for the Wifi router and XIG to boot up after plugging in the demo kit

Connect your computer to the Xicato(#) Wifi network

- Password is **GalaXi!!**

Open the browser on your computer, and in the URL/search field, type **192.160.0.150:8080**

- This will take you to the XIG web server, which will provide the XIG web browser interface

Click on “Add Gateway”

- XIG address is **192.168.0.150:8000**
- The gateway should appear as a row under the light blue Gateways heading
- You can see multiple gateways in one browser window, if they exist and you have the appropriate ID and Password
- Note that you can Upload Groups (UG) and Download Groups (DG) from external files, Login and Logout, and Remove Gateway from the listing by clicking on the appropriate links.
- The Tick length determines how frequently your browser requests new data from the XIG server
- The Timeout in milliseconds is how long your browser waits before giving up on its request for information from the XIG server

Click on “Login (Get Token)”

- ID is **demo**
- PW is **demo**
- This allows you to control the devices that the XIG can see

Notice the light blue heading “Unsecured”

- This means you are looking at devices that have not been assigned to a secure network, so their transmissions are not encrypted and anyone can see them if they are using XIMtroller or Control Panel
- You can see multiple networks in a single browser window, if there are more than one

The Devices List

Click on the “Devices” heading to expand the list of devices

- You should see three nodes, named **XIM Module**, **XID Driver**, and **Eulum Bridge**
- On each row, for each device/node, you will see the following real time data:
 - Device (Node) ID: a number between 1 and 32,767 that was provisioned at installation
 - Node Name: the name given to the device at the time it was provisioned
 - Device model: the Xicato part number, programmed at the factory
 - Lighting Intensity, expressed as a percent of the maximum programmed intensity
 - DC power consumption (note: not the power consumption at the AC input to the power supply)
 - LED (or PCB) temperature, depending on the type of device
 - DC supply voltage: one metric that allows a manager to verify the health of the power supply
 - Total operating hours: allows proactive maintenance and verification of warranty status
 - Received Signal Strength Indication (RSSI)
 - Operational Status, including any error messages
 - Last Update: the military time that the gateway last received a packet from the device
- Also on each line:
 - “Indicate” causes the light to blink, allowing someone to identify its location
 - “Show Controls” allows you to set an intensity level, set fade rate, or recall a scene
 - The “x” removes the device from the list
 - The “G” allows you to see the device’s Group membership, and add a Group Number if you want
 - The “S” allows you to see the device’s Scene membership and programming, and to create and delete scenes.

Click on the name **XIM Driver**

- This presents additional, detailed information about the device; some historical, some permanent, some of which changes when the firmware is updated

Click on the blue **Intensity number**

- This histogram is of the amount of time the device has spent in each of several intensity ranges during its entire life, and is stored not in the XIG but in the device itself

Click on the blue **Temperature number**

- This histogram is of the amount of time the device has spent in each of several temperature ranges during its entire life, and is also stored in the device

Click on “Indicate”

- The light will blink 3 times. Indication pattern is configurable at the time of commissioning

Click “Show Controls”

- This dialog allows you to quickly control the light intensity and fade behavior, or recall a scene

Click on the “x”

- This will remove the device from your listing, but it will re-appear when it advertises itself again. This is here to make sure that you will see devices that are only seen infrequently – the list does not automatically remove a device if the XIG stops hearing it for a long time. What you would see in that case is a very old “last update” time, which would alert you to a potential issue.

Click the “G” button

- You can see the numbers of the groups of which this device is a member (if any), and add new group numbers to the device’s group list, if you want.
- Groups are stored in the device as numbers. They are basically alternative addresses (names) for the device, but unlike the Device ID number, they do not have to be unique to the device. Group textual names are not stored in the device.

Click on the “S” button

- At the bottom, you will see a list of the scenes numbers and behaviors stored in the device. DON’T CLICK ON THE SCENE LIST OR YOU WILL REMOVE THE SCENE FROM THE LIST. If you do this by accident, just click the red “Cancel” button at the bottom right.
- At the top, you can create a new scene number, and program the device’s behavior for that scene... its final intensity, fade time, and delay (how long it waits before implementing the scene)
- Remember that you can command a scene from the Show Controls dialog

The Groups List

Click on the Groups heading to expand the list

- Here, you can see all of the Groups that the XIG can see in this network, and how many devices (Device Count) are in the group
- You change group names by clicking on the blue name of the group. A dialog box will appear where you can enter a new group name.
- Click on “Indicate” to cause all the members of the group to flash
- Click “Show Controls” to command a single intensity level or scene for the entire group, and set a common fade time.
- Note that Scene commands can be broadcast to all nodes in a network, or to targeted Groups, or even to individual nodes

The Sensors List

Click on the “Sensors” heading to expand the list of sensors

- You should see the **XIS Sensor**, along with its Device ID, Name, and latest sensor data, including:
 - Lux level
 - Motion: the military time stamp of the last time it saw motion
 - Temperature in °C
 - Relative Humidity in percent (%)
 - Supply Voltage
 - RSSI
 - Status
 - Last Update: the last time the XIG received a packet from the sensor
 - Network Name: in this case “None” since it is not configured to a network
 - Remove: if you click “x” you will remove the device manually from the list. It will return when the XIG receives its next packet.

Demo with Xicato Control Panel

The Xicato Control Panel runs on a Windows (7 or later) or macOS (Sierra or later) computer, and requires the Silicon Graphics BlueGiga BLED112 BLE USB dongle. It gives you access to the full feature capabilities of the GalaXi system, but is recommended for use by trained users only, since misuse of the Control Panel can render the GalaXi Demo Kit unusable without a factory reset.

However, no damage will occur if you strictly follow the following script:

Open Control Panel

- Be sure that the BlueGiga dongle is installed.
- Program should open in the Dashboard tab

The Dashboard tab

Study the Dashboard layout

- The Dashboard provides at-a-glance most of the key operating parameters of the visible devices.
- At the top, you see various tabs that give you access to the full configuration, control, and monitoring capabilities of the Control Panel, the GalaXi network and the devices within Bluetooth range of the Control Panel computer.
- The upper table is for lighting modules and drivers, such as XIM, XID, and the Eulum bridge. Fields in this table include:
 - Network – the secure (or in this case, non-secure) network to which each device belongs
 - Device ID – the unique identifier of each device (must be unique within each network)
 - Device Name – the configurable name of the device to allow easy identification by humans
 - Device – the Xicato model number of the device
 - Intensity – the current lighting intensity of the module
 - Power – the current power consumption of the module, as measured at the DC input
 - Temp – the current temperature of the XIM LED, XID PCB, or LED module attached to the XID if the NTC is used
 - Vin – the input Voltage of the device, which allows monitoring of the health of the power supply
 - Hours – the total lifetime operating hours of the device at intensity > 0%
 - RSSI – the Received Signal Strength Indication
 - Status – the current status of the device. This will indicate an alarm condition, if one exists.
- Below this table is another table that shows the available Sensors, including the XIS in the demo kit. Many of the fields in this table are the same, the different ones being the actual sensor data being transmitted periodically by the sensor. Note that a single sensor device might have up to three Motion sensor elements and two Lux sensor elements, as well as Relative Humidity (RH) and Temperature.
- At the bottom, you see various buttons and pull-down menus that give you the ability to update devices, and to filter the list of visible devices by various parameters
- At the very bottom, you will see a status bar that tells you what is going on during

Pause the cursor over each of the fields to see the descriptive pop-up dialogs that tell you more about the field, and give you additional “dive down” functionality

Click on the Device field

- This causes Control Panel to request a more detailed list of Device properties

Click on the Intensity field

- This will cause the light to “indicate” (blink), telling you which device it is. This is extremely useful during commissioning to identify which of potentially thousands of lights is represented by that row of the CP

Double-Click on the Intensity field

- This probes the device for a histogram of its lifetime intensity levels

Double-Click on the Temp field

- This probes the device for a histogram of its lifetime temperature levels

The Log tab

Select a device, go to the top of the screen, and click on the Log tab

- This takes you to a screen where you can monitor ALL of the real-time and historical data of the selected device

Click on the Device Information

- This shows you all of the stored device attributes, as well as data programmed into the device by the luminaire manufacturer, such as serial number, luminaire manufacturer and model number, and/or other information.

Explore the other buttons on the Log page

- Some of the buttons give you access to graphical information on all of the device
- Nothing you click in this tab will make any changes to device programming
- This data is volatile – it is deleted when you close Control Panel, unless you Save Log Data

The Device Setup tab

Click on the Device Setup tab

- This is where you can perform Over The Air (OTA) updates, configure devices on different secure networks, set transmission power and advertisement frequency, and other technical parameters
- It is okay to click on the Get buttons, which retrieve the setting information from the device, but please do not change anything or click on the Set buttons, which implement changes.

The Beacons tab

Click on the Beacons tab

- This is where you configure iBeacon, Eddystone, and/or Alt Beacons. GalaXi devices can transmit multiple beacons from each device, if desired.

Click on the “Get All” button in the lower middle of the screen

- This will show you the current Beacon settings of the device

The Light Setup tab

Click on the Light Setup tab

- This is where you configure lighting device parameters such as minimum and maximum intensity levels, fade rates and curves, Power On mode and level, and how the device responds to wired

control, if any is present. You can see these parameter settings in the selected device by clicking on the Get buttons.

The Groups tab

A Group is a set of lighting nodes that share a common Group number. Each secure network can contain up to 16,383 Groups, and each Node can be a member of up to 16 Groups. Groups can be independent, can be nested, and/or can overlap with each other. The advantage of a Group is that a single command can all the Group members at once, improving performance.

Click on the Get button below the Single Device Group Configuration area

- This will request the current Group membership of the device. Note that Groups are stored in the device as numbers, not names. It is up to the Control Panel to associate names with group numbers. The default name is "Group <n>" where n is a number between 1 and 16,383.

Select a Group number from the Group pull down menu in the Multi-Device Group Configuration area, then click Get to the right of that

- This will display the names and numbers of the Devices in – and not in – the selected Group.

The Scenes tab

A Scene is a numerical command, issued to a Node, a Group or a Network, that elicits a preprogrammed behavior in each Node. The behavior of each Node is entirely independent of any other Node, and consists of three preset parameters:

1. A destination Intensity, expressed as a percentage of the Node's maximum intensity
2. A Fade Time – the amount of time the Node will take to dim to the destination Intensity from its current intensity
3. A Delay Time – the amount of time the Node will wait before beginning its Fade to Intensity

Each network can contain up to 65,535 Scenes, and each Node can be programmed with up to 32 Scenes

Select a Scene from the Scene pull-down in the Scene Configuration area, then click the "Get" button to the right of that

- This will display the names and numbers of the Devices in – and not in – the selected Scene.

Click "Test" to see the lights implement the Scene

The Sensors tab

The Sensors tab configures a very powerful "State Machine" that allows you to program the behavior of Nodes in response to inputs from Schedules, Switches, Motion and Lux sensors, and other lighting nodes. Only the XIM has been configured with sensor response, as already demonstrated.

At the bottom of the page, pull the Device menu down to "XIM Module" to select it

Click on the Get button

- You should see the States table populate with the programming of the XIM Module.
- The XIM Module is programmed to respond to the EnOcean switch, to Motion sensing, Lux sensing, and to mobile commands, as demonstrated above.
- See further Xicato training for a complete explanation of Sensors state machine programming.

The Light Control tab

Click on the Light Control tab

- Here, you see a pretty straight-forward control screen with
 - Quick Control buttons for On, Off, Min and Max light level
 - Scene control buttons
 - A Slider to control dimming, with configurable Fade Time
- Feel free to play with these controls – they will not impact device programming.

The Settings tab

Click on the Settings tab

There is nothing that is recommended to do with the Demo Kit using the Settings tab, but it is a very important, first step in the GalaXi Node commissioning process.

The Settings tab controls most of the “global” functionality of the Control Panel software itself, as well as defining the Networks, Groups and Scenes that the Control Panel can program into the various Nodes, in its role as a commissioning tool. It is where network names and passwords are defined and stored. It is also where group and scene *names* are associated with group and scene *numbers*.

What's Next?

If you are interested in getting more information about Xicato, our partners, the GalaXi products, or luminaires that are GalaXi enabled, please visit the Xicato website at www.xicato.com.