



Push Controls

Module: Dynalite

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Guide: Luke Bowers

Version 1.3

www.pushcontrols.com.au

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Version History

Version No.	Date	Description
1.0	28/07/2014	Initial documentation release
1.3	18/10/2016	Updated documentation to outline GEN IV and GEN III theme use

Step 1: Getting Started – Setting Up Your Hardware

For a successful integration into a Dynalite, the following hardware is required:

1. Push Controller (Either PC4/PC2/PC1)
2. Dynalite DTK622-232 (**Figure 1**)
 - a. Ensure you have the variant of the DTK622 that supports Auto Detect (there should be 2 X RJ12 sockets as opposed to 3). And ensure that the internal transmit jumper is in the AUTO position (not DTR)



Figure 1 - Dynalite DTK622-232

Wiring Specifics

Serial RS232 connection

The serial connection through to the DTK622 PC Node Interface requires a straight through Male to Female DB9 cable. If you are connecting through to the phoenix connector on our controllers cut or create a cable and use a multimeter to work out which colour wires correspond to pins 2, 3 & 5 on the male plug (with the five pins at the top the pins are 1 through 5 from left to right; if you look closely at most 9-pin D-Sub plugs the pins are numbered) *Refer to Figure 2*. The wiring of the serial cable to the Phoenix connector can be seen in **Figure 3**.

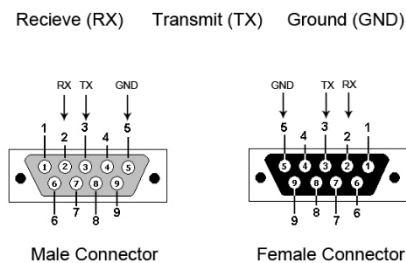
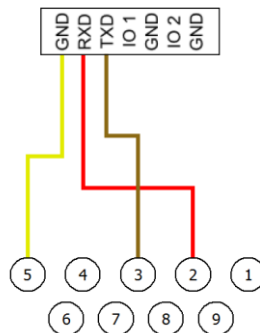


Figure 2 - Pin numbering for Male and Female DB9 connectors



NOTE: The colours depicted in this diagram do not refer to any specific type of Serial cable and have purely been used for clarity.

Figure 3 – Diagram showing the connection of a Serial cable to the Phoenix connector. The wiring is as follows, GROUND (GND) is always pin 5, RECEIVE (RXD) is pin 2 and TRANSMIT (TXD) is pin 3.

Step 2: Setting Up Your Project – Configuring the Serial Port

The Dynalite module communicates with the Dynalite system over an RS232 connection to the DTK622 PC Node Interface. Hence you will have to configure the serial port connected to the DTK622 gateway.

Configuring the Serial Port on a PC4

- Expand the PC4 in the project tree
- Expand the 'Connected Devices'
- Right Click on 'Serial Port' and select 'Properties'
- Select the GUI Two-Way (RS232) option
- Ensure the Baud rate is set to '9600'
- Select 'Apply' then Select 'OK'

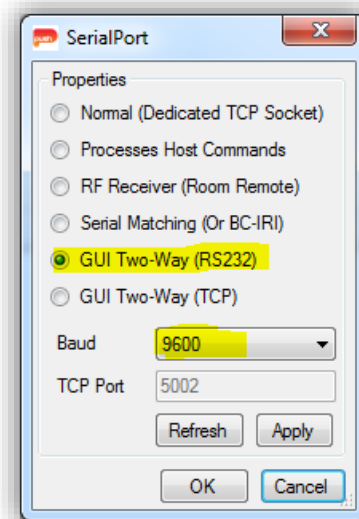


Figure 4 – Highlighting the serial port properties to set on a PC4. NOTE: dialog box is opened by right clicking SERIALPORT1 and clicking properties.

Configuring the Serial Port on a PC2/1

- Expand the PC2/1 in the project tree
- Expand the 'Connected Devices'
- Right Click on the serial port connected to the DTK622 and select 'Properties'
- Select the "Normal (Supports Two-Way)" option
- Ensure the **baud rate** is set to '**9600**', **data bits** set to '**8**', **parity** set to '**NONE**' and stop bit set to '**1**'
- Select 'Apply' then Select 'OK'

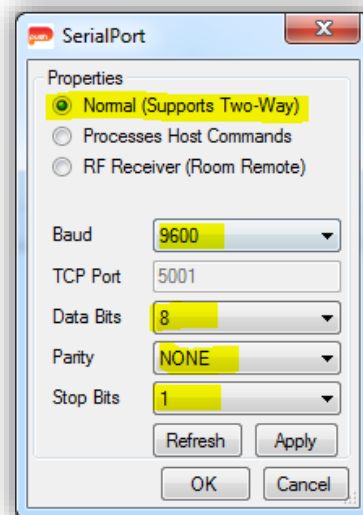


Figure 5 – Highlighting the serial port properties to set on a PC4. NOTE: dialog box is opened by right clicking SERIALPORT1 and clicking properties.

Step 3: Setting Up Your Project – Importing the Dynalite Module

Import the Dynalite module by completing the following actions:

- Right click on 'PROJECT' at the top of the tree and select 'Import Module'. *Refer to Figure 6*
- Locate and select 'Dynalite_X.pemod' (where X is the current version number)

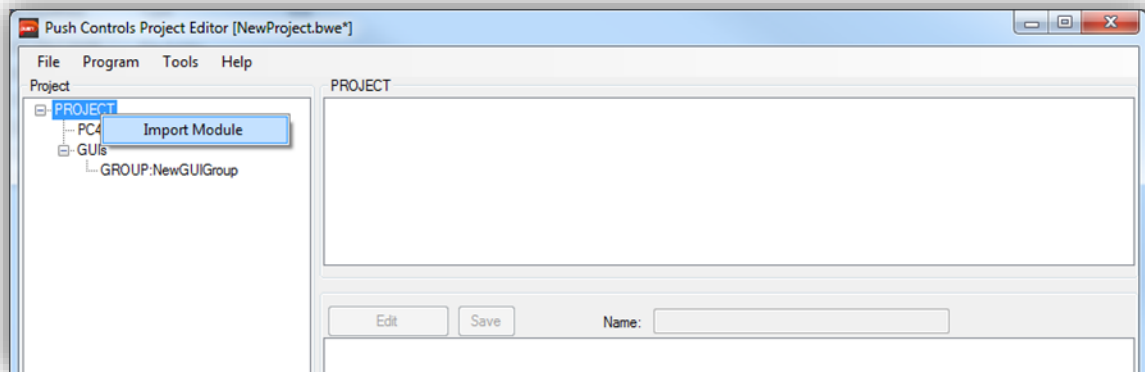


Figure 6 – Right click on PROJECT, inside the project tree, to import a module.

The selected module will now appear in the module browser window (See Figure 7), where you can see everything that is included in the module. The first step of importing the module into the current project is to drag and drop the module script device onto the controller to which the device is connected.

Note: A GUI group must be available in the GUI's section of the Project Editor, in order to import the Dynalite module.

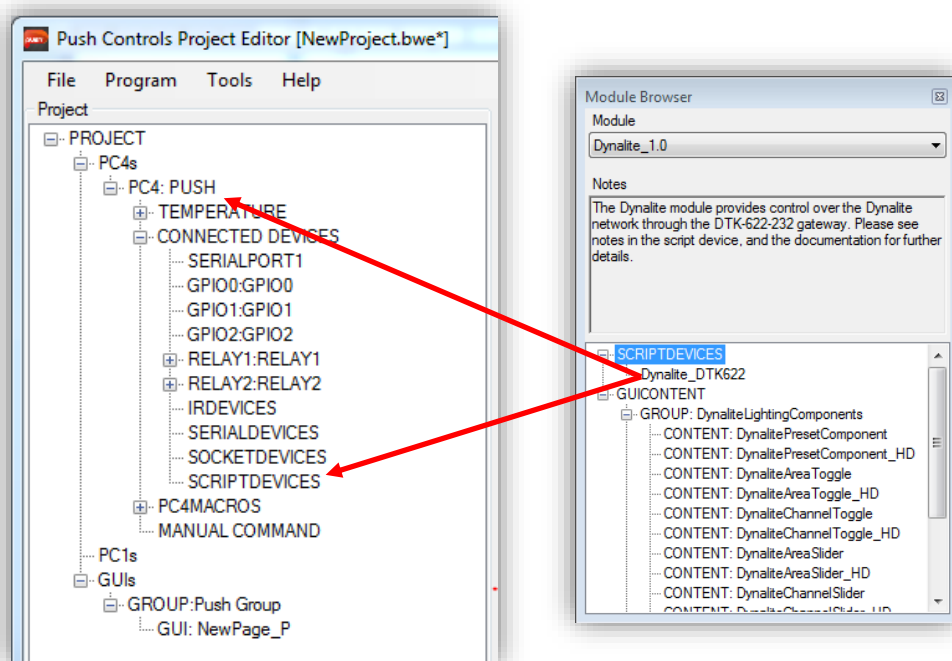


Figure 7 – Dragging and dropping script from the Module Browser window

Step 4: Set Device Parameters

The Dynalite device must have the correct protocol set for communications to and from the Push controller. The following are the steps to take to set the protocol for the Dynalite device.

- Right click on the newly added script device, and select “Properties”. *Refer to Figure 8*
- Set the Protocol to RS232. *Refer to Figure 9*
 - In the case of PC1 and PC2 controllers you will also have to provide the appropriate port number in the port field, so that it matches the serial port connected to the DTK622

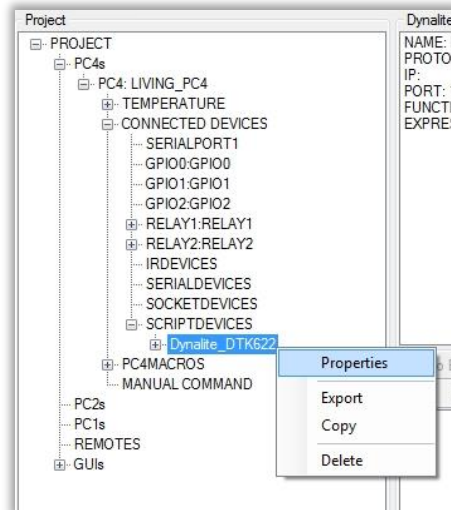


Figure 8 - Configuring device parameters: right click the device and select properties

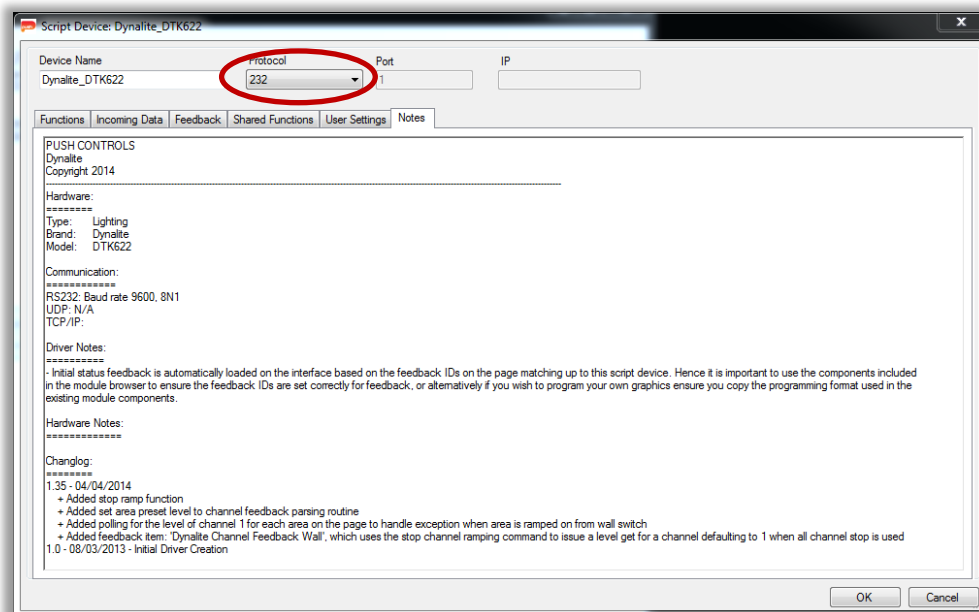


Figure 9 – Device Properties Window: Set the protocol to be used for communication with the device

Step 5: Setting Up Your Project – Importing Dynalite GUI Components

Overview of GUI Component Importation

Each of the elements contained in the module need to be dragged and dropped into their respective positions within the project. The items under the SCRIPTDEVICES category need to be dragged onto the controller connected to the DTK622.

The Dynalite module contains 3 (three) GUI themes, each theme is grouped into a GUI group as follows:

- LightingComponents_G4: contains GUI components for the GEN IV theme
- LightingComponents_G3: contains GUI components for the GEN III theme
- DynaliteLightingComponents: Atumbra-esque in design

The GUICONTENT area can include POPUP or CONTENT and are imported in the following manner

Refer to Figure 7:

- POPUP content can be dragged directly into an existing GUI group
- CONTENT requires an existing page to be dragged in to. To include content you drag it onto an open GUI page (hold down shift to drag the content to any position on the page).

Note: items should be imported in the order that they appear inside of the Module Browser window due to the dependencies certain modules contain.

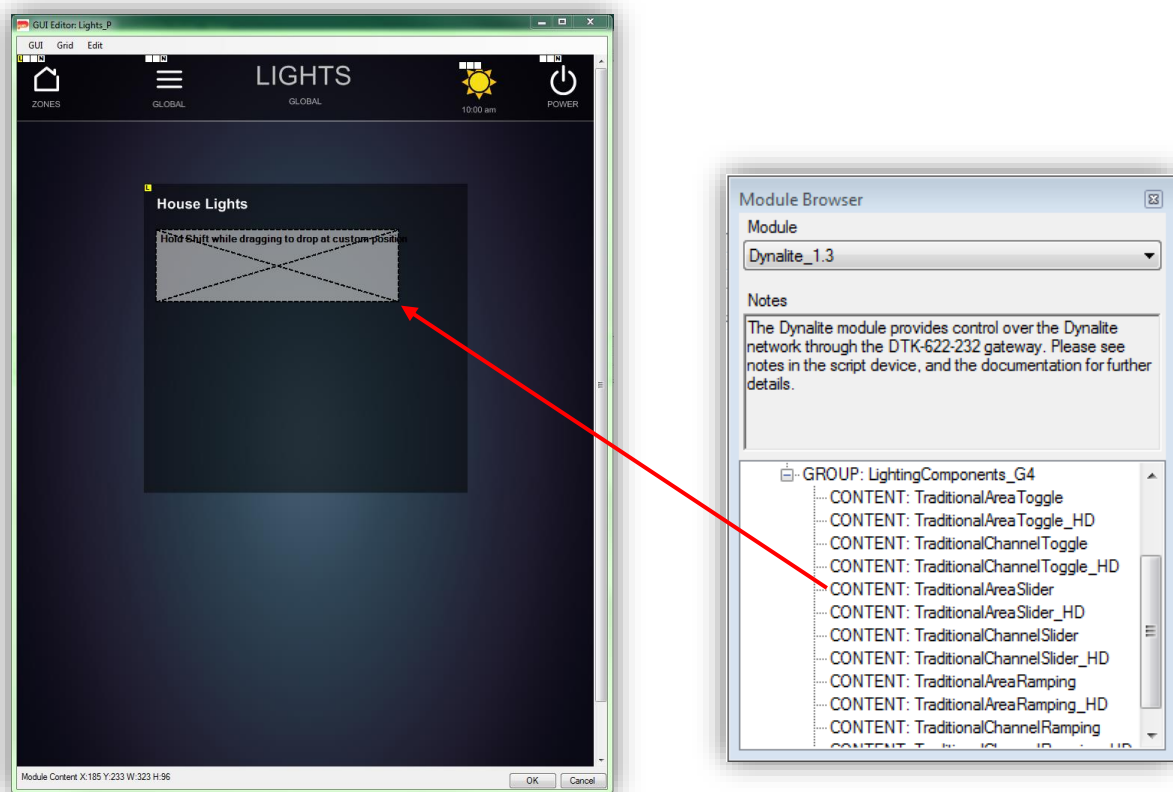
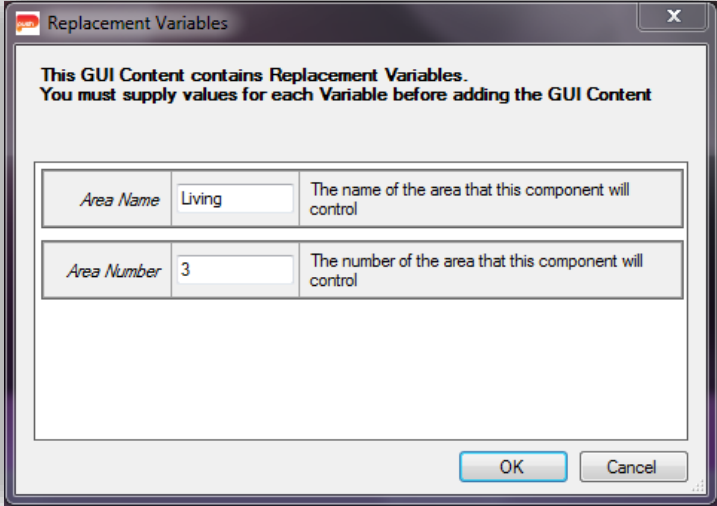


Figure 10 - Dragging content onto a GUI page

Each of the GUI content elements will prompt you to enter parameters required to program the content to the Dynalite module. For example in Figure 10 the TraditionalAreaSlider content is dragged onto the page, whilst holding down shift to move its position. Once the mouse button is released a dialog box will open asking for parameters to be provided (Figure 11). In the case of the TraditionalAreaSlider element the following data is required:

- Area Name: The name of the area that this component will control
- Area Number: The number of the area that this component will control

A screenshot of a 'Replacement Variables' dialog box. The title bar says 'Replacement Variables' with a close button. The main text reads: 'This GUI Content contains Replacement Variables. You must supply values for each Variable before adding the GUI Content'. Below this is a table with two rows. The first row has 'Area Name' in the first column, 'Living' in the second column, and 'The name of the area that this component will control' in the third column. The second row has 'Area Number' in the first column, '3' in the second column, and 'The number of the area that this component will control' in the third column. At the bottom right are 'OK' and 'Cancel' buttons.

Variable	Value	Description
Area Name	Living	The name of the area that this component will control
Area Number	3	The number of the area that this component will control

Figure 11 - GUI Content parameter dialog box

The full list of GUI components and the required parameters are outlined in the following section: **Specification of GUI components**. This section uses the DynaliteLightingComponents group as an example, however we recommend using the GEN IV themed components within the LightingComponents_G4 group. The process of using components from any group is the same.

Specification of GUI components

DynalitePresetComponent

The DynalitePresetComponent is used to control the four default presets of an area, and indicate the current preset that is selected. By default the four presets will control the following Dynalite presets:

- High = Dynalite Preset 1
- Mid = Dynalite Preset 2
- Low = Dynalite Preset 3
- Off = Dynalite Preset 4

Drag and Drop

To add this component to a GUI page complete the following steps (the programming behind the GUI component is described in **Manual Programming**):

1. Open the GUI page you wish to import the component into
2. Select and drag the DynalitePresetComponent (drag with the left mouse button down) from the Module Browser and onto the open GUI page
 - a. NOTE: Hold down shift whilst dragging to place the component anywhere on the page.
3. Upon releasing the left mouse button you will be presented with a dialog box (see **Figure 12**). This dialog box requires you to pass in two parameters to program the GUI assets within:
 - a. Area Name – The name of the area that the component will be controlling. This will change the label at the top of the preset button block, which is the Downlights label in **Figure 12**
 - b. Area Number – The number of the area that this component will control; this is the area number that would have been assigned in the Dynalite programming.
4. Once you have provided values for the required parameters press OK and this will complete the integration of the DynalitePresetComponent.

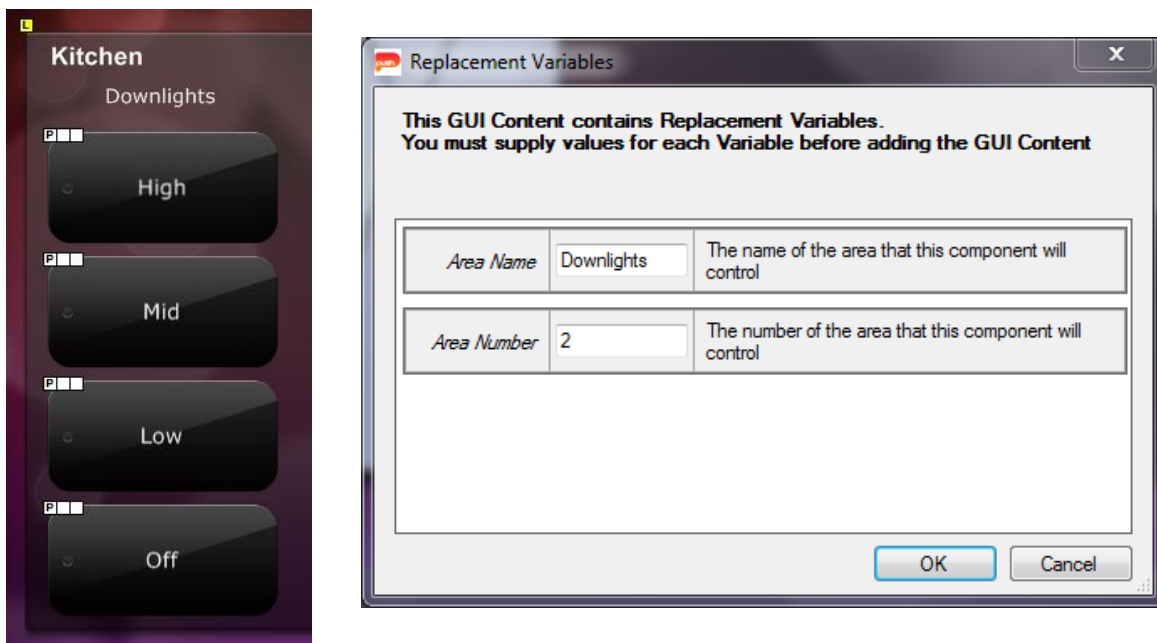


Figure 12 - DynalitePresetComponent (left); DynalitePresetComponent parameters dialog (right)

Manual Programming

Where possible it is recommended to use the GUI components by dragging and dropping from the module browser, however from time to time you may wish to manually modify these components or create your own. This section outlines the programming behind the buttons within the DynalitePresetComponent GUI content.

The Feedback State IDs for each button are in the following format:

PUSH_DYNALITE_PRE_A%DYNAREA%P[PRESETNUM]

%DYNAREA% is replaced with the area being triggered by the preset, which is specified as [PRESETNUM]. For example if you were programming the Mid button feedback for area 5 (assuming we are using preset 2 for Mid) the feedback ID would be: PUSH_DYNALITE_PRE_A5P2.

To trigger the preset for an area the action will execute the SetAreaPreset function (found within the Dynalite_DTK622 script device), following on from the example above we would pass the parameters "5, 2" (minus the quotation marks), which designates area 5 preset 2.

The screenshot shows a configuration window for a button. It is divided into three main sections: Feedback, Navigation, and Actions. In the Feedback section, the 'Feedback State ID' field is populated with 'DYNALITE_PRE_A5P2'. Below it is a 'CUSTOM' dropdown. The Navigation section contains two empty text boxes labeled 'Wait Page' and 'Delayed Page'. The Actions section has a dropdown set to 'On Press' and an unchecked checkbox for 'Repeat Press Action While Held'. Below these are two rows of dropdowns: 'Type' is set to 'Script Device Function' and 'Device' is set to 'Dynalite_DTK622'. The final row shows 'Action' set to 'SetAreaPreset' and 'Parameters: Area, Preset' set to '5,2'.

Figure 13 - Mid button properties highlighting Feedback State ID and function parameters

DynaliteAreaToggle

Drag and Drop

To add this component to a GUI page complete the following steps (the programming behind the GUI component is described in **Manual Programming**):

1. Open the GUI page you wish to import the component into
2. Select and drag the DynaliteAreaToggle (drag with the left mouse button down) from the Module Browser and onto the open GUI page
 - a. NOTE: Hold down shift whilst dragging to place the component anywhere on the page.
3. Upon releasing the left mouse button you will be presented with a dialog box (see **Figure 12**). This dialog box requires you to pass in two parameters to program the GUI assets within:
 - a. Area Name – The name of the area that the component will be controlling. This will change the label at the top of the preset button block, which is the Downlights shown in the Manual Programming section below
 - b. Area Number – The number of the area that this component will control; this is the area number that would have been assigned in the Dynalite programming.
4. Once you have provided values for the required parameters press OK and this will complete the integration of the DynaliteAreaToggle.



Manual Programming

The DynaliteAreaToggle is used to toggle an area between an on and off state. By default the toggle button will turn an area on using Dynalite Preset 1; however you may pass an alternative preset number if you wish a lighting circuit to turn on at a level lower than 100%. The preset to toggle off to will always be Dynalite Preset 4 (the default used to turn an area off).

The Feedback State ID used for this component is in the following format:

PUSH_DYNALITE_PRE_A%DYNAREA%_LVL

%DYNAREA% is replaced with the area being controlled by this component. The feedback state is triggered to be on if an area's last preset is anything other than the default off preset 4, if the last preset known is 4 then the area will display as off.

DynaliteChannelToggle

Drag and Drop

To add this component to a GUI page complete the following steps (the programming behind the GUI component is described in **Manual Programming**):

1. Open the GUI page you wish to import the component into
2. Select and drag the DynaliteChannelToggle (drag with the left mouse button down) from the Module Browser and onto the open GUI page
 - a. NOTE: Hold down shift whilst dragging to place the component anywhere on the page.
3. Upon releasing the left mouse button you will be presented with a dialog box (see **Figure 14**). This dialog box requires you to pass in three parameters to program the GUI assets within:
 - a. Area Number – The number of the area that this component will control; this is the area number that would have been assigned in the Dynalite programming.
 - b. Channel Name – The name of the channel that the component will be controlling. This will change the label at the top of the preset button block, which is the Downlights label on the button image in the following section
 - c. Channel Number – the number of the channel
4. Once you have provided values for the required parameters press OK and this will complete the integration of the DynaliteChannelToggle.

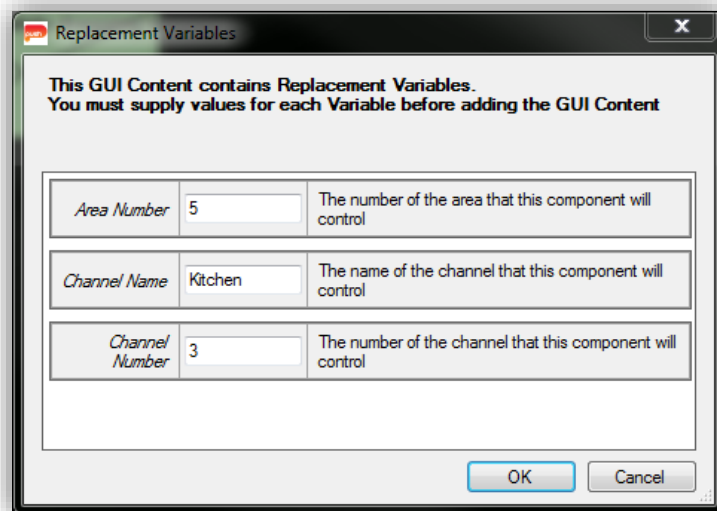


Figure 14 - Dynalite channel component parameters

Manual Programming



The DynaliteChannelToggle is used to toggle a specific channel in an area between off and on. The Feedback State ID for the button is in the following format:

PUSH_DYNALITE_LVL_A%DYNAREA%_C%DYNCHANNEL%

%DYNAREA% is replaced with the area the channel is contained within and %DYNCHANNEL% is replaced with the channel number to be controlled by the GUI component.

Drag and Drop

To add this component to a GUI page complete the following steps (the programming behind the GUI component is described in **Manual Programming**):

1. Open the GUI page you wish to import the component into
2. Select and drag the DynaliteAreaSlider (drag with the left mouse button down) from the Module Browser and onto the open GUI page
 - a. NOTE: Hold down shift whilst dragging to place the component anywhere on the page.
3. Upon releasing the left mouse button you will be presented with a dialog box (see **Figure 12**). This dialog box requires you to pass in two parameters to program the GUI assets within:
 - a. Area Name – The name of the area that the component will be controlling. This will change the label at the top of the preset button block, which is the Downlights label in **Figure 12**
 - b. Area Number – The number of the area that this component will control; this is the area number that would have been assigned in the Dynalite programming.
4. Once you have provided values for the required parameters press OK and this will complete the integration of the DynaliteAreaSlider.



Manual Programming

The DynaliteAreaSlider is used to both toggle an area between an on and off state as described in DynaliteAreaToggle, with the addition of providing control over the dimming of the area. The slider sets the level in 10% increments, where the percentage matches a Dynalite Default Preset level it issues a preset set command as opposed to an area level set.

The Feedback State ID for the button and the slider is in the following format:

PUSH_DYNALITE_PRE_A%DYNAREA%_LVL

%DYNAREA% is replaced with the area being controlled by this GUI component.

Drag and Drop

To add this component to a GUI page complete the following steps (the programming behind the GUI component is described in **Manual Programming**):

1. Open the GUI page you wish to import the component into
2. Select and drag the DynaliteChannelSlider (drag with the left mouse button down) from the Module Browser and onto the open GUI page
 - a. NOTE: Hold down shift whilst dragging to place the component anywhere on the page.
3. Upon releasing the left mouse button you will be presented with a dialog box (see **Figure 14**). This dialog box requires you to pass in two parameters to program the GUI assets within:
 - a. Area Number – The number of the area that this component will control; this is the area number that would have been assigned in the Dynalite programming.
 - b. Channel Name – The name of the channel that the component will be controlling. This will change the label at the top of the preset button block, which is the Downlights label on the button image in the following section
 - c. Channel Number – the number of the channel
4. Once you have provided values for the required parameters press OK and this will complete the integration of the DynaliteChannelSlider.



Manual Programming

The DynaliteChannelSlider is used to both toggle a channel on and off, whilst also allowing control of the channel level via a slider.

The Feedback State ID for the button and the slider is in the following format:

PUSH_DYNALITE_LVL_A%DYNAREA%_C%DYNCHANNEL%

%DYNAREA% is replaced with the area the channel is contained within and %DYNCHANNEL% is replaced with the channel number to be controlled by the GUI component.

Selecting the Correct GUI Component

To ensure that the smart device interface correctly reflects the current feedback of the Dynalite system you must check that the Dynalite switch you have programmed on the interface is using the correct control method and feedback ID. The common Dynalite functions that can be programmed on a wall switch and the associated Dynalite module GUI components are listed below:

Dynalite Function	Dynalite Sub Function	Dynalite Module GUI component
Advanced	All	Not Supported
Channel Level	-	DynaliteChannelToggle DynaliteChannelSlider
Custom	All	Not Supported
One Touch	Toggle Preset	DynaliteAreaToggle (When using 'All Channels [0]') DynaliteChannelToggle (When a specific channel is selected)
One Touch	One touch ramp only, one touch ramp with program	DynaliteAreaSlider (When using 'All Channels [0]') DynaliteChannelSlider (When a specific channel is selected)
Preset	Preset	DynalitePresetComponent
Preset	All (except Preset)	Not Supported
Ramp	Ramp Up, Ramp Down	DynaliteAreaRamping, DynaliteChannelRamping
Task	All	Not Supported

For specific information on the implementation of the Dynalite Module GUI components please see the **Specification of GUI components**.

Appendix

List of Functions

Function Name	Parameters	Description
SetChannelLevel1	Area (Number 0-255), ChannelNum (Number 0-255), Level (Number 0-100), Rate (Number of seconds (0.1 – 25.5) to fade)	Set a channel to a particular level ramping at a rate specified between 0.1 and 25.5 seconds. If no parameter is provided default is dim over 2 seconds.
SetChannelLevel2	Area (Number 0-255), ChannelNum (Number 0-255), Level (Number 0-100), Rate (Number of seconds (1-255) to fade)	Set a channel to a particular level ramping at a rate specified between 1 and 255 seconds. If no parameter is provided default is dim over 2 seconds.
SetChannelLevel3	Area (Number 0-255), ChannelNum (Number 0-255), Level (Number 0-100), Rate (Number of minutes (1-22) to fade)	Set a channel to a particular level ramping at a rate specified between 1 and 22 minutes. If no parameter is provided default is dim over 1 minute.
ToggleChannel	Area (Number 0-255), ChannelNum (Number 0-255)	Toggles the specified channel and area between on and off
ChannelLevelGet	Area (Number 0-255), ChannelNum (Number 0-255)	Retrieves the current level of the channel in a specific area
SetAreaPreset	Area (Number 0-255), Preset (Number 1-8)	Sets an area to the provided preset number
AreaPresetGet	Area (Number 0-255)	Retrieves the current preset for the specified area
SetAreaLevel	Area (Number 0-255), Level (Number 0-100)	Sets all channels in the specified area to the level provided
SetAreaPresetLevel	Area (Number 0-255), Level (Number 0-100)	A smart function, which sets the level of an area using presets when the level provided matches one of the default Dynalite preset levels. i.e. 0 % = Preset 4
ToggleAreaPreset	Area (Number 0-255)	Toggle the specified area between off and the last used preset
ToggleAreaOnOff	Area (Number 0-255), OnPresetNum (Number 1-8)	Toggle the specified area between off (Preset 4) and on (turning the area on to the preset specified). If no preset is specified in the OnPresetNum parameter the default on preset will be 1 (level = 100%).
StopAreaFading	Area (Number 0-255)	Stop all channels currently fading in the specified area
StopChannelFading	Area (Number 0-255), ChannelNum (Number 0-255)	Stop the specified channel from fading in the specified area

List Feedback IDs

Feedback ID	Parameters	Value	Description
PUSH_DYNALITE_PRE_A[AREA]	[AREA] (Number 0-255)	Number 1-8	Holds the feedback for what preset is currently set for the area specified
PUSH_DYNALITE_PRE_A[AREA]_LVL	[AREA] (Number 0-255)	Number 0-100	Holds the current level for the area based on the default preset level percentages
PUSH_DYNALITE_LVL_A[AREA]_C[CHANNEL]	[AREA] (Number 0-255), [CHANNEL] (Number 0-255)	Number 0-100	Holds the level of the area and channel specified
PUSH_DYNALITE_PRE_A[AREA]_P[PRESET]	[AREA] (Number 0-255), [PRESET] (Number 0-8)	0 (Off)/ 1 (On)	Indicates whether the preset specified is active or not in the current area

Troubleshooting

Q: I am not receiving feedback on the smart device when I switch a room light on/off from a wall switch?

A: Ensure that the Dynalite switch you have programmed on the interface is using the correct control method and feedback ID. See the **Selecting the Correct GUI Component** section for details.

Q: I have no control over the Dynalite system.

A: Check that your wiring matches the diagram in the **Serial RS232 connection** section. If the wiring is correct make sure that the internal transmit jumper on the DTK is in the AUTO position (not DTR)