CONVERGING SYSTEMS V4.000.0284 Creston Home Interface Instruction Manual

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Control of Converging Systems e-Node and CS-BUS compatible LED and/or controllers through Ethernet (IP) (or DMX fixtures

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Integration Note	
Manufacturer:	**Converging Systems, Inc.**
Model Number(s):	**CS-Bus Motor and Lighting Controllers**
Crestron Home Code Base	V4.000.0284 and later
Driver Developer:	Converging Systems Inc. (Crestron Developer Partner)
Converging Systems Gateway Required Firmware Level	See **here.** (*You must upgrade if you have an incompatible version*)
Document Revision Date:	3/27/2024 Rev 4.0

Contents

Important Note

This documentation covers as **(ii)** the enhanced Crestron Home-Native Platform Lighting Driver **("NPLD")** with full support for the Crestron scene manager and Crestron Native Lighting UI, as well as general references to the legacy **(i)** the Crestron Home-Platform Extension Driver **("PED"**) (with no support for Crestron scene manager), seamless integration to the NPLD with a custom UI for motor control. Once Crestron launches their SDK for Motor control, the subset PED driver will be retired and the Crestron Motor UI will be adopted.
Contact Converging Systems for the current status of motor control drivers for Crestron Home. References within this document for Motor control are WIP currently

Table of Contents

Please the following table of contents to help you navigate through this Integration Note.

Section	Section	Subtopics
Revision History		
Overview and Supported Features		
Supported Commands		
		LED Commands
		Motor Commands
Integration Requirements -CSI Configuration		
		Wiring Diagram IP

Component Hardware Setup		Link provides preliminary information and links to Converging Systems for fulldocumentation
Component Software Setup		Link provides preliminary information and links to Converging Systems for fulldocumentation
Crestron Home Programming		
		Driver Details
		Step-by-step directions
Driver Nuances/Known Issues		
End-User Experience		
Test Project		
Supplemental CH Instructions		
Adding ZGN devices later on		
Adding Motor Devices		
Common Mistakes		
Converging Systems Setup/Configuration	*Appendix 1*	
Background on Addressing	*Appendix 2*	
Color Space Issues	*Appendix 3*	
Addressing Deep Dive	*Appendix 4*	

Revision Update:

Rev	Date	Detail
1.0	11/11/2022	This covers the Converging Systems Platform Extension Driver ("**PED**") which was relea sed prior the release of the Crestron SDK for lighting which did not support the Crestron scene manager. This version utilized a non-Crestron custom User Interface to mimic the Crestron native driver.
2.0	8/9/2023	This cover the Converging Systems Native Platform Lighting Driver ("**NPLD**") which was released based on the new Crestron Lighting SDK which enabled integration of Converg ing Systems' lighting elements into the Crestron scene manager. This version utilizes the standard Crestron Lighting User Interface that is used to support Crestron's own and su pported lighting fixtures.
4.0	3/27/2024	This covers the new hybrid NPLD with PED (motor functionality) and Crestron Home 4.0 . This utilizes the Crestron Native UI for lighting and a custom UI for motor control.

OVERVIEW AND SUPPORTED FEATURES

The Converging Systems' e-Node gateways are designed to act as the communication intermediary between a Crestron Home and Converging Systems' lighting or motor controllers

The Converging Systems ILC-x00 family of LED lighting controllers are networkable devices which can provide support for Converging Systems' Flexible Linear Lighting Arrays (FLLA) RGB, RGBW, and monochrome LED devices as well as specific third-party surface mount and recessed RGBW fixtures
The Converging Systems IMC-x00 family of MOTOR controllers are networkable devices which can provide for third-party motor platforms.

THE FOLLOWING OPTIONS ARE SUPPORTED BY THE CONVERGING SYSTEMS e-Node/Gateway (LIGHTING) DRIVER:

- Discrete control of LED states (ON/OFF) including feedback of ON/OFF C1 D1
- Bi-directional control of Hue/Saturation/Brightness color settings C1 D1
- Bi-directional control of Brightness settings for monochrome devices C1 D1
- Bi-directional control of Correlated Color Temperature (CCT or Dynamic White) settings C1 D2
  Specific CCT settings can be selected as well using CCT UP (Cooler) and CCT Down (Warmer) controls C1 D2
- Activation of Circadian Lighting (Sunrise to midday sun to Sunset dynamic settings) using Crestron Circadian controls C1 D2
- Support of communication using Telnet with or without authentication (Port 23) C1 D1
- Ability to store and recall specific color using Crestron Scene Manager C1 D1 (with NPLD Drivers)
- Control via all thin-client interfaces (Crestron touchscreens and keypads) C1 D

THE FOLLOWING OPTIONS ARE NOT SUPPORTED BY THE CONVERGING SYSTEMS e NODE/Gateway (LIGHTING) DRIVER:

- Circadian lighting on some third-party DMX fixtures
- Exact color temperature output on some third-party DMX fixtures
- Ability to recall specific Effects C1 D1 (with NPLD Drivers-WIP)
- Ability to change Dissolve/Fade Rates (time to transition from one state to another) (i) for On and Off states, (ii) for Presets to other Presets (tbd) and (iii) for state-to-state transitions within Effects C1 D1 (with NPLD Drivers-WIP)

THE FOLLOWING OPTIONS ARE SUPPORTED BY THE CONVERGING SYSTEMS e-NODE/GATEWAY (MOTOR) DRIVER:

(currently the Crestron Lighting SDK does not support Motors natively —it is expected that once that SDK is created, motor control will be available from Converging Systems)

THE FOLLOWING OPTIONS ARE NOT SUPPORTED BY THE CONVERGING SYSTEMS e NODE/GATEWAY (MOTOR) DRIVER: (TBD)

Notes:

C1 Supported with Converging Systems' e-Node 2000/4000 & FLLA linear elements and Clarte Lighting Absolute Light fixtures

D1 Supported with Converging Systems' e-Node 2100/4100 dmx Gateway with all 3rd party DMX fixtures

D2 Supported with Converging Systems' e-Node 2100/4100 dmx Gateway with specific 3rd party DMX fixtures

Tabular Summary of Supported Features

The following commands are supported by the current driver for the various lighting and motor control devices (except those that are grayed out)

LED Lighting Commands

General CS-Bus Commands	**Crestron Home Device Specific**	**ILC100c ILC-**	**ILC- 400**	**ILC- 450**	**ILC100m &**	**ILC-200**	**e-Node DMX**
	Commands	**300**			**ILC-400**		
					in		
					mono		
					mode		
General LED Control Commands							
ON	On	✓	✓	✓	✓	✓	✓
OFF	Off	✓	✓	✓	✓	✓	✓
~~EFFECT,n~~	~~Effect~~	~~✓~~	~~✓~~	~~✓~~			~~✓~~
~~STORE,#~~	Store	✓	✓	✓	✓ V5		✓
~~RECALL,#~~	Recall	✓	✓	✓	✓ V5		✓
~~DISSOLVE.1=XX~~	~~Default Dissolve Set~~	~~✓~~	~~✓~~	~~✓~~	~~✓~~		~~✓~~
~~DISSOLVE.2=XX~~	~~Default Dissolve Set~~	~~✓~~	~~✓~~	~~✓~~	~~✓~~		~~✓~~
~~DISSOLVE.3=XX~~	~~Default Dissolve Set~~	~~✓~~	~~✓~~	~~✓~~	~~✓~~		~~✓~~
~~DISSOLVE.4=XX~~	~~Default Dissolve Set~~	~~✓~~	~~✓~~	~~✓~~	~~✓~~		~~✓~~
~~SEQRATE=XX~~	~~Default Dissolve Set~~	~~✓~~	~~✓~~	~~✓~~	~~✓~~		~~✓~~
HSB (HSL) Color Space Commands							
FADE_UP	Fade Up	✓	✓	✓	✓	✓	✓
FADE_DOWN	Fade Down	✓	✓	✓	✓	✓	✓
SET,L	Set (brightness)	✓	✓	✓	✓		✓

~~HUE_UP~~	~~Hue Up~~	~~✓~~	~~✓~~	~~✓~~			~~✓~~
~~HUE_DOWN~~	~~Hue Down~~	~~✓~~	~~✓~~	~~✓~~			~~✓~~
HUE,H	Hue	✓	✓	✓			✓
~~SAT_UP~~	~~Sat Up~~	~~✓~~	~~✓~~	~~✓~~			~~✓~~
~~SAT_DOWN~~	~~Sat Down~~	~~✓~~	~~✓~~	~~✓~~			~~✓~~
~~SAT_S~~	~~Sat~~	~~✓~~	~~✓~~	~~✓~~			~~✓~~
~~STOP~~	~~Stop~~	~~✓~~	~~✓~~	~~✓~~	~~✓~~		~~✓~~
HSV,h.s.v	In-line command	✓	✓	✓			✓
RGB Color Space Commands							
~~RED,R~~	~~Red~~	~~✓~~	~~✓~~	~~✓~~			~~✓~~
~~GREEN,G~~	~~Green~~	~~✓~~	~~✓~~	~~✓~~			~~✓~~
~~BLUE,B~~	~~Blue~~	~~✓~~	~~✓~~	~~✓~~			~~✓~~
~~WHITE,W~~	~~White~~	~~✓~~	~~✓~~	~~✓~~	~~✓~~		~~✓~~
~~RGB,R.G.B~~	~~RGB~~	~~✓~~	~~✓~~	~~✓~~			~~✓~~
~~RGBW,R.G.B~~	~~RGBW~~		~~✓~~	~~✓~~			

~~STOP~~	~~Stop~~	~~✓~~	~~✓~~	~~✓~~	~~✓~~		~~✓~~
Correlated Color Temperature (CCT) Commands and SUN (Circadian) Commands							
CCT,XXXX,v	CCT + INT		✓	✓		✓	✓
CCT_UP	CCT Up		✓	✓		✓	✓
CCT_DOWN	CCT Down	✓	✓	✓		✓	✓
SUN,XXX	SUN		WIP	WIP			
SUN_UP	SUN Up		WIP	WIP			
SUN_DOWN	SUN Down		WIP	WIP			
Bi-Directional Commands							
COLOR=?	Automatic polling within Driver.**Note**: Driver achi eves function with Notif yON	✓	✓	✓	✓		✓
VALUE=?	Automatic polling within Driver**Note**: Driver achi evessame function with Notify ON						
STATUS=?	Automatic polling within Driver**Note**: Driver achi eves same function wit hNotify ON		✓	✓		✓	✓
Accessory e-Node Command/Setup Parameters							
Telnet Login with Authentication (wi th e-Node***)		✓	✓	✓	✓		✓
Telnet Login with out Authentication***		✓	✓	✓	✓		✓

Notes:

- Reserved
- Possible with enhancements to Driver
- By turning off or on authentication within e-Node through Web-Pilot or Pilot application

Motor Commands

(this table will be updated once the Crestron SDK supports motors)

General Commands	Crestron Home Device SpecificCommands	IMC-100(with e-Node)	BRIC(“Bric Mode”) (with e-Node	CVM(“IMC-300 MKII”)
General Motor Control Commands				
GOTO				
UP	Raise	✓	✓	✓
DOWN	Lower	✓	✓	✓
STOP	Stop	**	**	**
~~MOTOR RIGHT~~				
~~MOTOR LEFT~~				
RETRACT	Raise			
~~TOGGLE~~				
STORE,#		✓ ****	✓	✓ ****
RECALL,#		✓ ****	✓	✓ ****
~~PRESET.X=XX.XX~~				
Bi-Directional Commands				
~~STATUS=?~~				
POSITION=?	Automatic			
Accessory e-Node Command/Setup Parameters				
Telnet Login with Authentication (with e- Node***)		✓	✓	✓
Telnet Login w/o Authentication***)		✓	✓	✓

Notes:

- Reserved
- By simply hitting the same directional button a 2nd time
- By turning On or OFF Authentication in Web Pilot or Pilot application
- With Version 2 of driver will handle stores and recalls from 1 to 20 (update on Converging Systems site at https://**www.convergingsystems.com**/software/local_profiles_library.php#crestronhome

INTEGRATION REQUIREMENTS-CONVERGING SYSTEMS CONFIGURATION

NOTE: *Converging Systems LED and Motor Controllers REQUIRE a communication device (i.e., e Node/2×00 or eNode/4×00 for Ethernet connectivity). It is not possible to connect CSI LED or Motor controllers to a Crestron Home controller in any other way.*

The system will need to be installed and configured according to the Converging Systems documentation, prior to

integration with the Crestron Home system. The Converging Systems e-Node web-page commissioning tool can be accessed by selecting the triple settings icon on the e-Node webpage

NOTE: It is recommended that the Converging Systems' controller(s) as well as the e-Node Ethernet gateway (communication device) are running the latest version of firmware available at the time of installation

WIRING DIAGRAM (for IP connection

Wiring/Configuration Notes:

1. Maximum length of CS-Bus cabling from e-Node to the last ILC-xxx/IMC-x00 controller using CAT5e or better cabling (and obeying the 1-1 pin-out requirements for the RJ-25-RJ25 cable and a twisted pair of the same color carrying the signals on pins 3 and 4 of an 6P6C cable) = 4000 feet
2. Maximum number of ILC-xxx/IMC-xxx controllers and Converging Systems' keypads (if provided) that can exist on a single network connected to a single e-Node device = 254
3. Maximum number of e-Nodes that can exist on a Crestron system = 254

BILL OF MATERIALS (for IP control)

#	Device	Mfg.	Part Number	Protocol	Connector Type	Notes
1	Crestron Hom e	Crestron	CP4-R , PC4-R M C4-RDIN-AP4-R	Ethernet	RJ-45	
2	Network Swit ch	Various	Various	Ethernet	RJ-45	
3	e-Node/2×00 ore-Node/4×0 0	Converging Sy stems	e-Node 2000/4000 (or CV M)	Ethernet	RJ-45 (for Ethern et)	
4	Lighting Contr oller (or Motor Controller)	Converging Sy stems	ILC-x00 or IMCx0 0	CS-Bus protocol	RJ-25 for CS-Bu s communication	Must termi nate begin ning and e nd of bus with 120 o hm resister on pins 3/4
5	Flexible Linea rLighting (FLL A) luminaries	Converging Sy stems	FLLA-Monochrom e/Bi- White/RGB or RGBW type		1- color 2 pin2- c olor 3 pin3- color 4 pin4- color 5 pi n	
5alt .	Alternate RG BWFixture	Various	Various	Requires ILC-450	8 pin Phoenix typ e	
6op t	e-Node 21004100 dm xcontrollers	Converging Sy stems	e-Node 4100/2100	Ethernet	RJ-45	

COMPONENT HARDWARE SETUP

NOTE: Please refer to Appendix 1 for a reference document for general hardware instructions for Converging Systems devices. You may also find the Quick Start Guides that accompanied your hardware useful. In addition, these documents provide additional detail as to Best Practices for wiring and setup.
Once completed with this work, proceed to the next section-Component Software Setup. Other relevant and more detailed information can also be found as follows:
Lighting Control https://**www.convergingsystems.com**/lighting_install_library.php Motor Control https://**www.convergingsystems.com**/motor_install_library.php
There are also a number of short Quick Start Guides for various products that can be downloaded from the above links as well.

Best Practice-Setup Hardware before proceeding to the next section

COMPONENT SOFTWARE SETUP (using e-Node and e-Node Pilot app)

NOTE: Please refer to Appendix 1 for a reference document for complete software commissioning for Converging Systems devices. This includes information on software commissioning including Activation/ Addressing and Turning on Bi-Directional
Communication (NOTIFY). You may also refer to Quick Start Guides that accompany your hardware. In addition, these documents provide additional detail as to Best Practices for programming. ‘

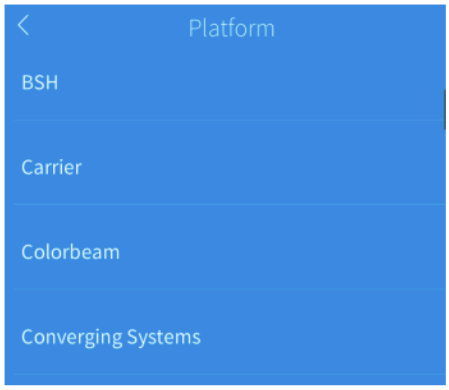
Once completed with this work, proceed to the next section-Crestron Home Setup and Programming. Other relevant and more detailed information can also be found as follows: Lighting Control https://www.convergingsystems.com/lighting_install_library.php Motor Control https://www.convergingsystems.com/motor_install_library.php
There are also a number of short Quick Start Guides for various products that can be downloaded from the above links as well.

Best Practice-Active/Address and Customize Software (within Hardware) before proceeding to the next section

Crestron Home Programming

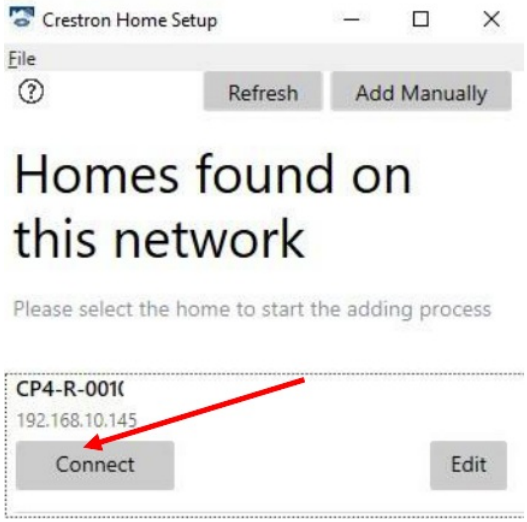
Driver Details

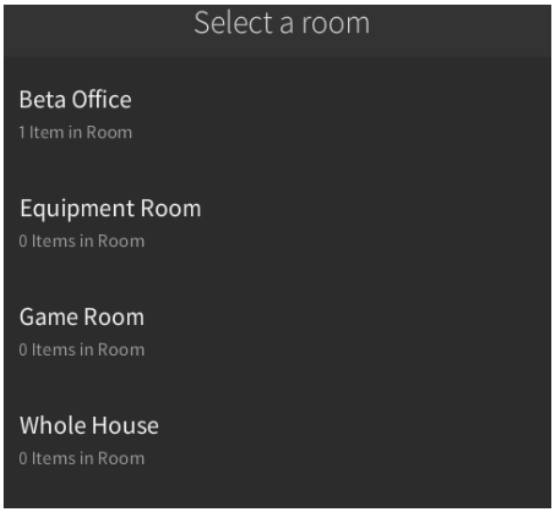
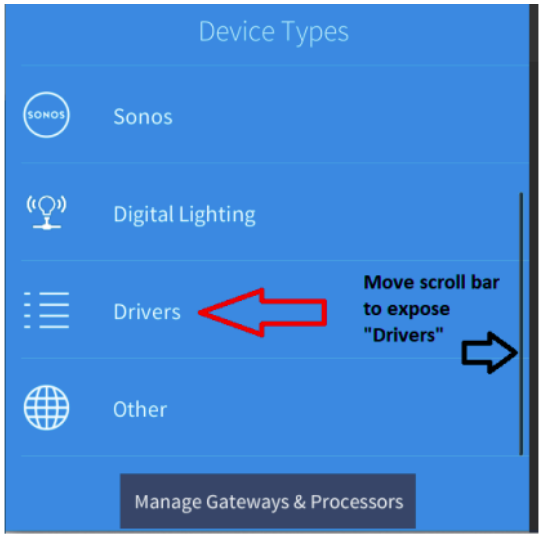
Converging Systems drivers can be found within Crestron Home Setup software for Converging Systems (see table below for specific driver nomenclature). Search under Drivers/Platform for Converging Systems as shown below. There may be a number of available drivers make sure that you use the Next option to review all drivers.



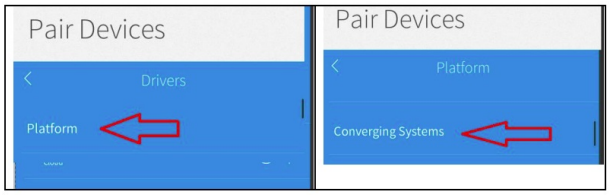
Note: Make sure you have loaded in the latest Crestron Home drivers for Converging Systems. Allow Crestron Home to search for new drivers before proceeding

Type	Step	Detail

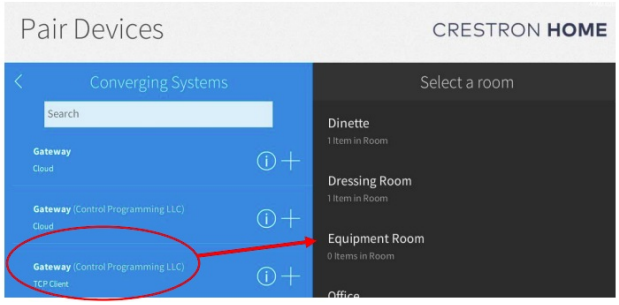
CH-1	Load Crestron Home Setup	• Launch the *Crestron Home Setup* app which is used to setup your Crestron Home processor (dealer setup software). After it is launched, select **Refresh** toauto-discover "**Homes found on this Network"** and hit **"Connect"** for applicableHome/processor.  • Enter your credentials when prompted to launch the Crestron XPanel.  
CH-2	Adding Devices (**communication** devices and **ZGN** controllers)	**Background on Device Placement** You will be adding an IP communication device/Gateway or in Crestron parlance, a "**Platform**" such as the e-Node/xxx, as described below in step **CH-3** and one or more **ZGN** Devices (controllers) as described below in step **CH-5**. Regardless if the load controllers are Native mode or DMX mode, they are all referred to here as **ZGN** Devices (for each one can be addressed with a **Z**one/**G**roup/**N**ode address). With respect to the **Platform** device (e-Node e-Node/dmx or similar), it really does not matter into what "room" that you place this (Platform) device, but you must place it

		somewhere. What is important, however, is where you place the individual controll ers (**ZGN** Device) that will be controlled through Crestron touch panels, keypads a nd mobile apps. Individual controllers, which we refer to as **Z**one/**G**roup/**N**ode (**ZG N**) Devices, must be placed into the appropriate room where they can be found and controlled. See CH-7 after first completing CH-3 in order to proceed. Now let's begin. But before advancing to discovering ZGN devices, it is required that you firs t discover the Platform or gateway. Please proceed. • Select the room into which your Platform will be installed. 
CH -3	Load **Platform** Drive r (into applicable roo m set above)	• Next, select **Drivers** 

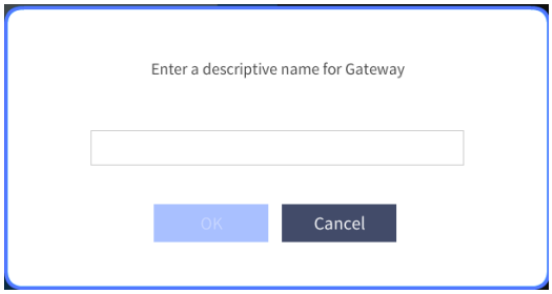
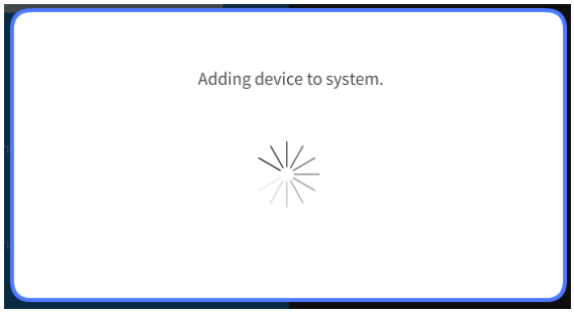
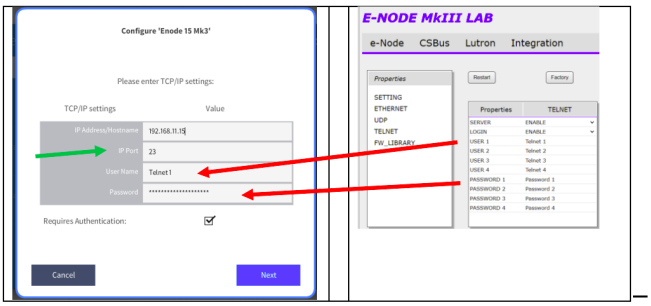
- Next, allow the Crestron auto-download procedure to complete (when the rotating icon stops)
- Select **Platform** and scroll down and select **“Converging Systems.”**

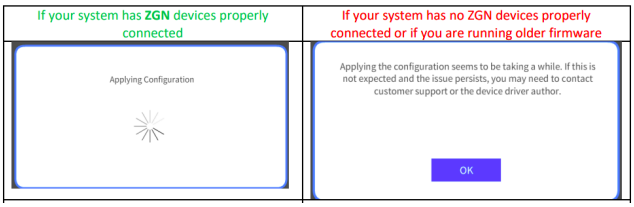
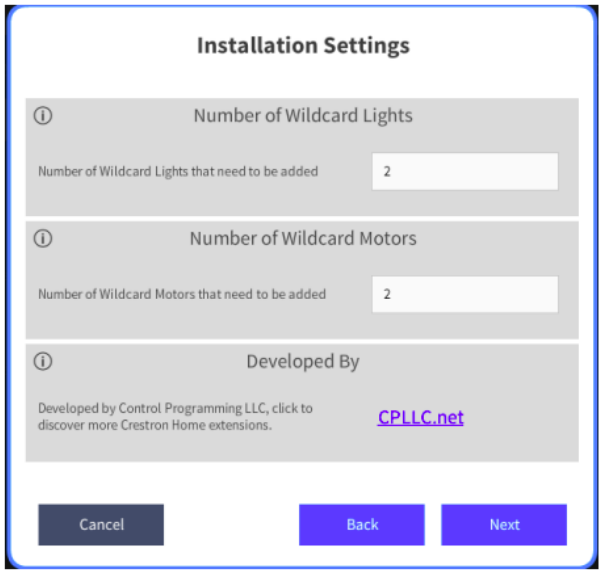


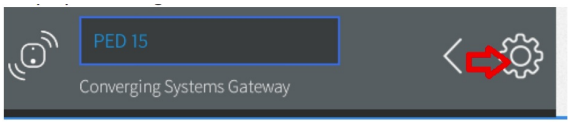
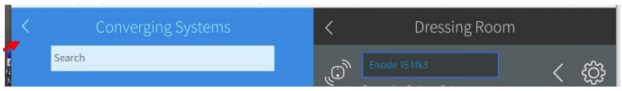
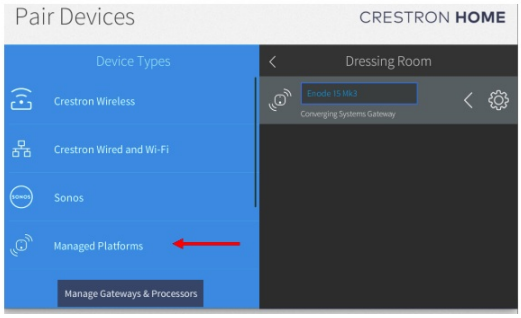
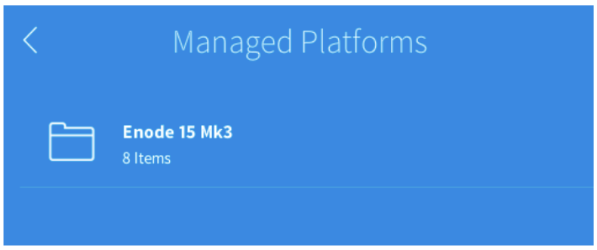
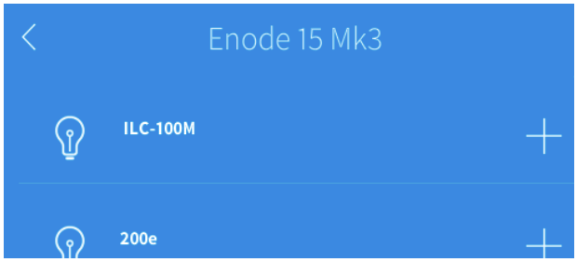
- Depending upon the Crestron driver release schedule, you may see either one of the following entries below:
- The Gateway/**TCP Client** is the V4 (“**NPLD**”- **N**ative **P**latform **L**ighting **D**river) v 4.000.0284 or later (**Select this one for CRESTRON HOME 4.0 and later**) Ø The Gateway/Cloud is the V2 (“**PED**”-**P**latform **E**xtension **D**river)- v 2.00.003.15 –
- Select the “**Native**/**NPLD**” Driver.
  The **Gateway-Cloud**/**PED”** Driver is a legacy driver that does not use the Native Crestron UI for lighting but does properly control motor devices with a separate UI. The PED should only be used for legacy Crestron Home installation (prior to OS 4.0 that do not support the Lighting SDK). –
- Then select the “**+**” on the right side of the Platform device-TCP Client (e-Node) that you wish to position within the targeted room

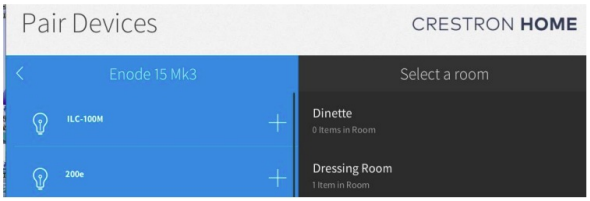
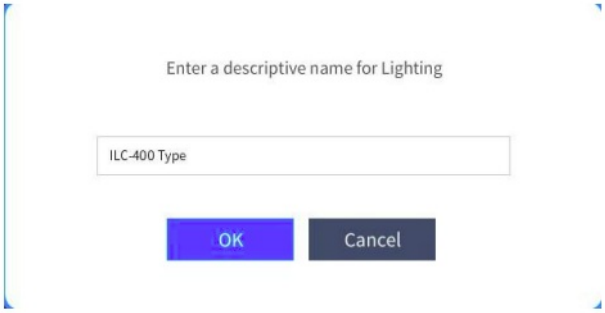


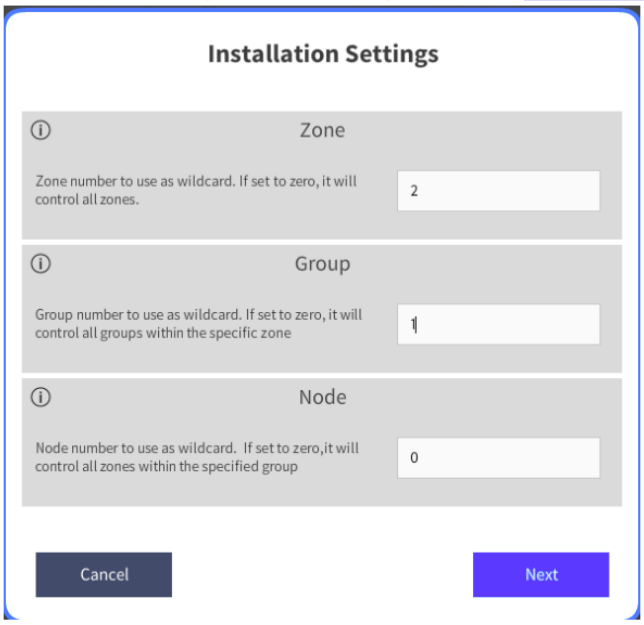
- -Provide a useful name for the **Platform**/Communication Gateway (i.e., e-Node xxx) and select **OK** to continue

		• After you have entered the requested information, you will see this message be low. Once this message disappears you are ready to proceed.  Proceed to the next step to continue the installation process. 
CH -4	Add TCP/IP settings i nformation	Within the **Configure 'name'** window, enter the **Platform**'s (e-Node's) **IP Address** -Fill in additional information as follows: **IP Port** – Leave as 23- **User Name** – Enter user name as provided within the Plat form's Telnet tab for an unused Telnet socket (i.e., User 1 credential if unused—ent er here)- **Password**— Enter password as provided within same tab for the same s ocket.  – Select **Next** to continue

		While device data is being acquired you will see the below message on the left (se e notes in this Step if this step never completes and/or you see the below message on the right message) 
CH -5	Add supplemental	within the I**nstallation Settings** window, enter the **Number of Wildcard Lights** (or
	information (as a	Motors) (i.e., virtual device) that are desired to be auto-populated (i.e., a virtual device
	preparation for	with a **ZGN** of 2.1.0 will control specific devices with addresses of 2.1.**1** and 2.1.**2** a nd
	discovering connected	2.1.**3** etc.)
	load devices) See se ction **CH-8** for more i nformation on Wildca rd loads.	**Note:** Phantom Wildcard Devices are useful if you want a single virtual Crestron UI device to be able to be populated in one or more rooms to control multiple ZGN (lo ads) rather than just a single ZGN (load). This cuts down on bus traffic and elimina tes any delays encountered with typical macros that generate a kind-of “popcorn” e ffect when triggered. 
		– Select **NEXT** to continue

Ch -6	Verify Platform has been properly loaded and is on-line	-Verify connectivity by selecting the tool icon  and confirm that Status is set to Online in the popup. **Note**: If status comes back Offline, check your power and IP address and credentials. If you entered the wrong IP address you may have to delete the **Platform** and try again. -When completed with this window, “X” out to continue.
CH -7	Discover previously discovered/addressed* **ZGN**controllers (and assign to applicable Rooms) *Using the e-Node web page setup procedure.	Left arrow (a number of times) within the left/Blue window to navigate back to the **Pair Devices Home page** where the **Manage Platforms tab** can be seen.   -Hover over the most recently programmed **Platform** (e-Node) and then select it (click on the entry)  -Immediately all discovered/addressed **ZGN** controllers will auto-populate below the Assigned name of the selected **Platform** device. Below, see where **ZGN** devices have been discovered for the Platform. Note, up to 254 CS-Bus devices can be discovered or 32 DMX devices per Platform. 

		-At this point you can place any load (**ZGN** device) within any previously named Room. Simply (i) select the correct room for the device within the “Select a room” (r ight/**dark**) window and (ii) select the “**+**” mark to the right of the selected ZGN contr oller (within the left/**blue** window) that you wish to position in that room  **Note:** If you are adding Motor Control devices, see Appendix A2 for more informati on here. -Provide a useful name for the **ZGN** controller  -Continue this process until all loads have been assigned to applicable rooms
CH -8	Wildcard Devices Inf o	**Note on Wildcard Devices** The option to create and use any number of Wildcard Device(s) is a labor-saving feature to permits one or more **phantom ZGN** device to be created that can in turn trigger real **ZGN** devices that share the same **Z**one and **G**roup Address regardless of their (different) **N**ode addresses. For instance, if you have a room with four loads with **ZGN** addresses of 2.1.**1**, and 2.1.**2** and 2.1.**3** and 2.1.**4**, you can create a wildcard device as shown below (with **Z**one and **G**roup mat ching the target devices, but with Node set to **0**) that will trigger all of the above devices with identical Zone and **G**roup settings).

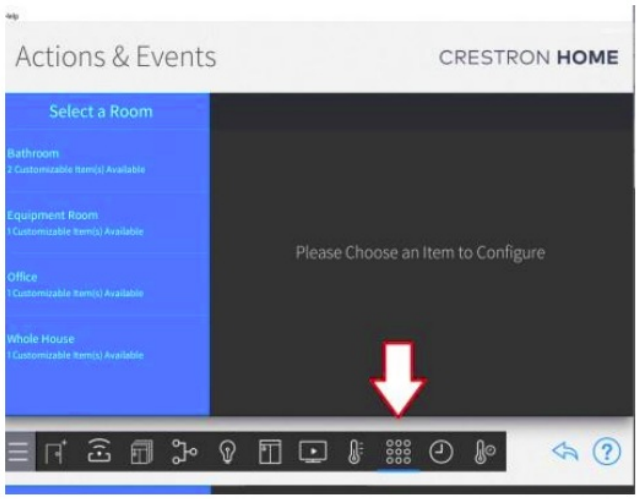
		For more information on Zone/Group/Addressing see this **document**. 

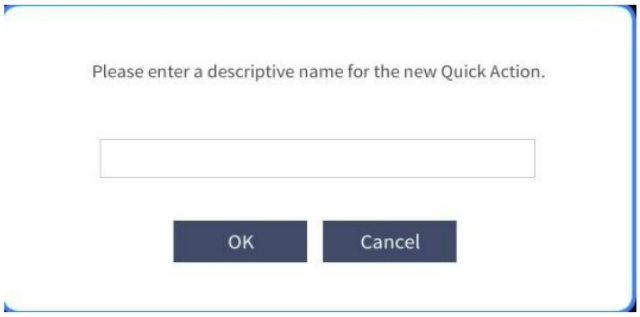
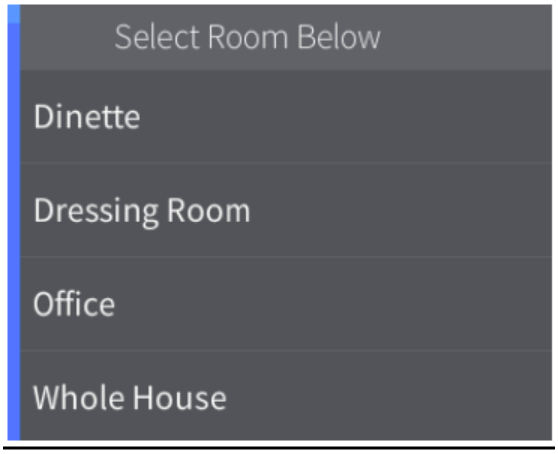
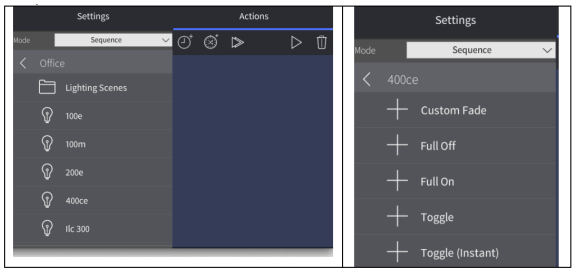
Programmable Events

Note Programmable Events have several triggers

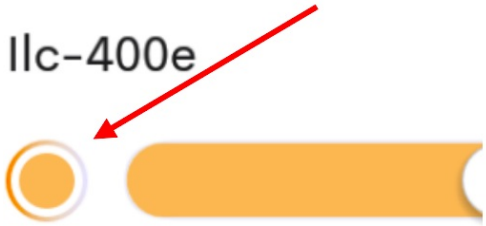
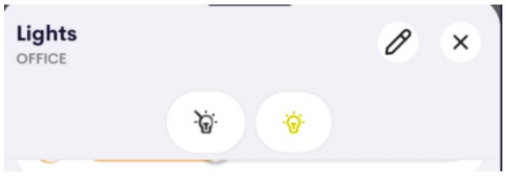
- When all of the loads power off
- When all of the loads power on

A Quick Action can then be programmed for these triggers as follows:

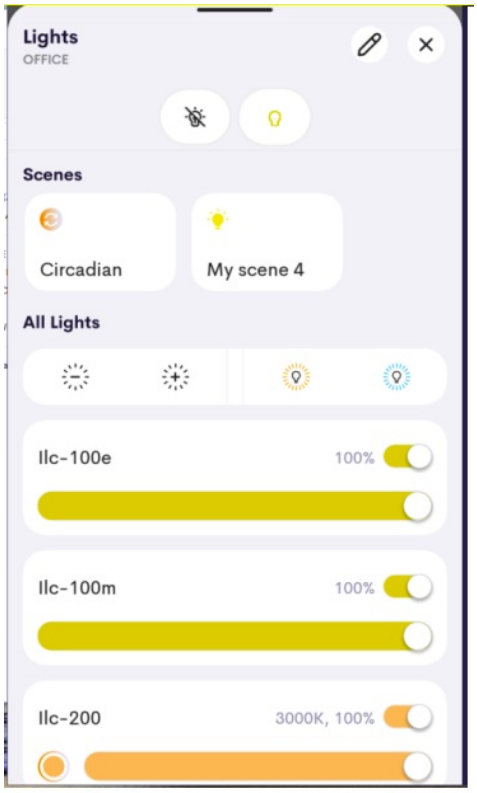
PE-1	Create new Quick Action type	-Go to the **Actions and Events** Tab  -Select a Room, and select Quick Action  -Select the “+” mark to add a new Quick Action 

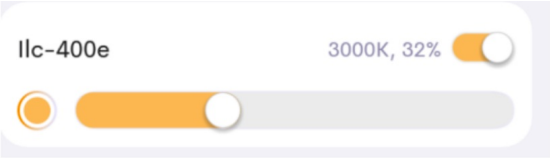
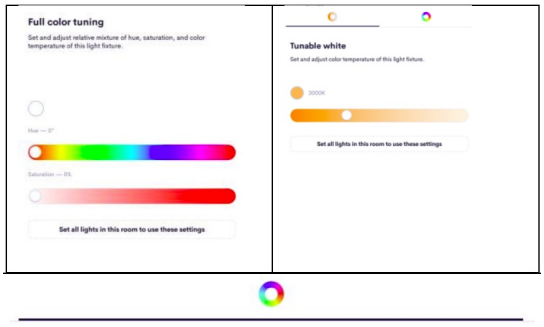
		-Name your new Quick Action  -Select “**OK**” to continue-Next to “Mode” scroll down and select “Sequence”-Select Room where a programmed ZGN load is located 
PE-2	Customize Entry	-The following pulldown will appear. Select a ZGN load and a desired action to complete.  -Set other relevant settings as desired under **Actions**.

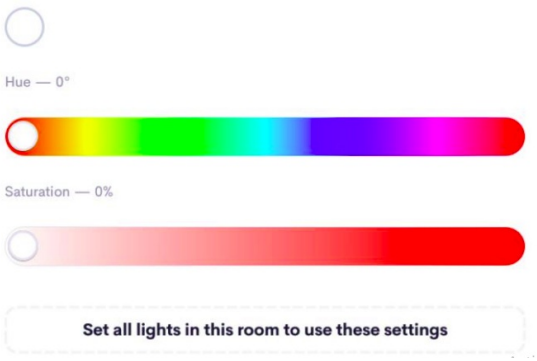
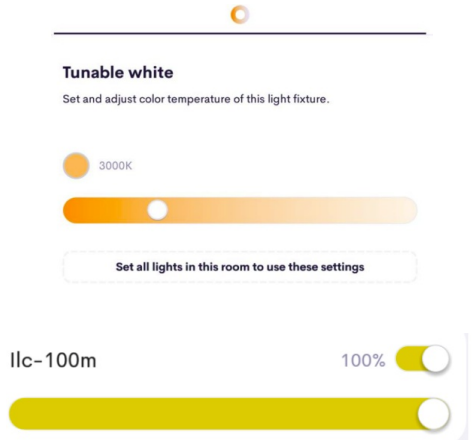
Nuances/Known Issues

Driver Issues		
D-1	Automatic Updates to Crestron Home from changes in e-Node programming	The driver will automatically communicate with the e- Node/ e-Node/dmx to import dynamically and changes to the current configuration only after a reboot or a **refresh** is initiated. For instance, new **ZGN** (i.e., any additions made through the e-Node webpage discovery process) devices, any name changes, and changes in **ZGN** addresses will be automatically reflected in the existing Crestron programming.
D-2	State changes to **ZGN** devices	Any controller changes to existing discovered controllers (i.e., color to bi-white to mono) may require deleting said device within Ch and re-adding it after a reboot of the Crestron processor.
D-3	If no **ZGN** devices are connected	If no **ZGN** devices are connected to the Platform, or no **ZGN** devices have been discovered/activated that are connected to the Platform, the Platform driver may not properly load as shown in Step **CH-4**. Check your connections and setup and repeat operation. If there are no connected/activated connected **ZGN** devices connected to your Platform, the automated discovery process required for the Gateway driver to be properly installed is unable to complete (by design). For more information click **here**.
Crestron Home App Issues		
C-1	Android versus iOS	When you select adjustment dot on iOS app to make changes, pop-up sometimes do not appear (on IOS only). You may have to leave screen and come back. 
C-2	All Room ON/OFF	All ON/All Off button on Room view fails to operateafter a few sequences are pressed. You may have to
		toggle a particular control and then come back to use this control – but repetitive use causes issue (Crestron has been notified). 
C-3	On/Off with individual control	CH uses a default color on control. So when you set a CCT or HSV color and turn it off with this control, a subsequent ON command will set it to the default Crestron Power on setting. Contact Crestron for how to set default color/brightness levels./

End-User Experience

Details	User Interface
Room View • Displays the rooms that are active and w here loads are programmed • Monochrome loads will have a brightnes s slider. – • RGB and uncalibrated HSB loads will ha ve HSB sliders • Ful Spectrum loads will have HSB and C CT sliders	

Adjustment Controls General Each room will display an ON/OFF toggle and intelligen tly configured sliders for control of the target ed load Status “light bulb” reacts to ON/OF FStatus (bi-directional feedback)	
Adjustment Controls-RGB devices (and uncalibratedRGBW devices) -Sliders will re ach to actual state (bi- directional feedback) -Sliders will control HSB Note: Legend that i ndicate CCT here is not supported and text will be corrected by Crestron in the future. N o CCT is available with devices that do not have CCT inherent capabilities.	

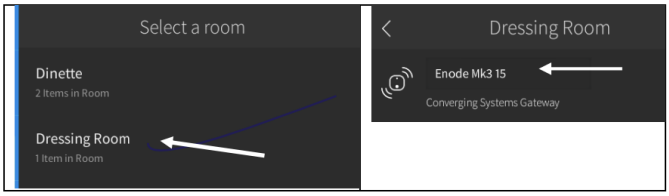
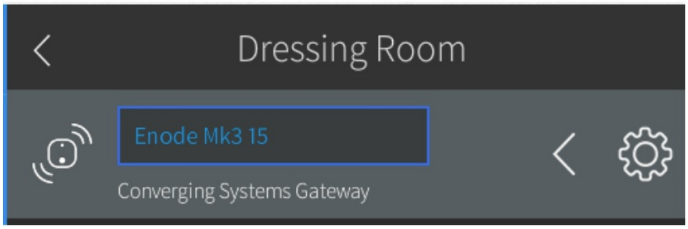
Adjustment Controls-Bi-White Devices – Sliders will control Intensity and Color Temp (CCT)-Sliders will reach to actual state (bi-directional feedback)	
Adjustment Controls-Monochrome Devices -Slider will control Intensity only-Slider will reach to actual state (bi- directional feedback)	

Test Project

Step #	Step Overview	Detail
T-1	Test with User Interface.	With either a Crestron app or a touch screen, verify operation.
T-2	Test with Actions/Execute	• Create an Action within the Scripts window and select Execute
T-3	Test with Crestron remote	• You should also be able to control the LED using various supported Crestron Home remotes (and other keypads). • Proceed through each button and interface to verify proper operation. If certain functions are not operational, check your programming within Composer.

SUPPLEMENTAL CRESTRON HOME INSTRUCTIONS

A1. Adding (incrementally new) ZGN Devices
If you want to add a new ZGN device after you have initially set up your system, the new device can be discovered/add in either of two ways.
-Approach 1–Simply reboot the Crestron processor and proceed to Step C-7 where it will be automatically added to list of ZGN of non-assigned ZGN devices (available to assign to a Room), or
-Approach 2 – Re-discover the new device without rebooting the Crestron processor as described below **(“Refresh”).**

Step #	Step Overview	Detail
A1-1	Add incremental ZGN device	While in Crestron Home Setup/**Pair Device** window,-Select the room where the targe t Platform to which the new **ZGN** device is connected, then-Select the Platform itself within that Room to which the new **ZGN** device is connected.  -After selecting the Platform, select the gear wheel icon to expose a popup  -Select **Check for Driver Update**, and after it completes its cloud search, select **Opti ons** then **Reload** and **CH** will re-discover connected ZGN devices**.**

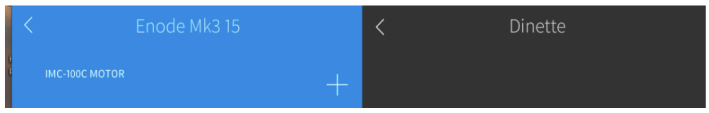
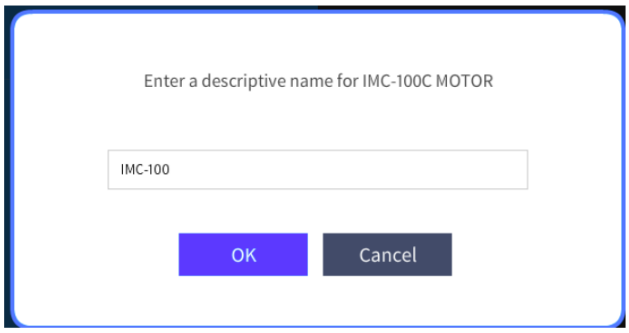
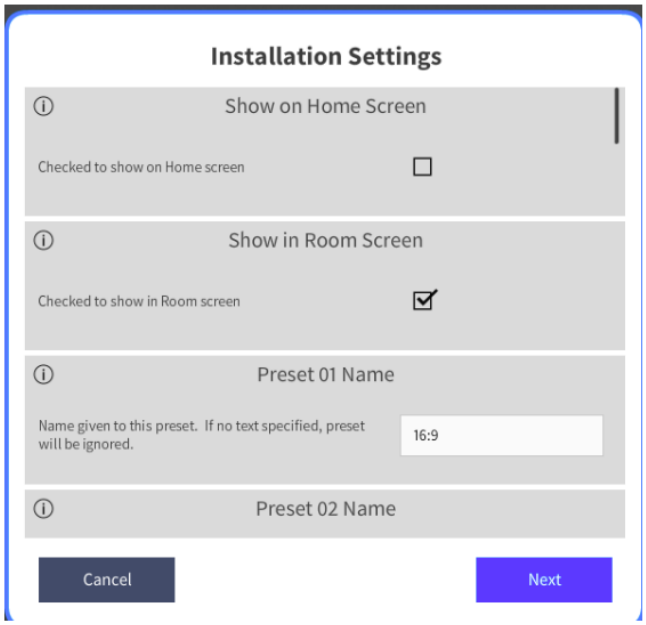
		 -Add the new ZGN device(s) as before w	ithin Step CH-7

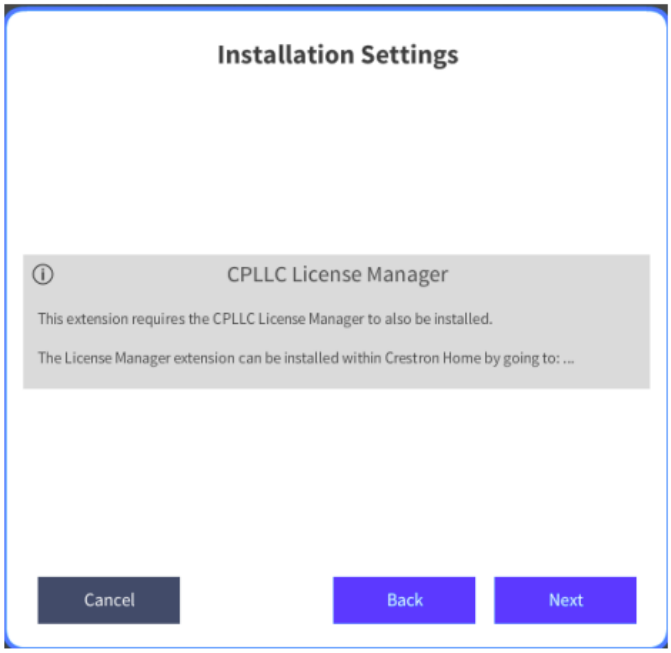
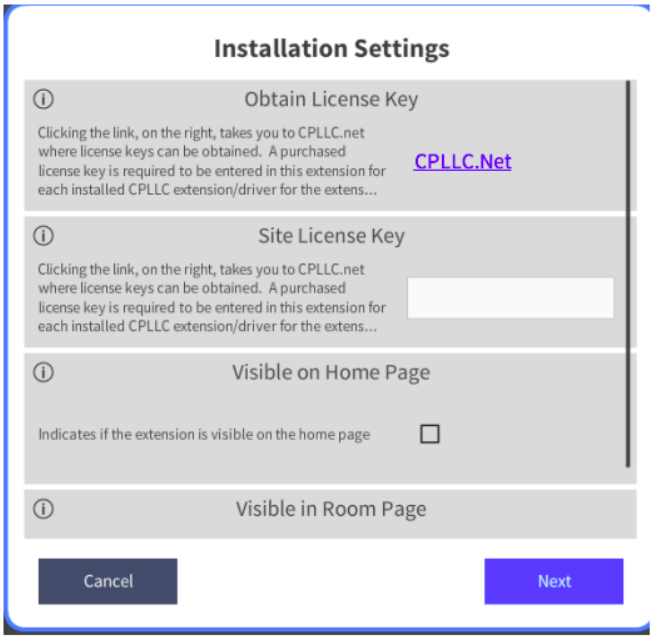
Adding Motor Devices

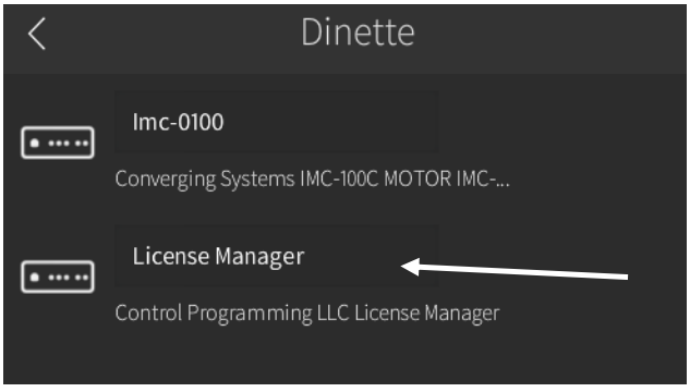
The current 4.0 OS release of Creston Home supports a lighting SDK for the native control of Converging Systems' Platform (gateways) and connected LED lights. Control of Motor(s) connected to the Converging Systems' Platform is now an included option within the NPLD (as a built-in Platform Extension Driver – PED) within the NPLD (Wow) with its own (basic) customized UI.

Please follow the directions below to enable this exciting functionality. As soon as the Crestron SDK for motor devices is launched these directions will be modified and the UI will become more integrated within Crestron Home.

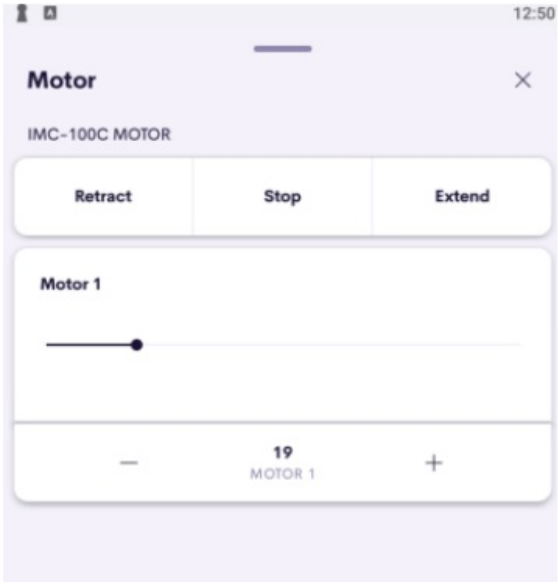
Step #	Step Overview	Detail

A2-1	Add motor just like light	-After the Platform can see the supported motor device, you will see this screen. Select the supported motor and add it to the appropriate Room  -Name the Motor device and hit OK.  -Add relevant information as requested by this next screen.**Note**: a number of pre sets are available depending upon the target device. Enter a name for each Prese t. If you fail to enter a name that preset will be eliminated. 

		-Select “**Next**” to proceed-This unique integration of a PED within the NPLD requires a License Manager to be added to your systems (at no cost). This screen starts this installation process. -Select “Next” here to proceed. 
		 **Note:** this above step requiring a License Manager will be eliminated in next release. When you see this page, simply click NEXT instead of selecting any of the options presented (you will not need to obtain a license key or add any information here as it is auto-programmed). When completed, your screen should look like this. (Note the requirement for installing the License Manager will be eliminated in the next driver release.)



-The functionality available is dependent upon the motor supported. Currently, onl y the IMC-100 without intermediate presets is supported. Therefore, the Retract, Stop, and Extend functions only are supported.



COMMON MISTAKES

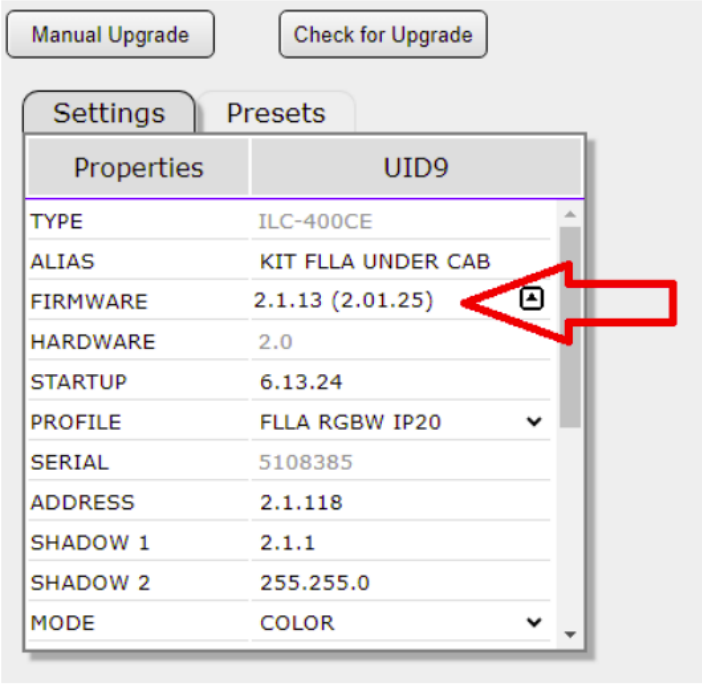
1. Forgetting to set TELNET credentials for Converging Systems e-Node device within the Lighting Interface page. Typically, Telnet sessions require a LOGIN ID. Recent versions of the e-Node now have four Telnet sockets available. Unless changed from the factory defaults, Telnet 1 is the default of username and Password 1 is the default for password.
   Note: Make sure that the settings within the e-Node match the setting within your MOTOR or LED module.
2. Forgetting to update Zone/Group/Nodes addresses within the default IP driver for specific controllers. The default driver from Converging Systems is set to 2.1.0 for lighting devices, and 1.1.0 for motor devices. The “0” in the last location refers to a wildcard setting which causes all devices with a Node address from 1 to 254 to respond. If you have a setup with uses specific addresses other than 2.1.1 for instance (i.e. 2.1.2 for the second controller, 2.1.3 for the third controller, etc.) you must update the serial or IP driver accordingly. You should always select a non “0” address for a controller so that its bidirectional communication will operate (and the indicator LED on the ZGN controller will turn from Green to Yellow.
3. Using commas between the Zone/Group/Node entries instead of periods (within the Address Tag)
4. Forgetting to check to make sure you have the latest Converging Systems firmware loaded for your system.

Minimum levels of firmware are shown below

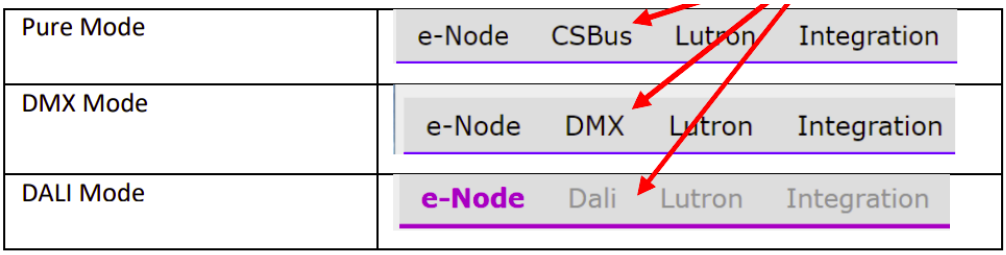
Product Name	Min. FW level required for Crestron Home
Ø e-Node MKIIIØ WAC A1G10-DMXØ Somfy UAI+	V 02.05.04 or later
Ø e-Node MKIV 4000/4100Ø WAC A1G20-DMX	V 01.03.05 or later

Note: If you have a version of firmware installed prior to the above versions, please upgrade you Gateway as shown in Step 5 below

5. After you select Check for Upgrade and refresh your browser, if the version in parentheses is greater than the value to the left (without parentheses), simply select the download icon to update your firmware.



6. You have failed to enter at least one CSBUS (IMC-x00, ILC-xxx), DMX or DALI device under the applicable tab on your Gateway



Appendix 1

Converging Systems System Setup/Configuration

Before proper operation between the Converging Systems' controllers and a third-party control system can begin, it will be first necessary for most applications to configure the Converging Systems' products using the e-Node Pilot (PC based) application or the Web-Pilot application. Subsequently, matching communication parameters within the third-party control system are required-see specific directions for each system at https://www.convergingsystems.com/inres_atoz.php. In case you have not previously configured a Converging

Systems controller product, please refer to the following directions.

Background

The Converging Systems e-Node is an Ethernet communication device which can be used to connect a supported third-party control system to one or more Converging Systems motor and/or lighting controllers. Alternatively, the Converging Systems' IBT-100 serial interface device can be used alternatively to connect the same number of Converging Systems' controllers to a supported third-party control system in situations where Ethernet communication is not desired (but where bi-directional feedback is still required).
However, regardless of whether you desire to interface more than one lighting controller (or motor controller) each with its own controllable operation (i.e. its own Zone/Group/Node or Z/G/N address) with either the e-Node (Ethernet) or the IBT-100 (RS-232c communication), and/or you desire bi-directional communication/feedback between your user interface (UI) and a particular motor or lighting controller, you must still follow the directions below under (i) e-Node Programming and (ii) ILC100/ILC-400 Programming in order to establish unique ZGN address(es) for connected loads and turn on the NOTIFY command which provides for that bi-directional communication.
Note: If you plan on utilizing the IBT-100 for serial communication and (i) you will not need more than one address other than the factory default ZGN address of 2.1.0 for lighting controllers or 1.1.0 for motor controllers, and (ii) you do not need bidirectional communication between the lighting load or the motor load and your User Interface, then you can proceed to the IBT-100 Set up Section and you may skip the (i) e-Node Programming section as well as (ii) the ILC 100/ILC-400 Programming sections below.

Please download Hardware and Software Setup Guide from the Converging Systems website which can also be found Resources/Installation Guides/System/Installation Guides or by going to these links below

Type of Setup	Link (look for Systems/Installation Guides)
Led Lighting Control	https://www.convergingsystems.com/lighting_install_library.php
Motor Lighting Control	https://www.convergingsystems.com/motor_install_library.php

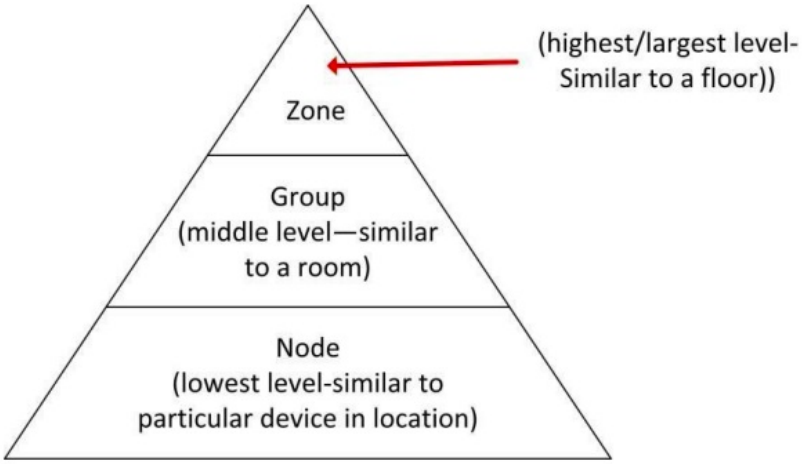
Complete all the setup steps in the referenced document and then AND ONLY THEN proceed to Crestron Home Setup Software instructions above.

Appendix 2

Background on Addressing

This information is only relevant for when you start adding buttons and sliders within the GUI section of your Elan project. All Converging Systems' devices (loads or controllers as opposed to communication devices) that are connected to a communication device (e-Node or IBT-100) will be addressed using a unique Zone/Group/Node addressing scheme (Z/G/N). Those addresses are referred to within Elan Configurator as **Zone, Group and Node Addresses.**
Background on ZGN Addresses: The largest group is referred to as the Zone, which might be associated with a floor of a building. The next smaller group is referred to as the Group, which might be associated with a room on that floor of a building. Finally, the smallest entity is referred to as the Node, or the particular unit in that Room or Group, and within that Floor of Zone. From the factory, all lighting devices have a default address of Zone=2, Group=1, Node=0 ("0" refers to an undefined unit).
Range of Z/G/N Addresses: Enter a number between 1 and 254 for Zone numbers, Group numbers, and Node numbers.
Please note — no two controllers should be assigned the same Z/G/N address if you desire individual control. You can assign multiple controllers identical Z/G/N addresses after you have commissioned units and have verified that all units are operational.
Background on Bi-Directional Feedback: Once a load device (CS-Bus controllers) is programmed using the e-

Node Pilot application to a non-zero value, then AND ONLY THEN can those devices can be queried or monitored for state data (color or motor position) which is quite useful in auto-updating sliders and numerical readouts.
The figure below describes this hierarchy.



YOU MUST HAVE PRE-ASSIGNED Z/G/N ADDRESSES TO ALL LOADS BEFORE PROCEEDING WITH ELAN PROGRAMMING. See the Converging Systems' documentation on the e-Node Pilot application for more information here.
At this point after you assigned Z/G/N address to all loads (ILC-100 or ILC-400 controllers) it would be useful to write down a "map" of all interconnected loads and their re-assigned Z/G/N Addresses for use when programming within Elan Configurator.

Example: If you have a device with a Z/G/N address of 2.1.1, then the Elan system can monitor that device to determine its current lighting status. If you choose to enter a wildcard address of a 2.1.0 (that is a broadcast to all units with Z/G/N addresses between 2.1.1 and 2.1.254), only the unique color settings available from the device with an address of 2.1.1 or the first Z/G/N unit in the series will be queried. See Appendix 5 for more information.
Example: If you have a device with a Zone/Group/Node ("Z/G/N") address of 2.1.1, then the Elan system can poll that device to determine its current lighting status. If you choose to enter a wildcard address of a 2.1.0 (that is a broadcast to all units withZ/G/N addresses between 2.1.1. and 2.1.254), only the unique color settings available from the device with an address of 2.1.1 or the first Z/G/N unit in the series will be queried.
Specifically, if you had more than one ILC-100/ILC-400 controllers, you could give them (through the e Node Pilot application) addresses as follows:

ILC unit	**Zone/Group/Node Address**
First Unit	2.1.**1**
2nd unit	2.1.**2**
nth unit	2.1.**3** or some other number up to **254**

Appendix 3
COLOR SPACE ISSUES

Appendix 4

Addressing Deep Dive

Topic	**Section**
How to Set up group control	Section 1

How to set up group control of loads using sliders with feedback available to sliders.
Addressing Background CS-Bus controllers can be address with a unique Zone/Group/Node (ZGN) address. Up to 254 entries can be used for each field. The first field is the Zone (or largest range), the middle field is the Group, and the last field is the **Node.** No two loads can share the same Z/G/N address. As an example, if you will be populating a pair of two controllers within each of two rooms on two floors of a building here would be the suggested addressing that could be used

	Floor One	**Floor Two**
Room 1	2.1.1 for first controller in room. 2.1.2 for seco nd controller in this room	
Room 2	2.2.1 for first controller in room. 2.2.2 for seco nd controller in this room	
Room 3		3.1.1 for first controller in room. 3.1.2 for second controller in this room
Room 4		3.2.1 for first controller in room. 3.2.2 for second controller in this room

Group Addressing. In certain cases, it is desirable is simply send a wildcard address for a group of controllers to all respond in unison rather than programming each individually to respond through macros. There are two problems with macros in general. One is that often they are executed serially which means that if you had two hundred loads referenced within a macro, the timing of the execution of the last command sent out might be delayed from the first command sent out. In this case, not all LEDs would turn on or OFF at the same time, potentially. The second issue involves the actual programming time required to program scores or even hundreds of commands for a simple ALL OFF button.
Within the CS-Bus software protocol is the concept of utilizing a “0” within any address field as a surrogate for defined numbers ranging from 1 to 254 within that same field. Thus, if you issued a command of #2.1.0.LED=ON:, all units with addresses of 2.1.1 to 2.1.254 would immediately respond. Please see the table below for an example of how various wildcards could be used.

Specific controller address	**Specific command that will trigger targeted control ler**
2.1.1	2.1.0 or 2.0.0 or 0.0.0
2.1.2	2.1.0 or 2.0.0 or 0.0.0
2.1.3	2.1.0 or 2.0.0 or 0.0.0
2.2.1	2.2.0 or 2.0.0 or 0.0.0
2.2.2	2.2.0 or 2.0.0 or 0.0.0
2.2.254	2.2.0 or 2.0.0 or 0.0.0
5.254.4	5.254.0 or 5.0.0 or 0.0.0

NOTIFY Command Background Converging Systems has a **NOTIFY** function which automatically provides color statefeedback (from the targeted controller) provided a unique Zone/Group/Node (Z/G/N) address is provided with an action/argument payload to that specific controller. Specifically, if a command to invoke a color change is directed to a controller that has a Z/G/N address of 2.1.1, that specific controller with that address will respond back to the automation system as to its specific color state if and only if there is a color state change impacted on that specific controller. In some cases, as has been discussed above, there might be a requirement to send a group command or all hail command to more than one controller. In this case, the group command would be directed not to a single controller or load but to a series of controllers. To reduce bus traffic when a series of

controllers is given the same command, the status of the first controller whose node number is 1 greater than the wildcard command of “0” will respond and will be automatically remapped to the wildcard address of “0” from which the command emanated* (which reduces bus traffic by up to 243 messages). The logic here is that if 254 controllers are all told to turn Red, only the surrogate for that group of controllers will respond and within the CS-Bus messaging logic that surrogate is the controller with a node of “1.” So, for example, if a #2.1.0.LED.VALUE=240.0.0: command is transmitted to 254 controllers, they will all turn to Red, but only the controller with an address of 2.1.1 will respond with its new color status. In this case, a command on the bus from that surrogate controller would come back as follows: !2.1.1.LED.VALUE=240.0.0 (the exclamation mark indicates that it is a message from CSBus device rather from an automation controller). Please see the diagram on the next page for the theory of operation here.

***Note:** this is in 2018 updates to our ILC-400 firmware initially

CONVERGING SYSTEMS

https://www.convergingsystems.com/

Documents / Resources

	CONVERGING SYSTEMS V4.000.0284 Creston Home Interface [pdf] Instruction Manual V4.000.0284 Creston Home Interface, V4.000.0284, Creston Home Interface, Home Interface, Interface

References

- convergingsystems.com/em_pilot/other/ZGN_index.html
- User Manual