



# KNX v2 INTEGRATION GUIDE



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## Overview

URC's KNX two-way module **provides control and feedback** to a variety of compatible KNX devices, such as climate controls, window shades, and lighting solutions. Unified interfaces are currently supported by KNX **lighting**, **scenes**, and **thermostats**.

Additionally, this module provides **macro integration** via **Two-way Module Commands** and **automation capabilities** via **Device Events**.

## Requirements

- The KNX system must be **fully configured and operational**.
- Configure the **KNX router** to a **permanent IP address** using a **DHCP/MAC Reservation** within the system's local router.
- Assure that the .TCM3 module has been **downloaded and imported** onto the programming computer.

For more information on how to import a two-way module, please refer to the [Working with Two-way Modules](#) document.

- The KNX system must adhere to the **device limitations** of the **Accelerator software** and **MRX primary controllers**. The device limits are as follows:
  - **Accelerator Project Tree:** 255 devices.
  - **MRX-12:** 350 devices.
  - **MRX-15:** 350 devices.
  - **MRX-30:** 500 devices.
  - **Older MRX models:** 255 devices.



## General Information

**Module:** KNX v2

**Developer:** URC

**File Type:** \*.tcm3

**Communication:** IP

**Category:** Aux

**Module Type:** Core / Interface

**Multiple Module Support:** No

**Unified:** No

**URC Compatibility:** Flex 2 & Accelerator 3

**Device Events:** Yes

**Two-way Module Commands:** Yes

# TOTAL CONTROL

## Adding & Configuring the Module

TCM files are found on the [URC Dealer Portal](#). Once you have downloaded and imported the file, perform the following steps to add the module to a project:

This module can be added to any new or existing Total Control system.

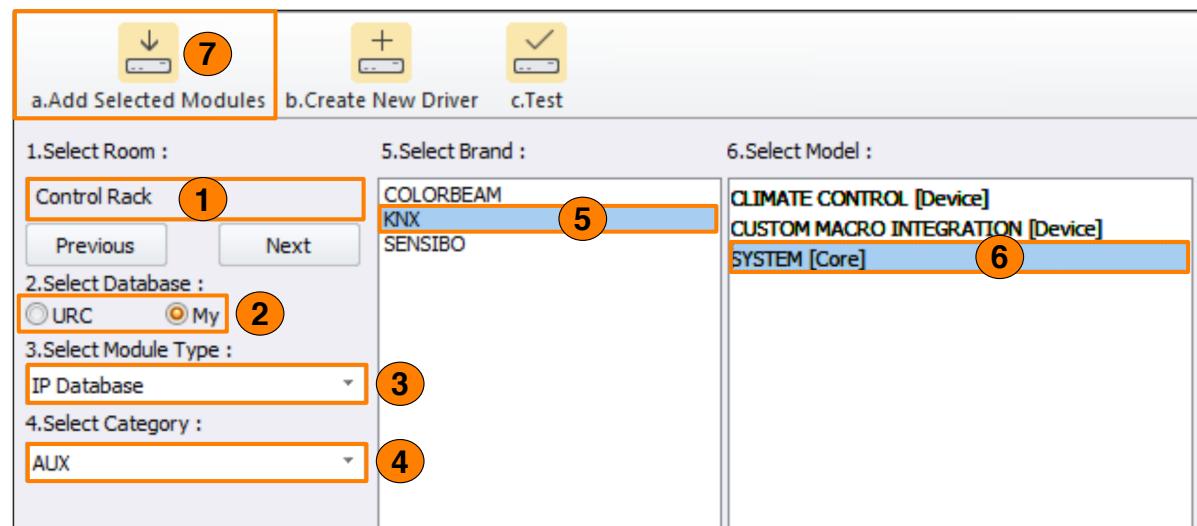
### Adding the [Core]

Unified Modules utilize a **[Core]** module. Access to the supported modules are provided from the **Unified Modules - Room Selection** window. One core should be added for each KNX system.

### Step 4: Add Other Devices



1. Select **a room** for the core to be added to.
2. Select **My Database**.
3. Select **IP Database**.
4. Select **Aux** category.
5. Select **KNX** from the brand list.
6. Select **System [Core]** from the model list.
7. Select **Add Selected Modules** to add it to the project.



Choose which room in the system to place the module. This two-way device **requires a single (1) Core module** in the system. It is a best practice to place the Core module into a room labeled "**Core**". This room can be hidden later from the **Room Properties** menu.

# TOTAL CONTROL

## Adding a [Device]

Individual KNX devices are **integrated** by adding the corresponding **[Device]** listed in the **Aux**, **Lighting**, and **Window Shades** categories. To add a **[Device]**, perform the following:

1. Select a **room** for the device to be added to.
2. Select **My Database**.
3. Select **IP Database**.
4. Select the **Aux**, **Lighting**, or **Window Shades** category.
5. Select **KNX** from the brand list.
6. Select the **applicable [Device]** from the model list.
7. Select **Add Selected Modules** to add it to the project. Repeat this process for **each device** present in the **physical system**.



While several devices are available, this guide uses **Climate Control** for an integration example. The steps are the same regardless of the **[Device]**.



Ensure devices are added to the room where the **physical device** is located.

**a.Add Selected Modules**   **b.Create New Driver**   **c.Test**

**1. Select Room :** Office   **2. Select Database :** URC (radio) My (radio)   **3. Select Module Type :** IP Database   **4. Select Category :** AUX   **5. Select Brand :** COLORBEAM KNX SENSIBO   **6. Select Model :** CLIMATE CONTROL [Device] CUSTOM MACRO INTEGRATION [Device] SYSTEM [Core]

**a.Add Selected Modules**   **b.Create New Driver**   **c.Test**

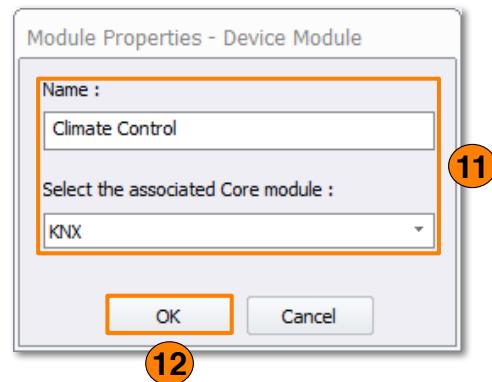
**1. Select Room :** Office   **2. Select Database :** URC (radio) My (radio)   **3. Select Module Type :** IP Database   **4. Select Category :** Lighting   **5. Select Brand :** KNX LUTRON PHILIPS   **6. Select Model :** DIMMER [Device] RGBW [Device] SCENES [Device] SWITCH [Device]

**a.Add Selected Modules**   **b.Create New Driver**   **c.Test**

**1. Select Room :** Office   **2. Select Database :** URC (radio) My (radio)   **3. Select Module Type :** IP Database   **4. Select Category :** Window Shades   **5. Select Brand :** AUTOMATE KNX LUTRON RELEASE ACMEDA   **6. Select Model :** SHADE [Device] SHADES UI [Device]

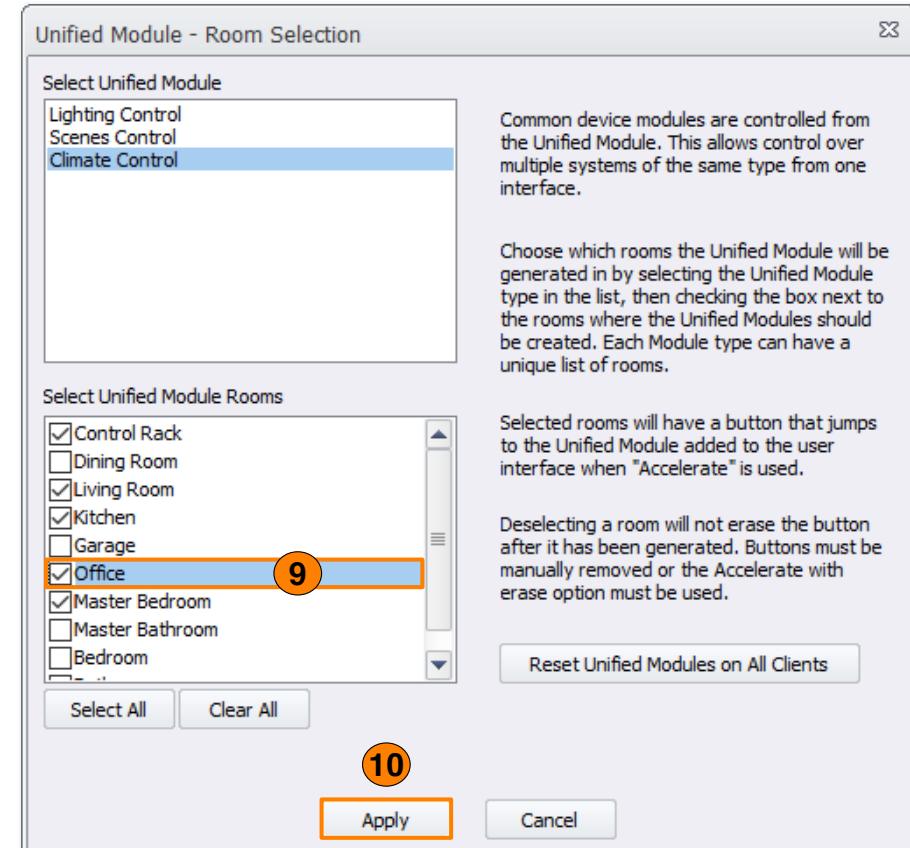
## TOTAL CONTROL

8. The **Unified Module - Room Selection** window pops up. This window is asking what rooms to provide access to the unified module.
9. Select rooms for the **Climate Control** to be displayed in.
10. Select **Apply**.
11. The **Module Properties - Device Module** window pops up. This window allows for a **custom name** to be entered and **links a [Core]** to the [Device].
12. Select **OK** when finished.



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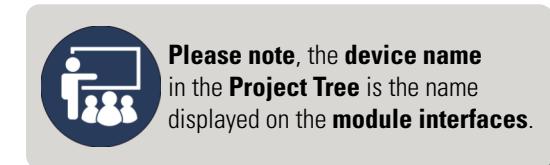


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If needed, this can be modified later in the  
**Step 7: Properties Manager**.



Please note, the device name in the **Project Tree** is the name displayed on the **module interfaces**.

**Step 6: Network Setup**

1. Select **Non URC Device**.
2. Enter the **IP Address** of the **KNX Router**.
3. Leave the **Port** as is.

Room	Device	IP Address	Port
Control Rack	Power	192.168.18.5	80
Control Rack	NVR	192.168.18.130	80
Control Rack	AVR	192.168.18.161	23
Control Rack	KNX	192.168.18.199	0
Office	TV	192.168.5.75	80


It is **required** that the **KNX Router** have a **permanent IP address** when integrated with Total Control. A **static IP address** may be configured, or a **MAC/DHCP reservation** may be assigned from within the router.

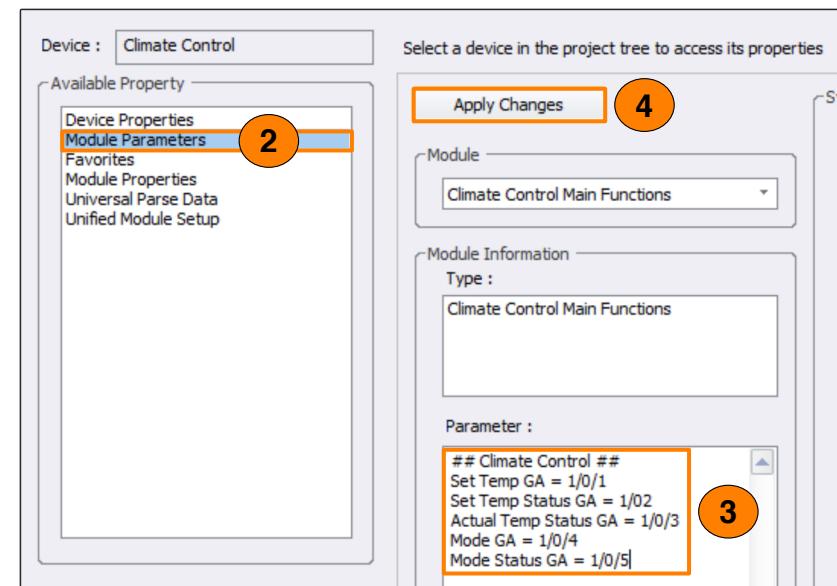
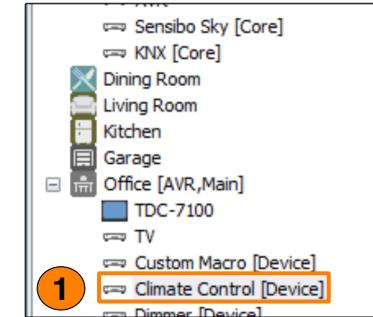
**Step 7: Properties Manager**

For the module to properly function with each KNX device in the project, Group Addresses **must be set** for each parameter. These addresses are found within the KNX configuration software.

1. Select the **[Device]** from the project tree.
2. Select **Module Parameters** from the available properties list.
3. Enter a **Group Address** for **each parameter** listed for the [Device].
4. Select **Apply Changes**.
5. Repeat these steps for **each [Device]** in the project.



Ensure that there are no additional **spaces, characters, or line carriages** when editing parameters.

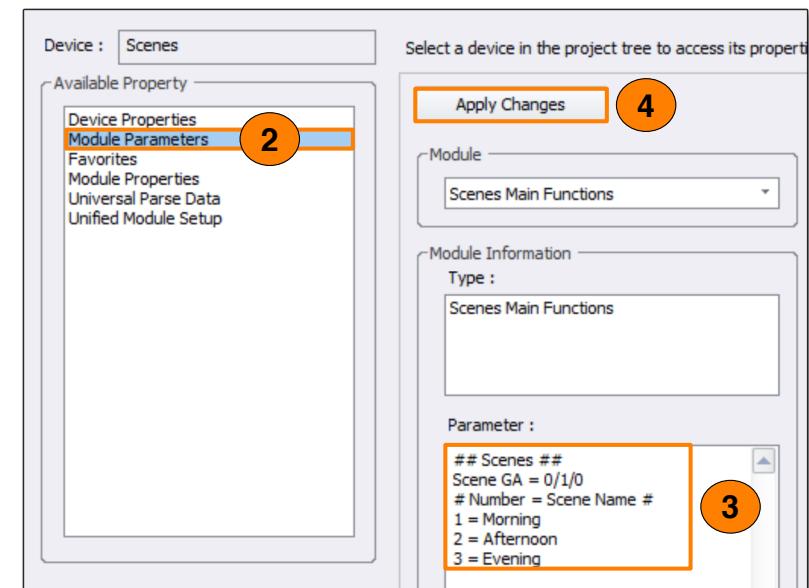
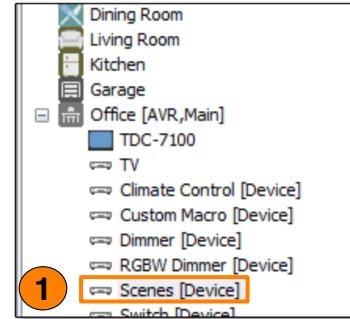


## Adding Scenes

1. Select **Scenes [Device]** from the project tree.
2. Select **Module Parameters** from the available properties list.
3. Enter the **Group Address** for the [Device].
4. Create a **numbered list** and add the **scene names** to be displayed on the user interface.
5. Select **Apply Changes**.



Ensure that there are no additional **spaces, characters, or line carriages** when editing parameters.



**Step 11: Edit User Interfaces****1. Select Accelerate!**

**a. Generate Menus & Devices**

**b. Edit Menus by Room**

**c. Edit Device Layouts**

**Submenu System Options**

**Included Submenus**

Entertainment :	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Music :	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Lights :	<input type="radio"/> Yes	<input checked="" type="radio"/> No
Comfort :	<input type="radio"/> Yes	<input checked="" type="radio"/> No
Security :	<input type="radio"/> Yes	<input checked="" type="radio"/> No
Info :	<input type="radio"/> Yes	<input checked="" type="radio"/> No
Settings :	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Multiple Displays :	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Timer :	<input type="radio"/> Yes	<input checked="" type="radio"/> No

Submenus are only created if there will be buttons present. Empty submenus are not generated.

If a submenu is set "No?any button that would normally be there will instead be generated on the main menu.

**Timers Items**

Select an item and a jump to it will be created in the appropriate menu for each room

- Sleep Timer
- Event Timer
- Alarm Clock
- Vacation Mode

Choose the setup options for the User Interfaces in the system. When ready press the Accelerate Button

**Accelerate!** 1

**Music Menu Options**

Use dedicated Multi-Room Music submenu

This option will create a dedicated submenu for the URC Audio Multi-Room Music available to a room, as well as a Music submenu for local music sources available only to that room.

Edits made to this URC Audio submenu are duplicated in every room's URC Audio submenu; this should reduce the time spent editing this unique submenu.

However it is NOT possible to remove a URC Audio source from the submenu, or add a non-URC Audio source to the submenu.

Use combined Music submenu

This option will create a single Music submenu in all applicable rooms. This submenu will contain both URC Audio sources AND local sources available to that room.

Edits must be made on a per-room basis. There are no GLOBAL changes.



By default, buttons to access the **Climate Control** module are placed on the **Main Menu**.

This button can be relocated to a different page or sub-menu by **dragging-n-dropping** it into the desired location.

Keep in mind, if the system is Accelerated with the **ERASE** option, this button **returns to its original position** on the Main Menu.

**a. Generate Menus & Devices**

**b. Edit Menus by Room**

**c. Edit Device Layouts**

**Main Menu Pages**

1. Selected Room : Office

2. Select View : TC Model

Page 1

Entertainm	Music	<b>Climate Co</b>
Scenes Cor	Shades	Lighting Cr

Page 2

NVR	Settings	Sleep Time
Hidden	Hidden	Hidden

Hide Main Menu  Hide Main Menu

Previous Page Next Page

## Step 12: Macro Editing



In this section, the steps required to generate macros are provided.

1. Select **Accelerate!**
2. Make additional programming changes as needed with the remaining steps.  
Once completed, save the project and **Download** to the system.

**a.Auto Macro Generation** b.Macro By Room c.Special Macros d.Automation Macros e.TKP-100 Macros

Macro Programming Options

Macro Acceleration Options

Preserve user edited macros while generating macros.  
This option will not erase and generate new versions of macros that appear to have been previously edited. Other macros will be erased regenerated.  
Universal Macros will not be affected.

ERASE ALL existing macros and create new ones using these options.  
This will erase all existing macros, including those on the main menu and device layout pages of the user interfaces.  
Universal Macros will not be affected.

TV Off Command

TV Device Power OFF command is generated only for the ROOM OFF macro

TV Device Power OFF command is generated for ROOM OFF and MUSIC macros

Source Device Power

Devices are turned ON when needed and turned OFF only when a ROOM OFF command is issued.

Devices are turned ON as needed and turned OFF when NOT NEEDED, or a ROOM OFF commands is issued.

Choose the setup options for auto generation of macros in the system. When ready press the accelerate button

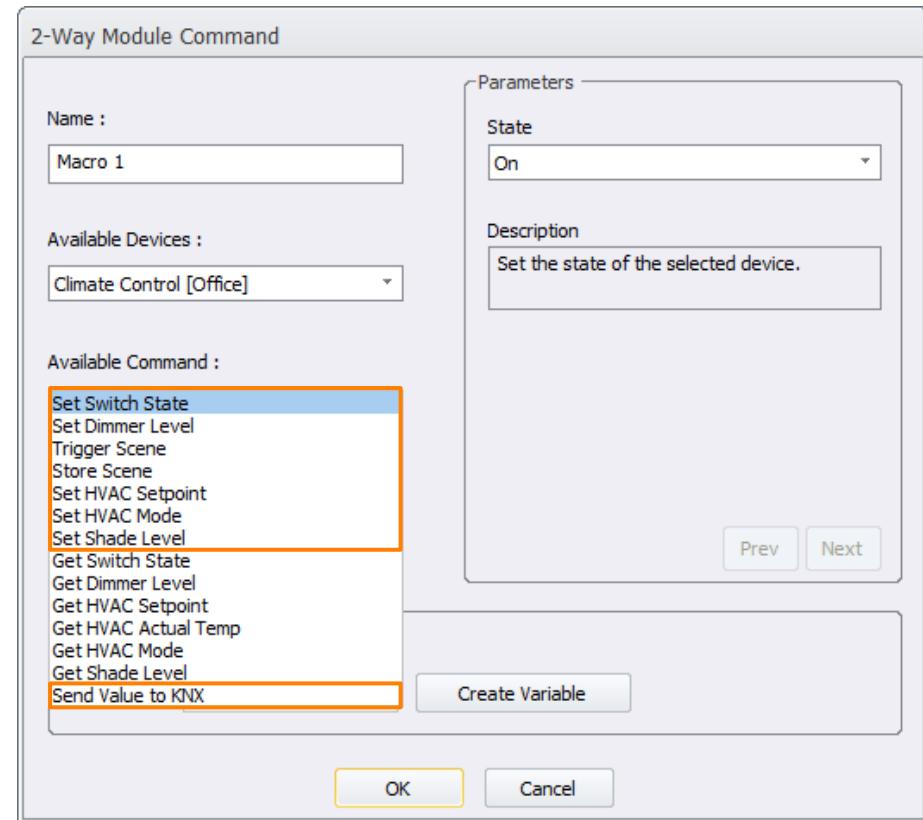
Accelerate! 1

## Two-way Module Commands

Two-way module commands are special one-way functions that are derived from the two-way module, and are the only way to send discrete commands to the KNX system.

Before creating a macro, ensure the **correct device** has been selected from the **Available Devices list**.

- **Set Switch State:** Sets the **device** to a specified **state**.
  - **On:** Sets the device state to **On**.
  - **Off:** Sets the device state to **Off**.
- **Set Dimmer Level:** Sets a device's **dimmer** to a specified **level**.
- **Trigger Scene:** Allows a specified **scene** to be **triggered**.
- **Store Scene:** Allows for a specified **scene** to be **saved**.
- **Set HVAC Setpoint:** Sets the HVAC system to a specified **temperature**.
- **Set HVAC Mode:** Sets the **operation mode**.
  - **Comfort:** Sets the HVAC system to **Comfort** mode.
  - **Standby:** Sets the HVAC system to **Standby** mode.
  - **Night:** Sets the HVAC system to **Night** mode.
  - **Frost:** Sets the HVAC system to **Frost** mode.
- **Set Shade Level:** Sets a device's **shade** to a specified **level**.
- **Send Value to KNX:** Allows for **custom commands** to be sent to a specified **Group Address**.



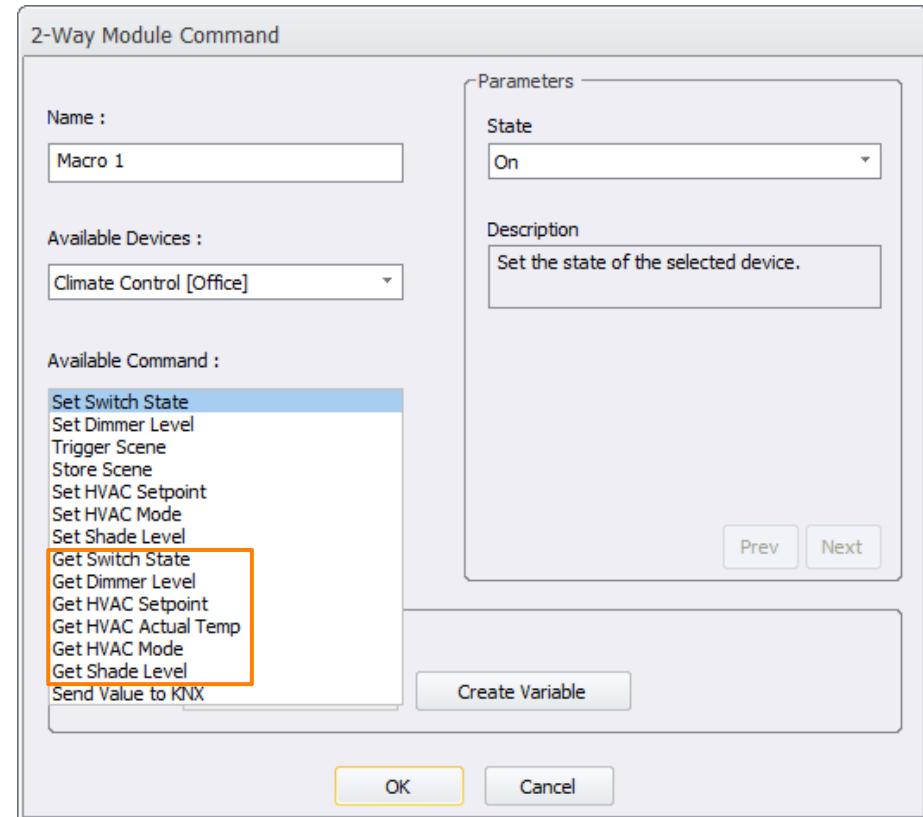
For macro integration with devices **not available** on the model lists, use the **Custom Macro Integration** device found in the **Aux** category.

# TOTAL CONTROL

## Query Commands

Query commands allow the Total Control system to ask a device for information. This information can be saved as a variable, allowing for advanced macro creation based on conditional logic.

- **Get Switch State:** Reads the **current state** of the specified device.
- **Get Dimmer Level:** Reads the **current dimmer level** of the specified device.
- **Get HVAC Setpoint:** Reads the **desired temperature**.
  - **Celsius:** Returns the temperature in **Celsius**.
  - **Fahrenheit:** Returns the temperature in **Fahrenheit**.
- **Get HVAC Actual Temp:** Reads the **current temperature**.
  - **Celsius:** Returns the temperature in **Celsius**.
  - **Fahrenheit:** Returns the temperature in **Fahrenheit**.
- **Get HVAC Mode:** Reads the **current operation mode** of the HVAC system.
  - **1:** The HVAC system is currently in **Comfort** mode.
  - **2:** The HVAC system is currently in **Standby** mode.
  - **4:** The HVAC system is currently in **Night** mode.
  - **8:** The HVAC system is currently in **Frost** mode.
- **Get Shade Level:** Reads the **current shade level** of the specified device.



Query commands, variables, conditional logic, Device Events, and more are ONLY available within the **Total Control Experience**. If this option is not available, speak with a **URC Representative** for more details.

# TOTAL CONTROL

## Device Events

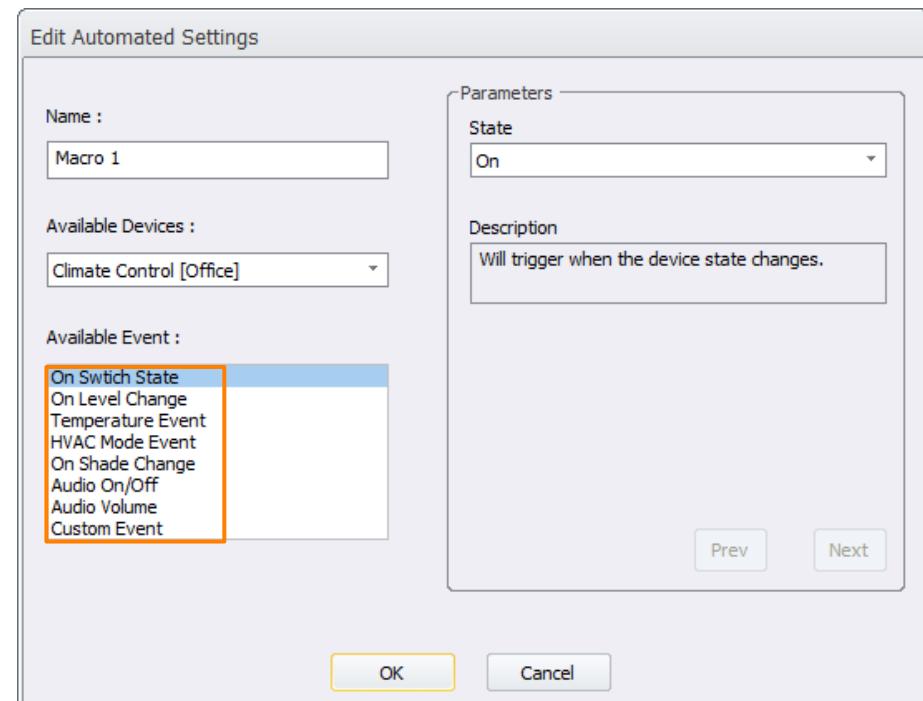
The KNX module has the ability to trigger custom macros based on device status changes.

- **On Switch State:** Triggers the macro when a device is put into a **specified state** [On/Off].
- **On Level Change:** Triggers the macro when the level range **falls below**, **raises above**, or **becomes equal to a specified value**.
- **Temperature Event:** Triggers the macro when the temperature **falls below**, **raises above**, or **becomes equal to a specified value**.
- **HVAC Mode Event:** Triggers the macro when the HVAC mode is switched to a **specified state** [Comfort / Standby / Night / Frost].
- **On Shade Change:** Triggers the macro when the shade **falls below**, **raises above**, or **becomes equal to a specified value**.
- **Audio On/Off:** Triggers the macro when a **specific Group Address**' audio is turned **On** or **Off**.
- **Audio Volume:** Allows for the creation of **volume ramping macros** for a **specific Group Address**. Be **very careful** when using this macro as it is very easy to **rapidly increase audio levels to a point of damaging equipment**.
- **Custom Event:** Triggers the macro based on a **specified value** from a **specific Group Address**.

## Training Resources

For additional information on using macros in automation, and macro theory, refer to the following Self-Paced Tutorials linked below:

- [Making the Most of Two-Way Modules](#)
- [Macro Theory](#)
- [Using Macros in Automation](#)

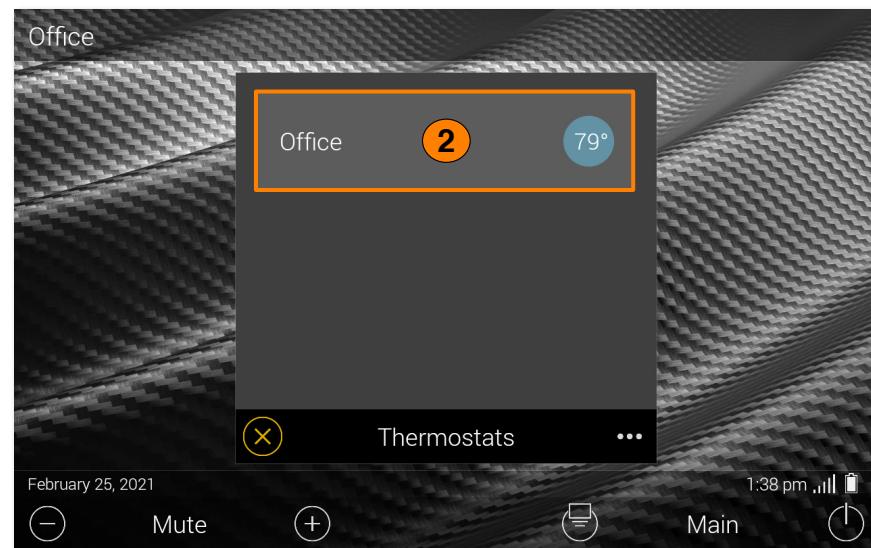
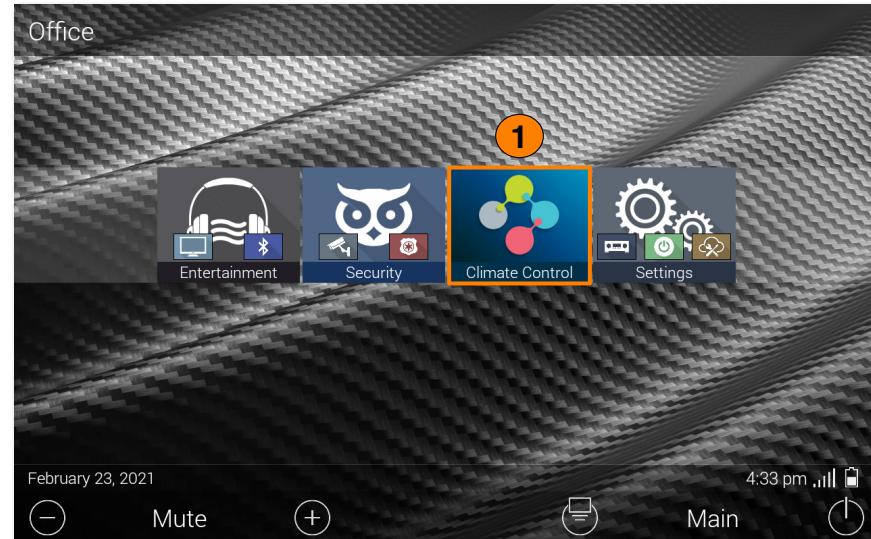


## Using the Module

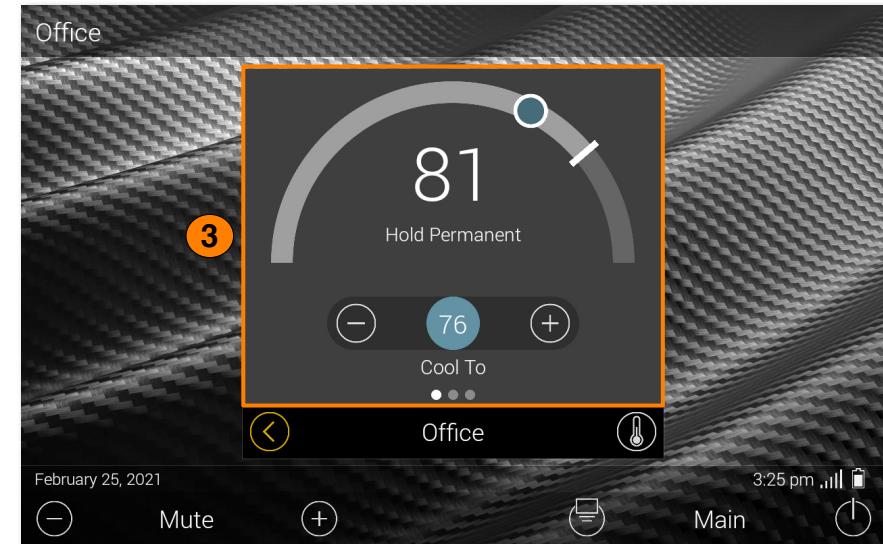
This section of the document explains how to operate the climate control module.

### Launching the Module:

1. Navigate to the room where the **Climate Control** button is located and select it.
2. Select a specific thermostat from the available list.



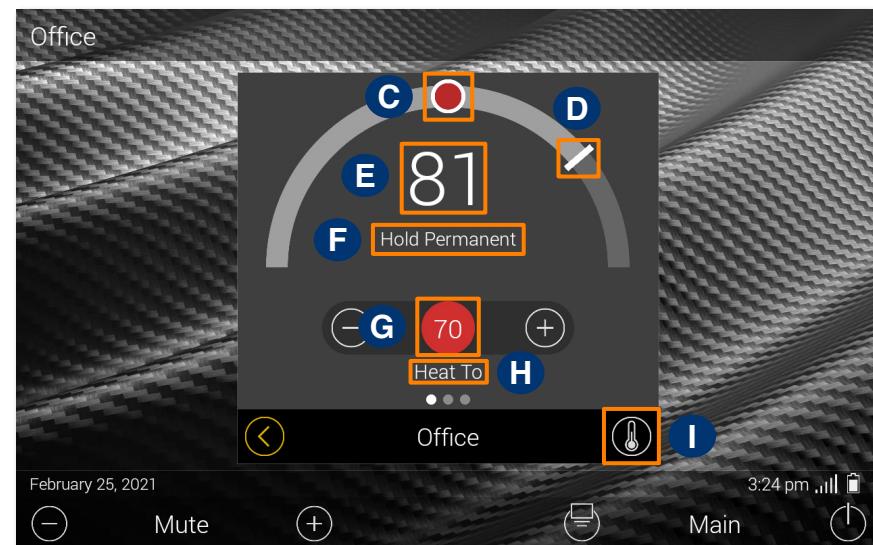
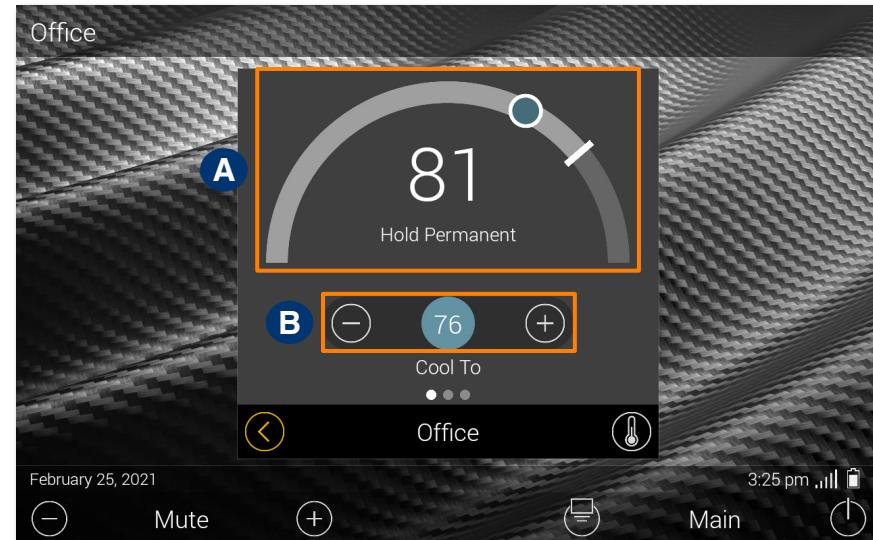
3. The UI displays controls for the selected thermostat.

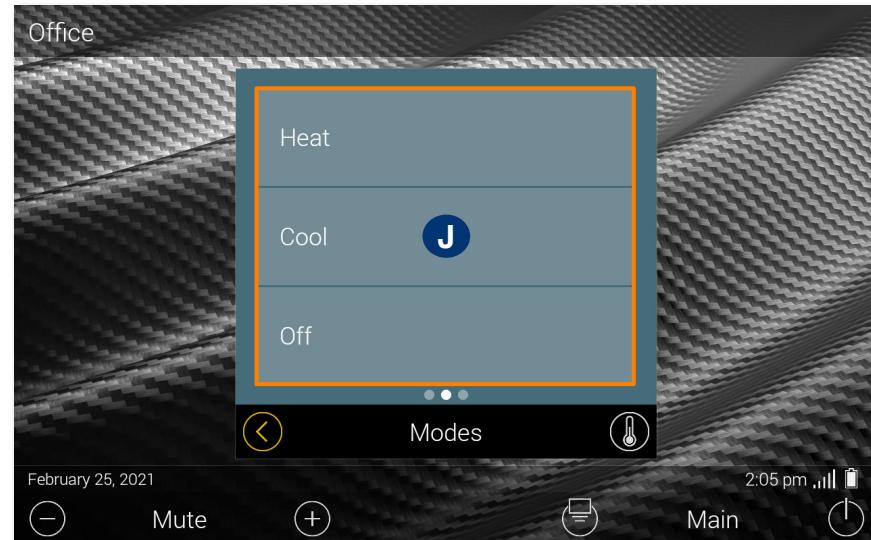


**Climate Control**

Below are descriptions of the available buttons on the **Climate Control** window:

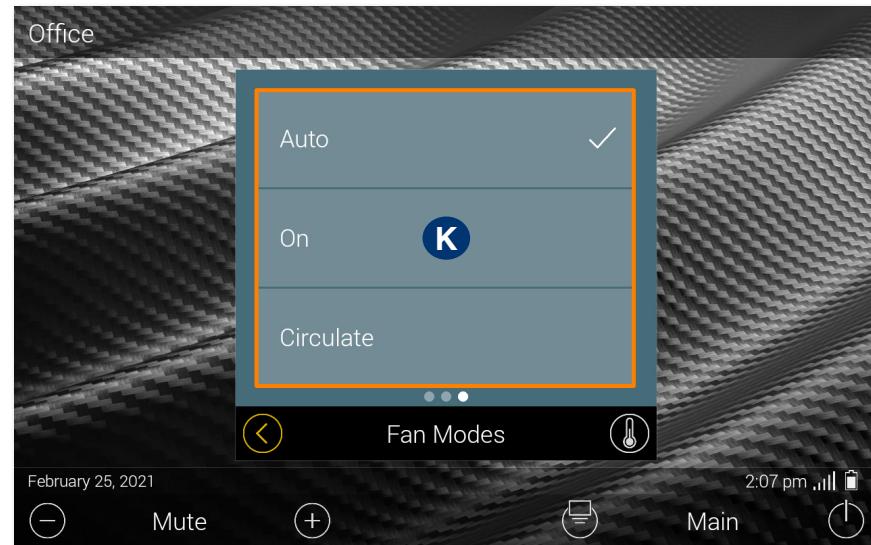
- A. Temperature Range:** Shows the temperature range available for heating and cooling.
- B. Discrete Controls:** The "+" and "-" buttons can be used to adjust the desired temperature in increments of one (1) degree.
- C. Setpoint Indicator:** The desired temperature for cooling or heating. This icon can be dragged and dropped to set a specific temperature.
- D. Current Temperature Indicator:** Reflects the current temperature level in comparison to the desired setpoint.
- E. Current Temperature:** Reflects the current temperature reported by the thermostat.
- F. Hold Status:** Reflects the current hold status of the thermostat.
- G. Setpoint:** Displays the current set point for heating or cooling.
- H. Current Mode:** Displays the current HVAC mode.
- I. Thermostat List:** Returns to the thermostat list.





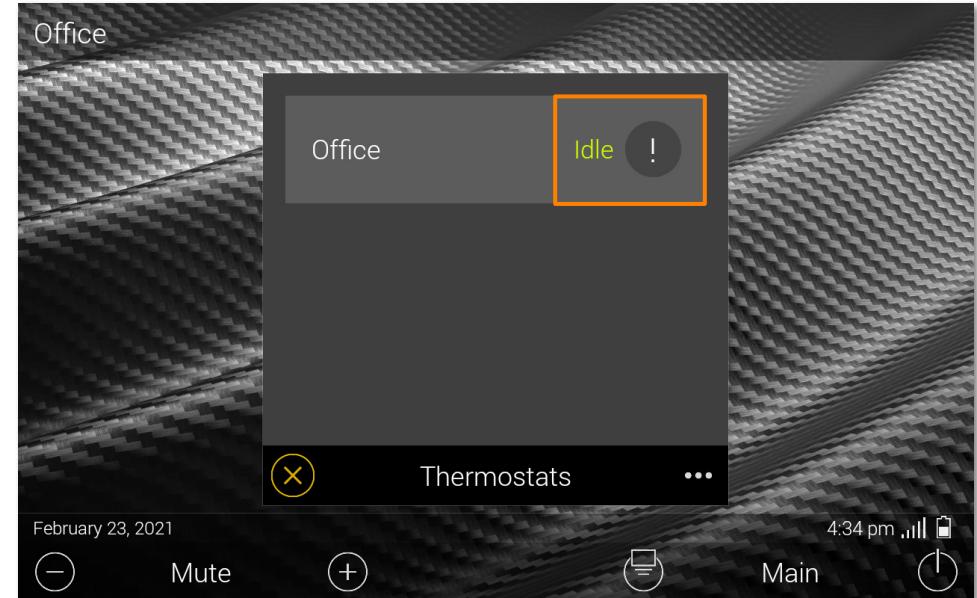
**J. HVAC Modes:** Allows the current system mode to be changed.

**K. Fan Modes:** Allows the current fan mode to be changed.



## **Climate Control Troubleshooting**

If the thermostat drops off the wireless network, or was never connected, the UI provides a warning icon to alert the user. Ensure that the thermostat is connected to the wi-fi or that the network settings have not changed. Once the thermostat is back on the network, the UI automatically updates and removes the warning icon.



## Lighting Control

Below are descriptions of the available buttons on the **Lighting Control** window:

- A. Color Picker:** Select this button to display the color section page. This page allows the user to change the color of the selected lights. This only displays if supported by the lighting device.
- B. On/Off Toggle:** Select this button to toggle the selected lights on or off.
- C. Brightness Slider:** Adjust the slider to left or right to adjust the light's brightness level. This only displays if supported by the lighting device.
- D. Rooms Menu:** Click on this button to return to the Rooms Menu.
- E. Options Menu:** When selected, provides the following options:
  - **Add/Remove:** Allows the end-user to add/remote additional lights to the current Room. These lights must already be programmed within the supported subsystem.
  - **Reorder:** Allows the end-user to rearrange the Lighting Control list within the current Room.
- F. Back:** Select to return to the Lighting Control - Rooms Menu.



### Lighting Control - Assigning a Default Room

A **Default Room** can be assigned to make accessing certain areas more convenient. When a Default Room has been assigned, the **Lighting Control window displays the devices in the Room when launched**.

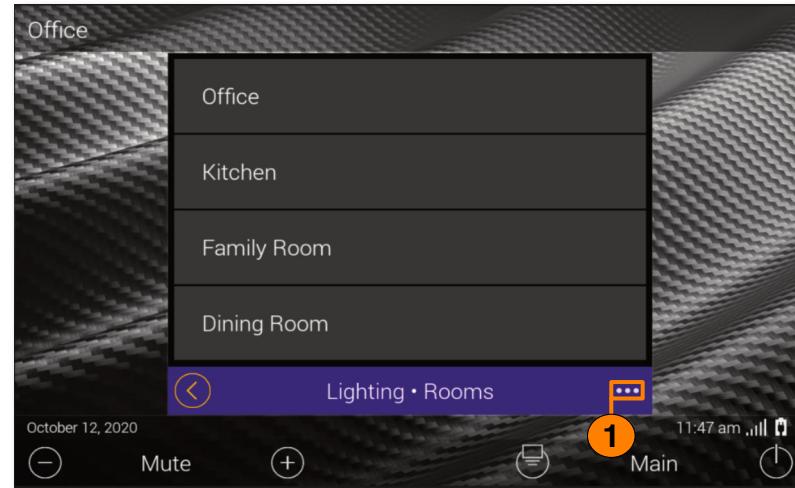
Perform the following from within the **Lighting Control - Rooms Menu** to **assign a Default Room**:

1. Select the **Options Menu**.

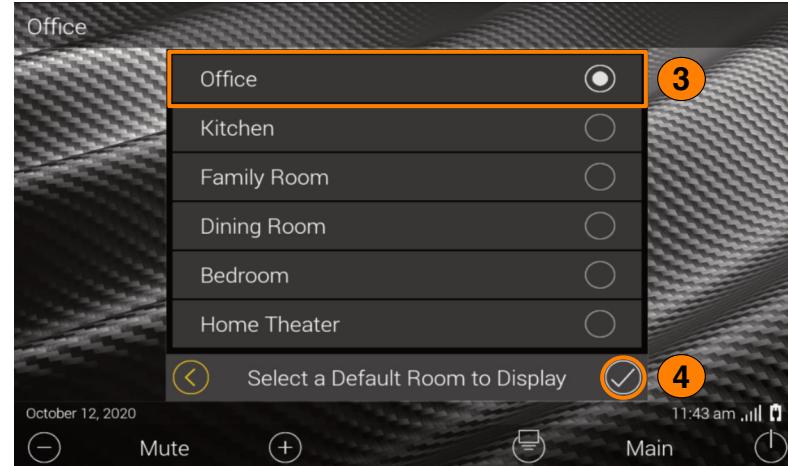
There are two (2) available selections:

- **Authentication:** Select to complete the authentication process of an integrated subsystem. Not all subsystems require authentication. Refer to the subsystem's Parameters & Reactions document for more details.
- **Default Room Selection:** Click on this option to display the **Default Room to Display Menu**.

2. Select the **Default Room Selection** button.



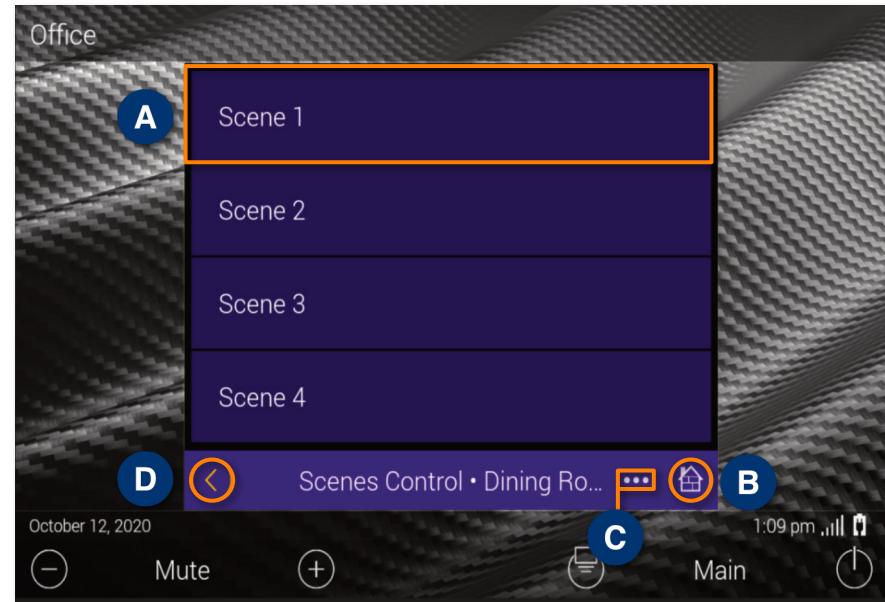
3. View the **Rooms List** and **select which room to assign** as the default (i.e. Office).
4. Select the **Check Mark to confirm**.
5. When the **module is relaunched**, the end-user is **taken directly** to the **Lighting Control page of the assigned room**.



## Scenes Control

Below are descriptions of the available buttons on the **Scenes Control** window:

- A. Scene Select:** Click on any available Scene to trigger its functionality.
- B. Rooms Menu:** Click on this button to return to the Scenes Control - Rooms Menu.
- C. Options Menu:** When selected, provides the following options:
  - **Add/Remove:** Allows the end-user to add/remove additional Scenes to the current Room. These Scenes must already be programmed within the supported subsystem.
  - **Reorder:** Allows the end-user to rearrange the Scenes Control list within the current Room.
- D. Back:** Select to return to the Scenes Control - Rooms Menu.



### Scenes Control - Assigning a Default Room

A **Default Room** can be assigned to make accessing certain areas more convenient. When a Default Room has been assigned, the **Scenes Control window displays the devices in the Room when launched**.

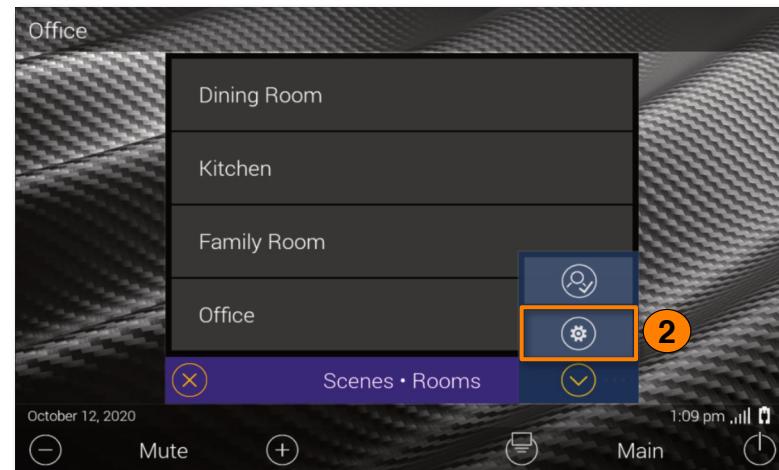
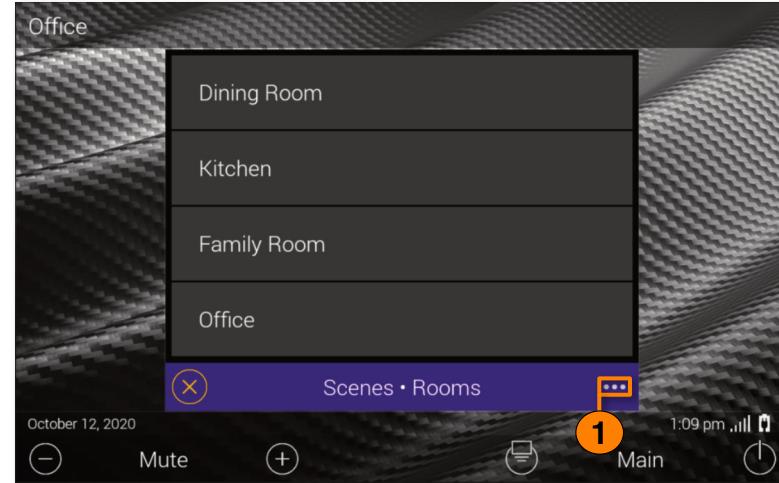
Perform the following from within the **Scenes Control - Rooms Menu** to **assign a Default Room**:

1. Select the **Options Menu**.

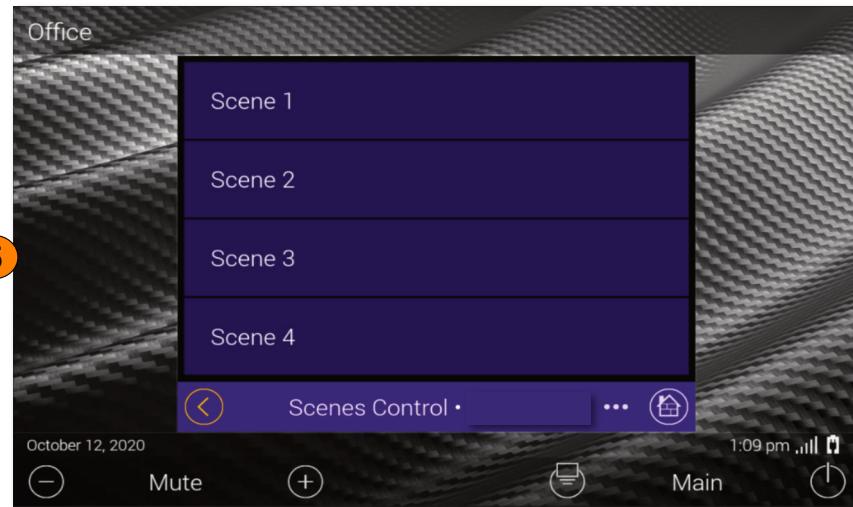
There are two (2) available selections:

- **Authentication:** Select to complete the authentication process of an integrated subsystem. Not all subsystems require authentication. Refer to the subsystem's Parameters & Reactions document for more details.
- **Default Room Selection:** Click on this option to display the **Default Room to Display Menu**.

2. Select the **Default Room Selection** button.



3. View the **Rooms List** and **select which room to assign** as the default (i.e. Office).
4. Select the **Check Mark to confirm**.
5. When the **module is relaunched**, the end-user is **taken directly** to the **Scenes Control page of the assigned room**.



# TOTAL CONTROL

## Shade Control

Below are descriptions of the available buttons on the **Shades Control** window:

### Keypad UI:

- A. **Shade Slider:** Allows the shade to be moved to a specific position based on slider position.
- B. **Basic Shade Control:** Provides basic controls for moving a specific shade up, down, and can halt it at the current position.



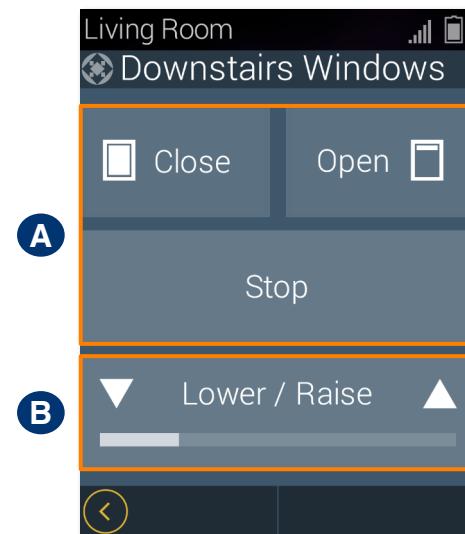
### Wand UI:

The UI for controlling shades from a wand remote varies slightly when compared to the touchscreens.

- A) **Basic Shade Control:** Provides basic controls for moving the shade **up**, **down**, and can **halt** any current movement.
- B) **Discrete Percents:** Using the arrows, a user is able to toggle between the five (5) preset positions for a shade or group [0 / 25 / 50 / 75 / 100].



When **pressing up or down**, the shade **continues to move** in the selected direction until the **stop** **button** is hit or it can no longer move.

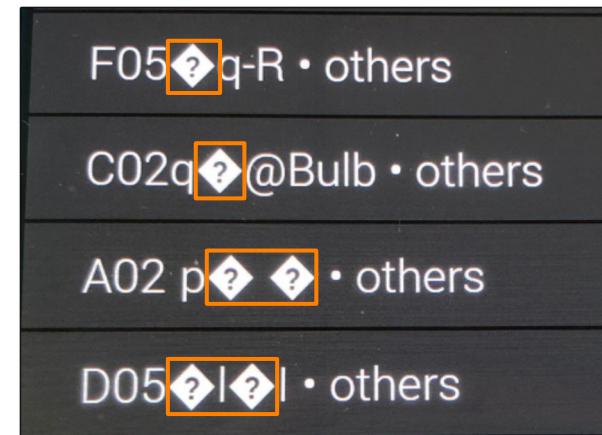
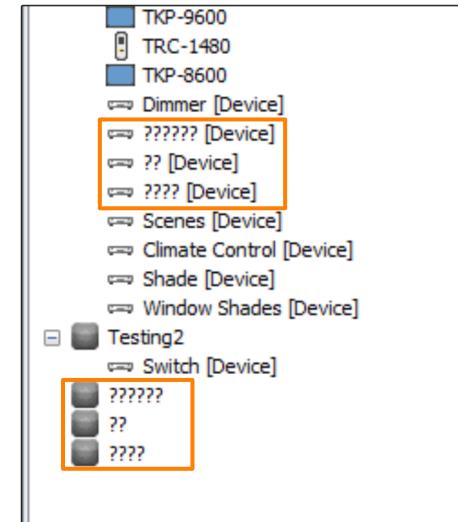
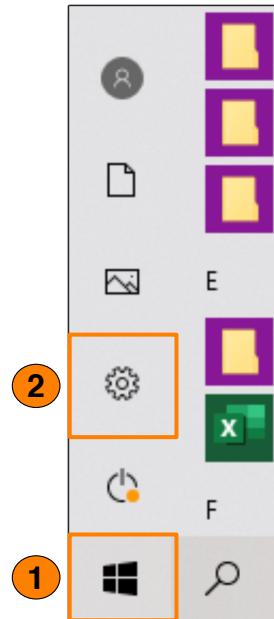


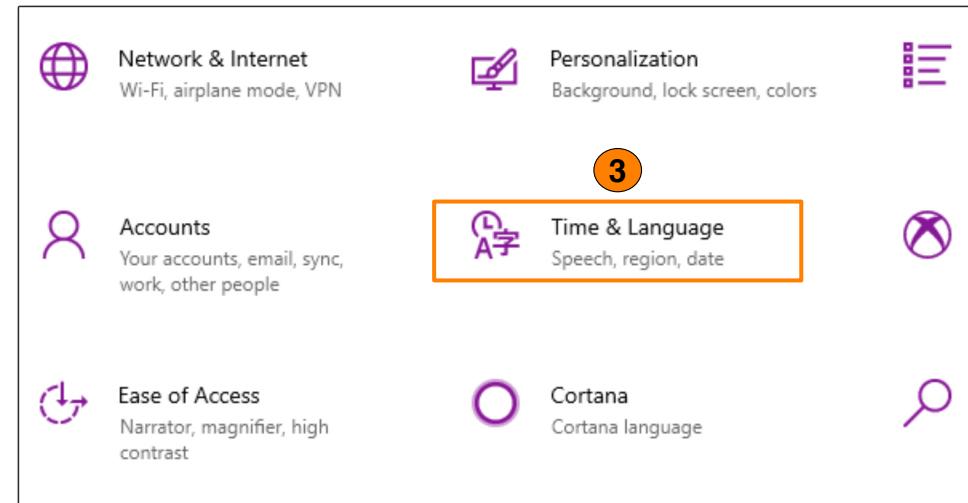
## Unicode Troubleshooting

As devices and software modules become more complex there is more chance of compatibility issues. Due to regional character support, it is possible to encounter a situation where text is not displayed correctly for both Accelerator software and user interfaces.

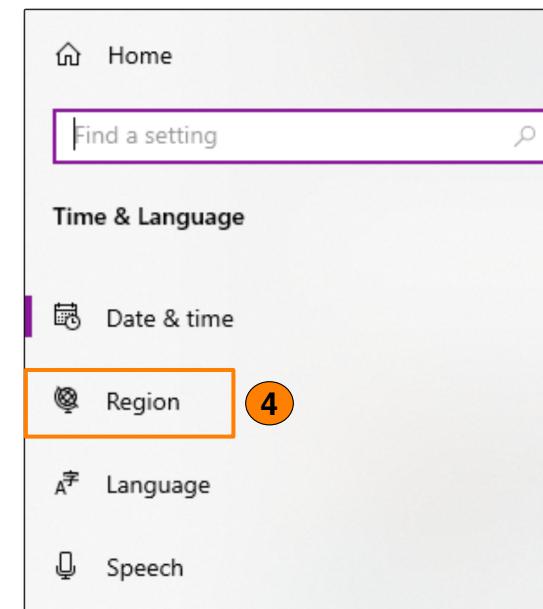
To solve this issue, Worldwide Language Support **must be enabled** on the **PC used for programming**. Perform the following:

1. Select the **Start Menu** icon.
2. Select the **Settings** icon. This opens a new window.

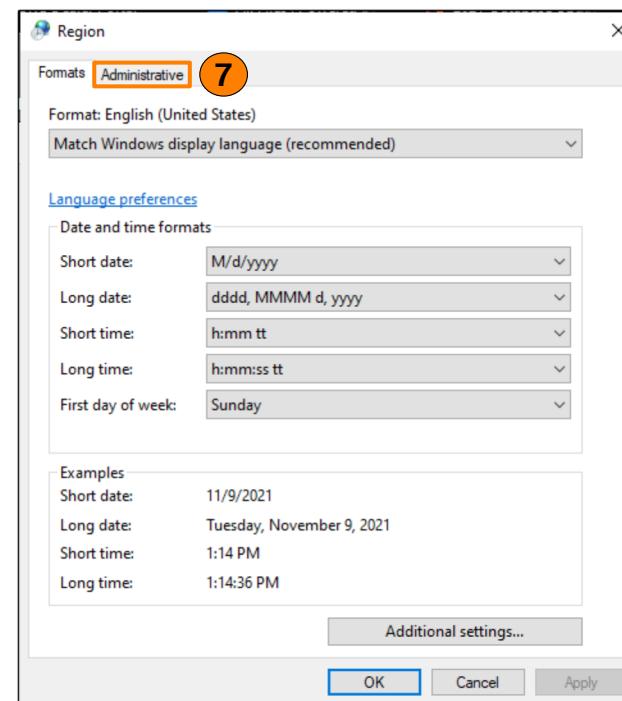
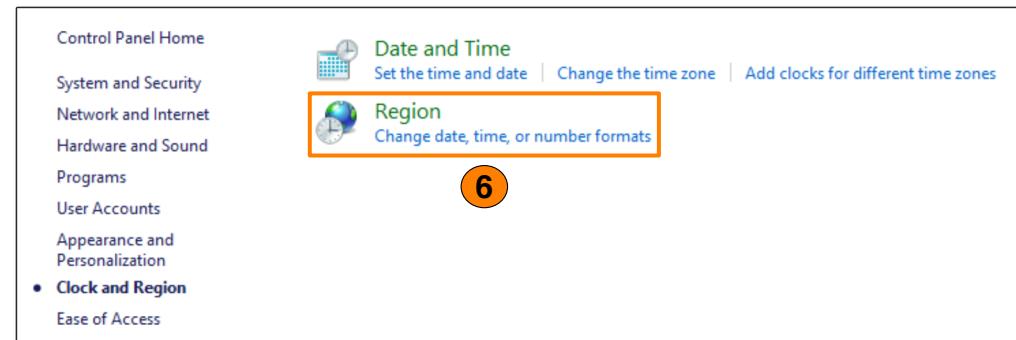
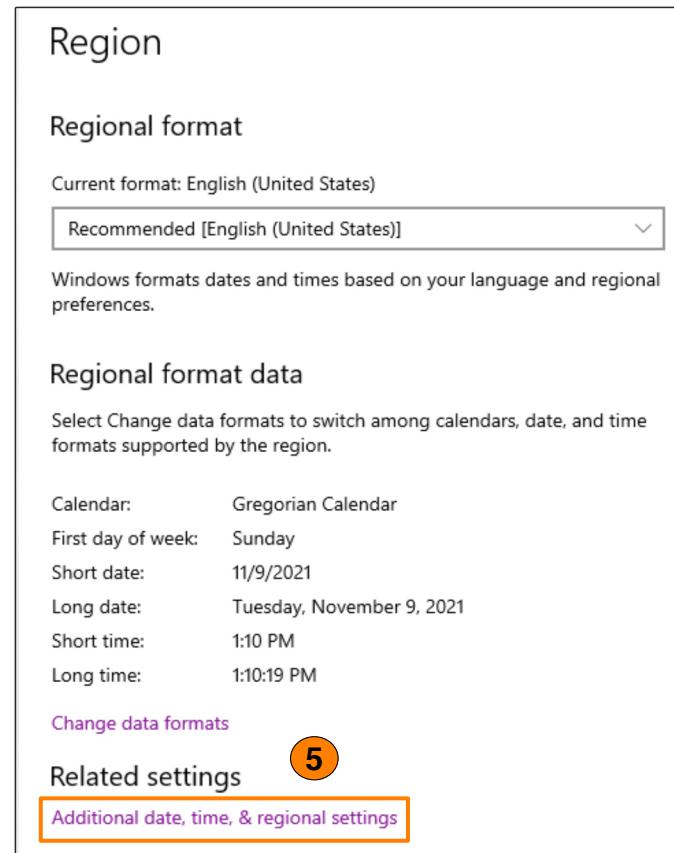




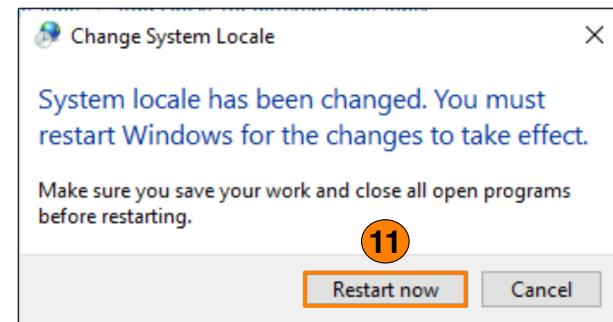
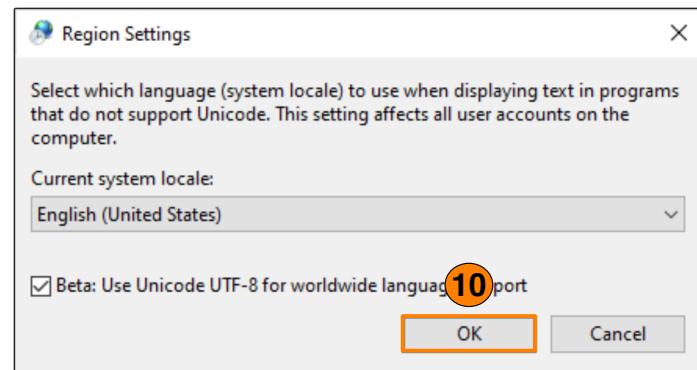
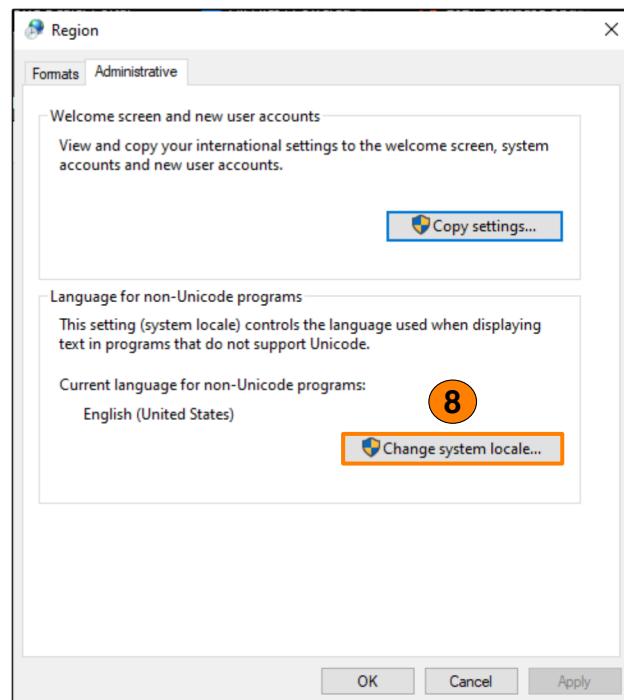
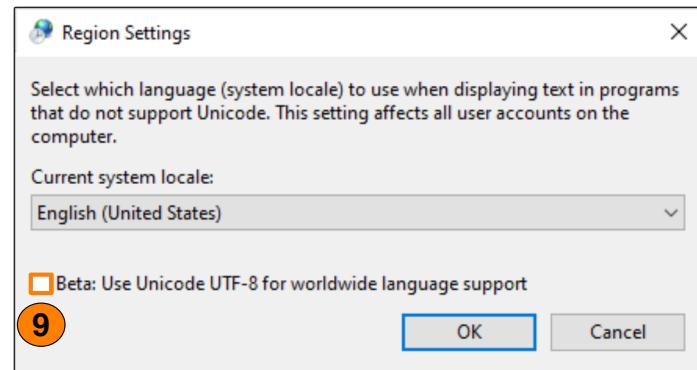
3. On the Settings menu, select **Time & Language**. This opens a new window.
4. Select **Region** from the options on the left.



5. Under **Related settings**, select the **Additional date, time, & regional settings** link. This opens a new window.
6. Under **Region**, select the **Change date, time, or number formats** link. This opens a new window.
7. Select the **Administrative** tab.



8. Select the **Change system locale...** button. This opens a new window.
9. Select the **empty checkbox** to enable Unicode UTF-8 Worldwide Language Support.
10. Select **OK**.
11. The PC prompts for a restart. Save any necessary work and restart the PC to complete this process.



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