Profile Information/Documentation on Converging Systems CS-Bus Controllers

Automation/Lighting Panel Manufacturer:	Savant Systems
Platforms:	**Savant Pro and Smart Platforms**
Versions:	RacePoint BluePrint v 5.22 or newer Note: tested with Version 6.X , 7.1 and 8.4 as well
Specific Profile/Driver Version:	V3.49 or later (see our site for latest)
Download location for Profile/Driver	Savant dealer portal Note: current name is **converging systems_enode.xml** or **converging systems_ibt.xml**
Document Revision Date:	Oct 3, 2017

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PROFILE INFORMATION

Manufacturer:

Converging Systems

Model:

- e-Node (IP), and IBT-100 (RS-232) for both ILC-xxx lighting controller and IMC-x00 motor controllers ("CS-Bus" controllers)
- e-Node/dmx (IP) for third-party DMX fixtures

Profile Version:

3.49

Control Ports:

IP, RS-232

Note: default baud rate for IBT-100 is set within profile. Should you wish to use this profile to support bi-directional communication now available with the IMC-300 MKII (BRIC II) it is necessary to change the default baud rate of 57,600 for the IBT-100 to 19,200 (utilized for the BRIC II).

Notes:

Note: This profile REQUIRES daVinci software release 5.21 or higher. Any software version below 5.21 will not control the devices. In order to use the RGB Slider entity you must be running release 5.2.3 or higher.

To initially assign Zone, Group, Node addresses ("**Z/G/N**"), you must set up your system with the e-Node first (even though you may not be using IP in your final system). In this case for setup, the e-

Node acts as the commissioning tool when used with the e-Node Pilot software available from the Converging Systems' website. Then to communicate with a Savant system, you can use either an e-Node or an IBT-100 as your selected front-end communication device.

Inputs:

None

Outputs:

None

Resources:

None

Actions (lighting):

DimmerSet	Fade/Brightness Adjustment for LED w/address ZGN (slider)
DimmerFlash	Identify LED w/address ZGN
DimmerIncrease	Fade Up Adjustment for LED w/address ZGN
DimmerDecrease	Fade Down Adjustment for LED w/address ZGN
DimmerStop	To set Dissolve.m *for seconds,n (m is Address 4 , n is Address 5)*
DimmerStopFlash	CCT Up for LED w/address ZGN
RFDimmerStopFlash	CCT Down for LED w/address ZGN
FadeDown	Fade Down for LED w/address ZGN
FadeStop	Fade Adjustment Stop for LED w/address ZGN
FadeUp	Fade Up for LED w/address ZGN
LowVoltageDimmerSet	Sat Adjustment for LED w/address ZGN (slider)
RFButtonPress	Discrete Power On w/ dissolve for LED w/address ZGN
RFButtonRelease	Discrete Power Off w/ dissolve for LED w/address ZGN
RFDimmerButtonPress	CCT Adj. Feat. for Data Tables to pick CCT w/ button for LED w/addr.ZGN
RFDimmerButtonDoubleTap	Circadian Adjustment for LED w/address ZGN (slider)
RFDimmerFlash	CCT Adj. Feat. for Data Tables to pick CCT for LED w/address ZGN (slider)
RFDimmerDecrease	White Component Adjustment for LED w/address ZGN (slider)
RFDimmerIncrease	Effect, n Feature for Data Tables for LED w/address ZGN
RFDimmerSet	Hue Adjustment for LED w/address ZGN (slider)
RFDimmerStop	To set SetRate *for seconds,n (n is Address 4)*
RFButtonHold	Sat + for LED w/address ZGN
RFButtonPressAndRelease	Sat - for LED w/address ZGN
SceneRestore	LED Recall,n for LED w/address ZGN
SceneSave	LED Save,n for LED w/address ZGN
SwitchOff	LED On for LED w/address ZGN
SwitchOn	LED Off for LED w/address ZGN
ActivateScene	Sun+ for LED w/address ZGN
DeactivateScene	Sat - for LED w/address ZGN

GetLightLevel
SetBlueLevels
SetGreenLevels
SetHueLevel
SetHueSaturationBrightessLevels
SetPresetHueSaturationBrightnessLevels
SetPresetRGBLevels
SetRedLevels
SetRGBLevels
SetSliderRGBLevels
SetSliderHueSaturationBrightessLevels
SetWhiteLevels
SetRGBWLevels

IR-Save
IR-Star
IR-Color Adjustment
Hue+
Hue-
Lightness+
Lightness-
Preset1
Preset2
Preset3
Preset4
Preset5
Preset6

Entities Lighting (click on item for information)

Discrete Power On	Associated with SwitchOn
Discrete Power Off	Associated with SwitchOff
Brightness	Associated with DT_Brightness
Hue	Associated with RFDimmerSet
Saturation	Associated with LowVoltageDimmerSet
RGB	Associated with special RGB operator
WhiteColorChannel	Associated with RFDimmerDecrease
SceneSaver Button	Associated with SceneSave
ColorTempSlider	Associated with RFDimmerFlash
CCTPick	Associated with RFDimmerButtonPress
SelectEffect	Associated with RFDimmerIncrease
Device Identify	Associated with DimmerFlash
Switch	Associated with SwitchOn/SwitchOff

Actions (motors):

ShadeUp	Moves motor w/**ZGN** address Up

ShadeDown	Moves motor w/**ZGN** address Down
ShadeStop	Stops motor w/**ZGN** address
ShadeTiltOpen	Moves motor w/**ZGN** address Left
ShadeTiltClose	Moves motor w/**ZGN** address Right
ButtonRelease	Jogs motor w/**ZGN** address Up by n (toward rolled up position)
ButtonPressAndRelease	Jogs motor w/**ZGN** address Down by n (toward unrolled position)
ShadePreset	Moves motor w/**ZGN** address to Preset index, n (Address4)
ButtonPress	Moves motor w/**ZGN** address to fully retracted position
RFShadeSet	Stores current position of motor w/**ZGN** addr. into index n (Address4)
QueryCurrentPosition	Moves motor w/**ZGN** address Down
ShadeSet	Move motor w/**ZGN** address to ShadeLevel position

Entities Motor (click on item for information)

Shade	Button operation/Up/Down/Stop for motor w/**ZGN** address
ShadeLeft	Moves motor w/ **ZGN** address to Left
ShadeRight	Moves motor w/ **ZGN** address to Right
ShadeAdjStop	Stops motor w/ **ZGN** address
MotorSlider	Moves motor w/ **ZGN** address to location of slider
MotorRecall	Moves motor w/ **ZGN** address to Recall,n (Address4)
MotorSave	Saves current position with an index of n within motor w/**ZGN** address (**Address4**)
Jog+	Jogs motor w/ **ZGN** address upward by n (n entered within Address4)
Jog-	Jogs motor w/ **ZGN** address downward n (n entered within **Address4)**
Retract_Home	Sends all motors to End or Home position (rolled up)

State Updates (lighting):

RedLevel
GreenLevel
BlueLevel
WhiteLevel
CurrentHue
CurrentSaturation
CurrentBrightness
GetRGBLevel
GetRGBWLevel
GetCCTSUNLevel
GetHueSaturationLevel

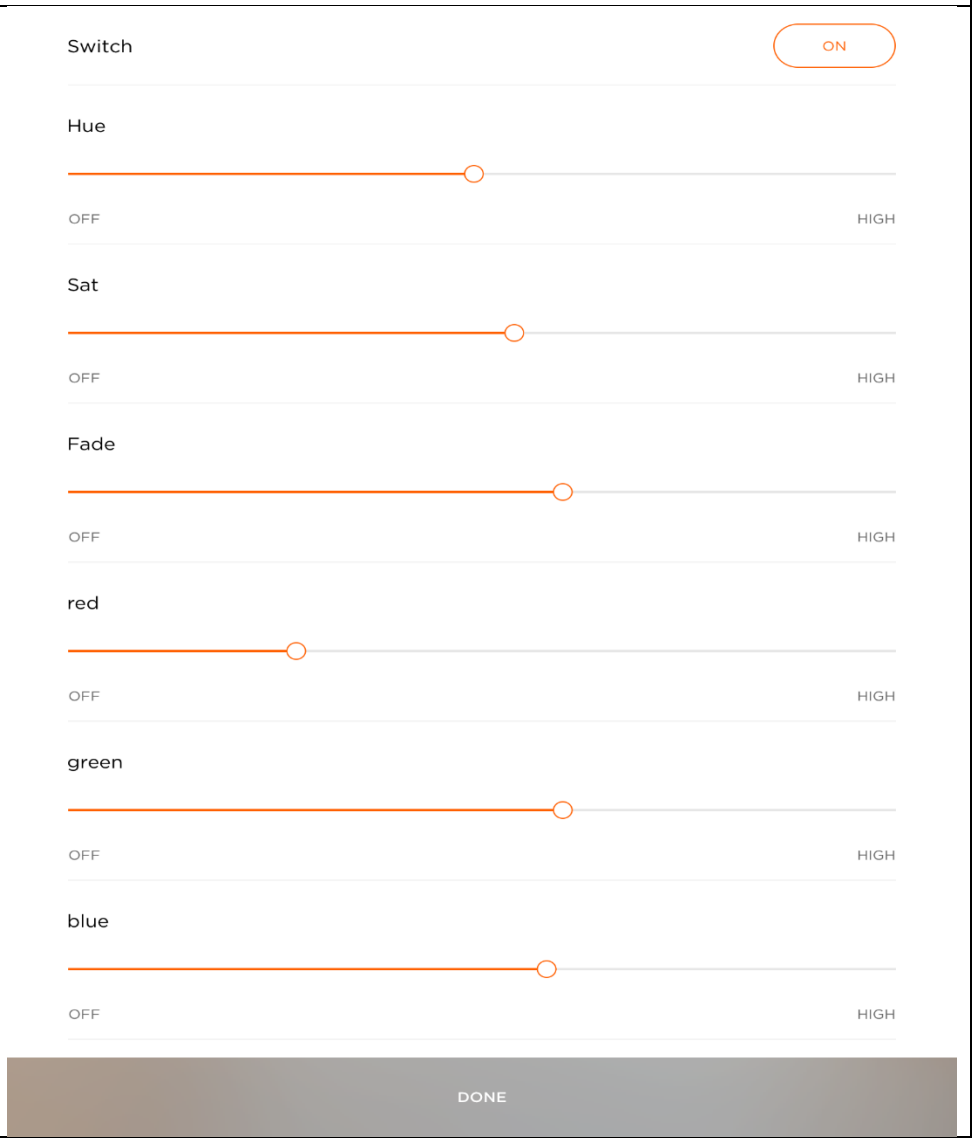
State Updates (motor):

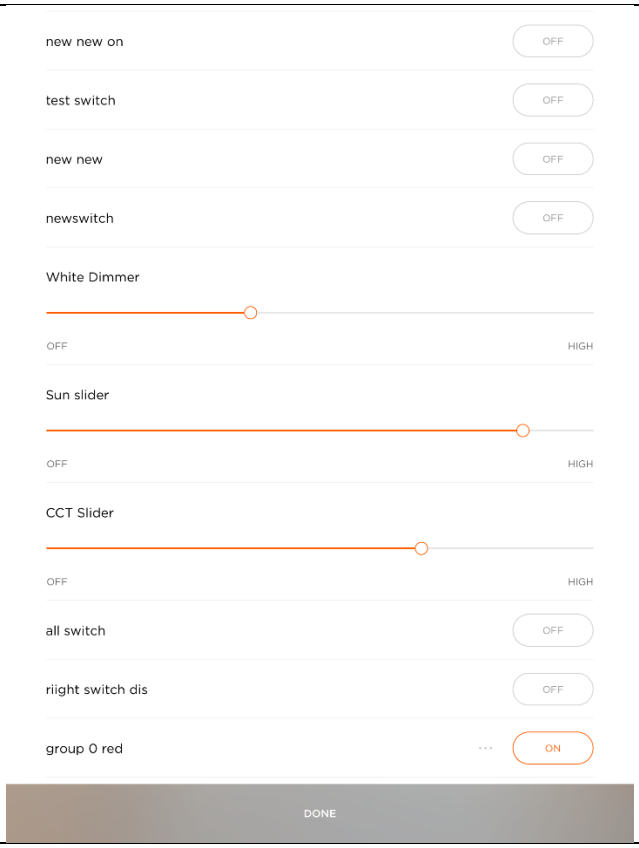
CurrentMotorPosition

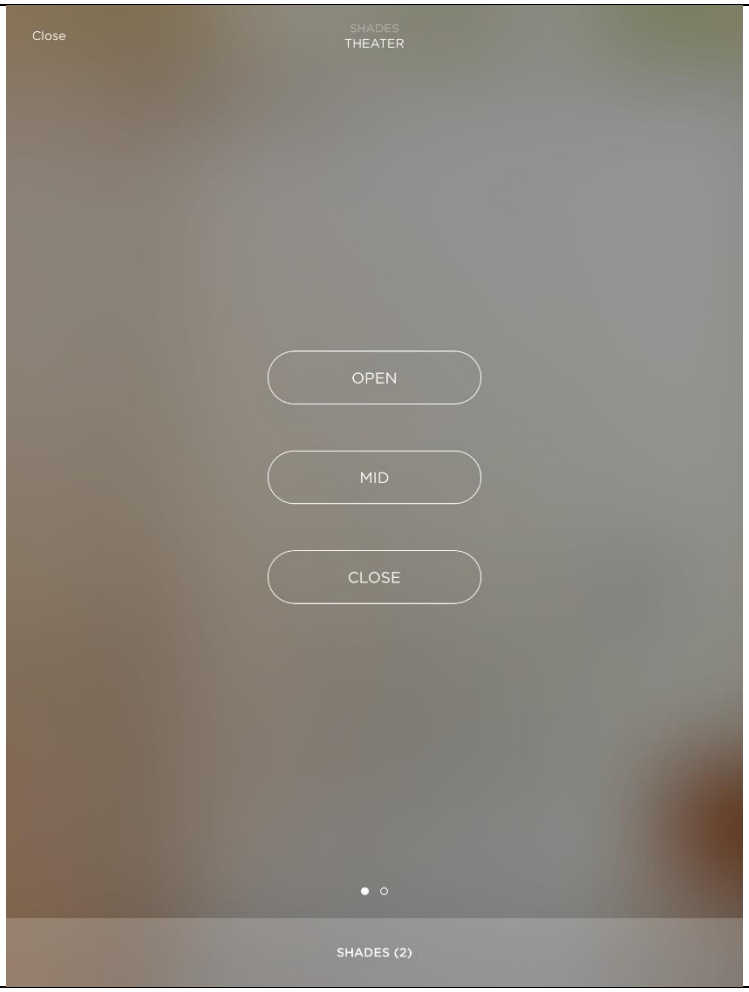
Savant Sample User Screens

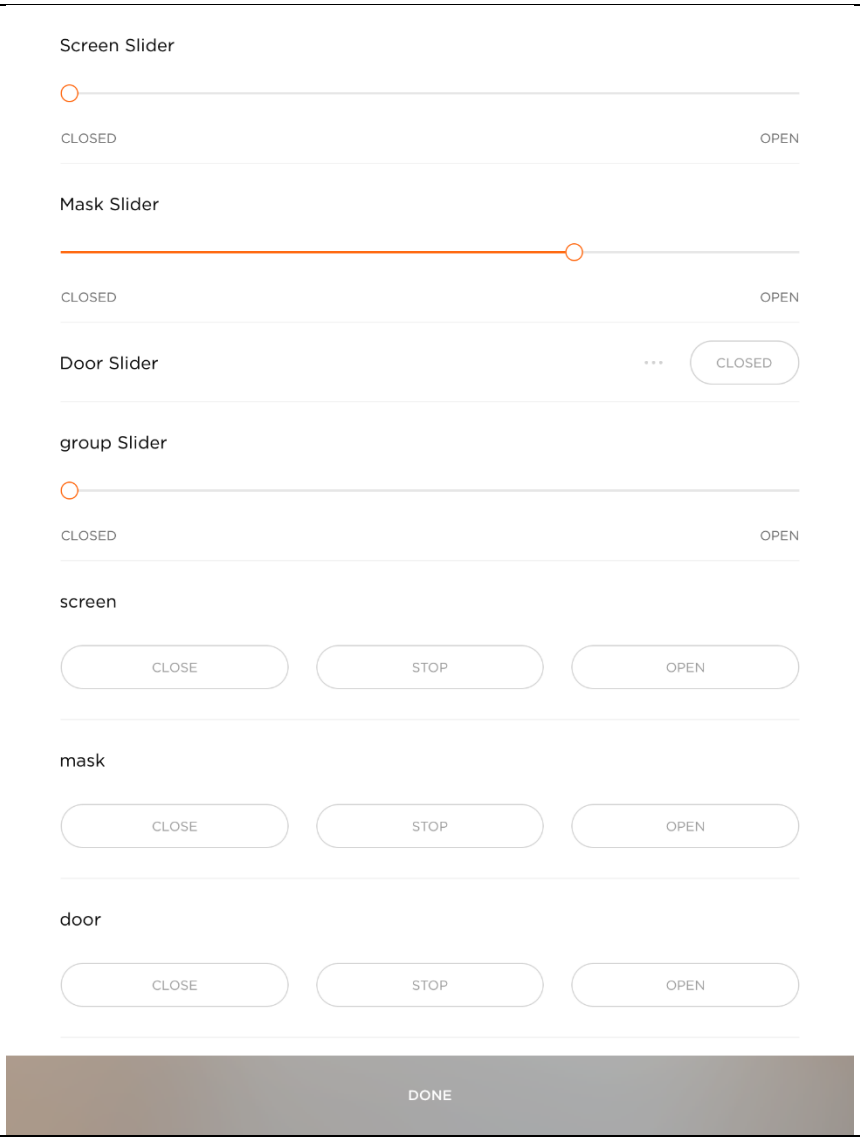
Pro 8 App

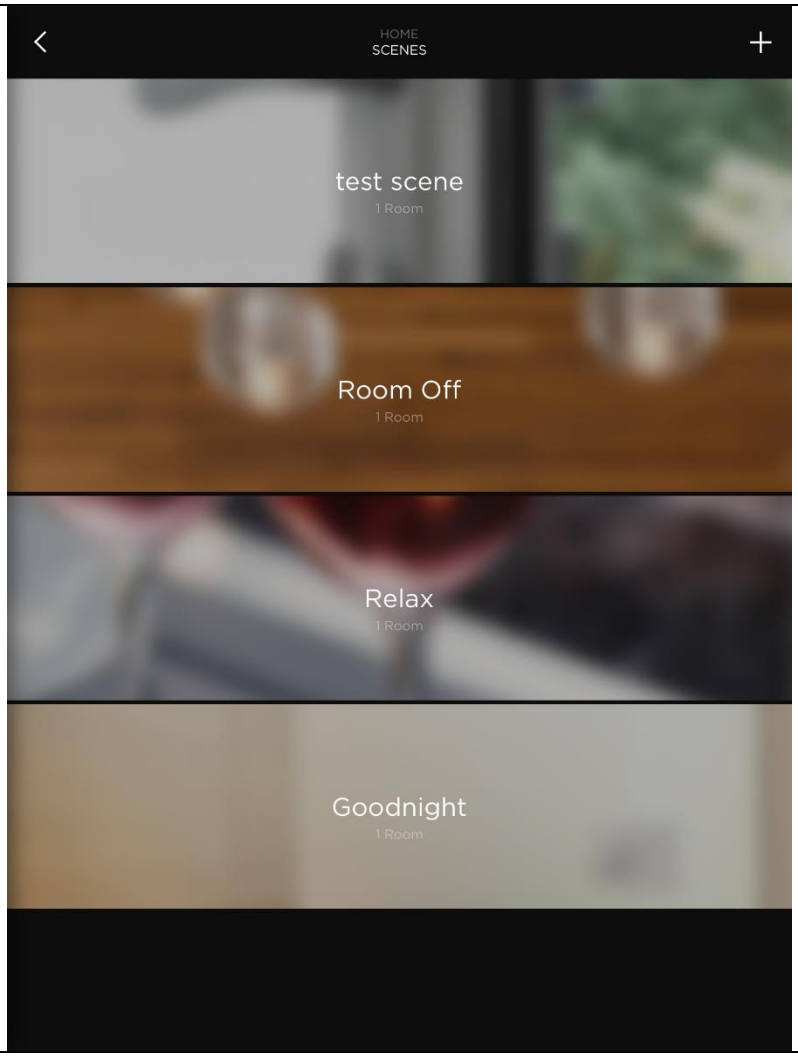
By using Data Table programming, nearly instant programming is possible using the Converging Systems profile and our LED and/or motor elements.

Figure	Screen Shot
Sliders and Switches Standard bi-directional control of Hue, Saturation, Brightness, Red, Green, Blue	

Sliders and Switches Advanced bi-directional control of White as well as Circadian Rhythm (SUN) and Color Temperature (CCT)	

Top Level Control Of Motor or LEDS		

Slider bi-directional control of Motor operators	

Customizable Scenes		

Converging Systems Setup and Use Documentation

For Data Table and WorkFlow Programming

Version	Description of Change	Author	Date
3.49	Clarification of Actions	CSI	10/2/2017
3.46	Implemented SceneSaver Button and SceneRestore Button entities for lighting (save preset and recall preset). Implemented MotorSaver and MotorRecall entities for motors.Reversed direction of projection screens to match logic of Savant Pro App. Implemented new Switch entity for lighting that can send out a dissolve rate (provided you enter a "0" under Address 4 as a placeholder)	CSI	8/1/2017
3.44	Implemented Motor bi-directional feedback for IMC-300 MK II. Enhanced support for CCT on ILC-400 with sliders (bi-directional control) and buttons (for individual selection of CCT). Implemented "IsITOn" type technology for lighting devices. Currently no entity support for Circadian tuning. Note for use with IMC-300 MKII need to change baud rate to 19,200 for serial (it is set to 57600 for IBT)	CSI	7/19/2017

3.20	Added Switch Effect, Switch ColotTemp as toggles--ideal for Pro App scene selection	CSI	6/28/2016
3.19	Added dissolve rates for a number of entities that can be configured as Address 5 within the Data Tables	CSI	6/22/2016
3.18	RGB Slider Update	CSI	6/22/2016
3.17	RGBW support, HSB and RGB and W sliders in data tables. Recall/Store and Effects support	CSI	6/9/2016
…	Multiple updates	CSI	2014-2015
1.1		Ed McKenna	2013
1.0		Ed McKenna	2013

Summary:
This profile is created to control the Converging Systems CS-Bus controller family through a supported communication device-e-Node(IP), e-Node/dmx or IBT-100 (RS-232). This profile follows the data table format for lighting controllers as well as for shade/motors and can auto-populate the UI with most of the CS-Bus device native functionality. Through the Data Table we are able to control the **Brightness**, **Hue** and **Saturation** (as well as other features) for each individual ILC-x00 controller (or multiple Zone functionality within the ILC-400) that is connected as well as specific motor controls for each individual IMC-x00 controller (or multiple Zone functionality within the IMC-300).

Within the lighting arena and from the various control modes (Entities) that are available on this device (**Hue/Saturation/Brightness**, **Red/Green/Blue**, and **Color Temperature**), full control is possible in any model. Within the motor/shade arena and from the various control modes (Entities) that are available, full control is possible in any model.

For lighting, Converging Systems recommends that **Hue/Saturation/Brightness** mode will give the highest range of color and functionality, and will integrate the easiest with Savant. An innovative function of the CS-Bus lighting devices is that if a device is controlled in a **R/G/B** color space from one platform or controller (or even a third-party Lutron platform), other Savant devices set to operate in the **H/S/B** model will accurately reflect all color state changes (and vis-versa).

Exciting new features of this profile are support for the Scene Setup menu page within the Savant Pro App 8.0. Dimmers (**RGB,HSB**) as well as a **single** Switch (**Switch Effect**, or **CCTPick**) can be programmed to populate within the Scene setup page on the iPad. (Currently a limitation within Savant dictates that only a single Switch can be accessed reliably within the Scene Setup Page. Therefore, choose wisely for what switch you desire). (Refer to FAQ 11 for more information).

Please refer to the Wiring Diagrams to see system configurations depending if you will be using IP (e-Node), RS-232 (IBT-100) or DMX (e-Node/dmx)

Savant Software Required:
5.21 or higher

Current Profile Version Number (at time of writing):
3.49

Interfaces Used:
-IP Connection through e-Node, or
-RS-232c connection through IBT-100.

Note on IP Authentication:
If using IP control, the login credentials, the proper **User Name** and **Password** must be entered into your configuration. If you desire different credentials, inspect the Converging Systems device in Blueprint, then select “state variables” from the drop-down and change **the User Name** and **Password** to whatever is set on the device. Make sure if using authentication, you turn on Login (authentication) using the e-Node Pilot software to Enabled.

Version of e-Node	Default User Name	Default Password
E-Node MKII controllers (with two RJ ports on one side) opposite the Ethernet connector	E-NODE	ADMIN
-Node MKIII controllers (with three RJ ports on one side opposite the Ethernet connector	Telnet 1 Or Telnet 2 Or Telnet 3 Or Telnet 4 Or E-NODE	Password 1 Or Password 2 Or Password 3 Or Password 4 ADMIN
-IMC-300 MKII with built in e-Node	Telnet 1 Or Telnet 2 Or Telnet 3 Or Telnet 4 Or E-NODE	Password 1 Or Password 2 Or Password 3 Or Password 4 ADMIN

Setting Up Converging Systems Devices:

IP:

1) Plug in the e-Node device, connect to the network, and make sure it gets assigned an IP address on the same subnet as the Savant system. We highly recommend either giving the e-Node device a static IP address, or creating a DHCP reservation for the e-Node device in your router.
2) Connect each CS-Bus controller is a daisy-chain format (no Y's or T's in wiring) to the e-Node.
3) Use the e-Node Pilot app (or similar) to setup and assign specific **and unique Z/G/N** address for all CS-Bus controllers (or individual channels on those CS-Bus controllers with multi-channel capability such as the ILC-400 in monochrome mode or the IMC-100 motor controllers) before proceeding with the Savant app. (**Note**: the IMC-300MKII has factory assigned **Z/G/N** numbers and therefore these do not have to be assigned in advance.)

RS-232c:

1) ***It is important to FIRST commission all CS-Bus controllers using the e-Node and e-Node Pilot application.*** Through the use of the e-Node Pilot application (as in step #3 above), you must setup and assign specific and unique **Z/G/N** address for all controllers (or multiple **Z/G/N** addresses for those devices which have multi-channel capability) before proceeding to the next step.
2) Plug in the IBT-100 device and connect to all CS-Bus lighting or motor controllers.

Connecting to the Device:

IP:

1) Connect the e-Node as above and make sure that it is assigned an IP address.
2) Once the e-Node device is on the network, you will need to make sure that the Telnet Server tab available within Pilot is set to **Enabled** (See Figure 5). If not set to **Enabled**, restart the e-Node device through Pilot or simply unplug the unit and re-power it after 10 seconds after setting it to **Enabled**.

3) In order to enable bi-directional communication for each connected CS-Bus controller, open Pilot and set to **Notify** to either Color (for HSV) , or Value (for RGB) or Both (see Figure 7). For the IMC-300 MKII motor controller, NOTIFY has been set on by default. (The IMC-100 controllers do not support bi-directional support currently.) We recommend that to reduce bus traffic you should select one or the other. (For smaller installations, BOTH are OK). If you notice slowness in response on larger installations, it would be wise to reduce the bi-directional communication by setting this variable to either Color or Value in general.

RS-232c:

1) Connect the IBT-100 as above and make sure that is the proper communication parameters have been set within Blueprint (57600, n,8,1). (**Note**: for use with the IMC-300 MKII controller, it is important to set the baud rate to 19200,n,8,1).
2) Make sure that you had set up the proper settings for NOTIFY using the e-Node/Pilot combination in step #3 above (under IP) before proceeding with the Savant app.

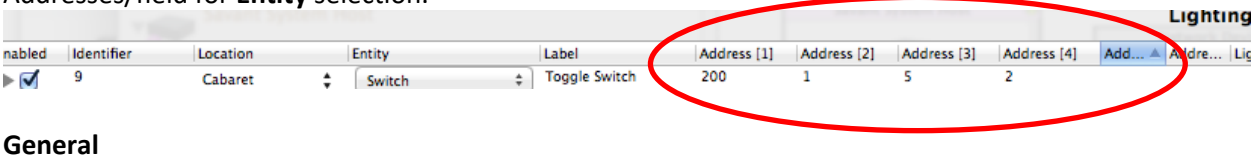
Setting Up Devices and Entries Within Blueprint:

1) Search for the Converging Systems CS-Bus controller profile and place in system. (**Note**: Even the profile refers to itself as a Lighting Controller, it has a dual purpose of driving both Lighting and Motor devices from the same communication device.)
2) Connect either (i) the Ethernet connection or (ii) the RS-232 connection for the applicable CS-Bus component.
3) -For Ethernet connected devices (e-Node), open Inspector for the Ethernet connection and enter the IP address of the e-Node interface in the Host Address field.
   -For RS-232 connected devices (IBT-100), make the Serial connection for the IBT-100 to an unused RS-232 port on your Savant processor or extender.
4) Open Tools/Settings and select either Lighting or Shades as applicable to open Data Tables.

Add all the Entities you wish for each controller (or multiple entities for the multi-zone functionality of the lighting controllers or motor controllers with multi-channel/zone capability). (It is very possible that you will have multiple entries per Z/G/N address for slider and switches. Figure 1 in the Appendix shows an example Data Table setup for multiple controllers. Figure 2 in the Appendix shows an example Data Table setup for multiple motor controllers.) The addresses for each **Z/G/N** address can be found in the Pilot application for the e-Node connected controllers. (See Figure 6 below).

Addresses/field for **Entity** selection.

Address Entry



General

a. **Address 1:** This is the Zone Address (Z) for the specific controller (or channel within an ILC-400 set to monochrome mode or within an IMC-300 series product with multiple motor channels). This goes from 1 to 254 with the 0 acting as a wildcard for all devices with any address within this field.
b. **Address 2:** This is the Group Address (G) for the specific controller ((or channel within an ILC-400 set to monochrome mode or within an IMC-300 series product with multiple motor

channels). This goes from 1 to 254 with the 0 acting as a wildcard for all devices with any address within this field.

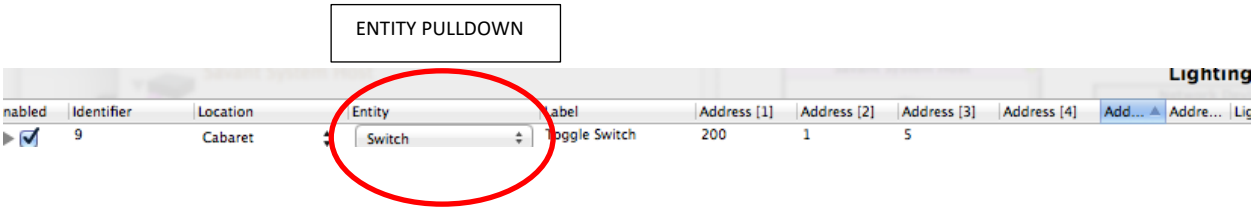
c. **Address 3:** This is the Node Address (N) for the specific controller (or channel within an ILC-400 set to monochrome mode). This goes from 1 to 254 with the 0 acting as a wildcard for all devices with any address within this field.

d. **Address 4:** This is a special field for entering Scene/Preset Numbers (1-n) and similar dynamic values and for adding a marker to select R,G,B sliders where those are desired. In addition, individual Dissolve identifiers (i.e. 0,1,2,3,4) can be added here (Dissolve.0, or Dissolve.1, Dissolve.2, etc.).

e. **Address 5:** This is a special field for entering Dissolve Rates (in seconds) for a number of supported Data Table entities: Switch (toggle ON/OFF)*, SceneRestore (for Recall), (SceneSaver (for Store), CCTPick (for CCT level selection) and SelectEffect (for Effect selection). An installer can also set these Dissolve rates using Entity (Dissolve) as well as an Action (DimmerStop) commands and set the rate within this Address5 column. If no value is entered within **Address5**, system utilizes the previously stored value within the ILC-x00 devices' Dissolve.n registers (Dissolve.1, Dissolve.2, Dissolve.3 and Dissolve.4 as appropriate) accessible through e-Node Pilot or the Web-pilot application.

*__Note__: With Switch as a special case with Data Tables, enter a "0"in **Address4** and then an appropriate Dissolve Rate (in seconds) within Address5. The "0" enables the system to operate but has no bearing on the settings per se.

Entity listing:



Lighting

a. **Brightness[1]:** This is the slider that controls the brightness of the specific **Z/G/N** addressed component. This goes from 0 (off) to 100 (full on brightness).

b. **Hue[1]:** This is the slider that controls the actual Hue (or color) of the specific **Z/G/N** addressed controller and represents the different colors of the spectrum that the ILC-x00 and connected luminaries support.

c. **Saturation[1]:** This is the slider that controls the amount of White in a color from washed out (0) to vibrant (100). **Note**: White is defined in a RGB system as full on 100% Brightness and 0% Saturation regardless of the HUE selected—interesting but true.

d. **Switch[1].** This is toggle button that will turn on or off a specific **Z/G/N** addressed controller. **New**-any dissolve rate entered into **Address5** will be "bundled" into the Switch command (provided you enter a "0" in **Address4** as a placeholder).

e. **Switch Effect[1].** This is toggle button that will turn ON a selected Effect (n) depending upon the Data Table entry for the **Z/G/N** address as well as the Effect entered in **Address4** (this populates within the Pro App scene select window). The alternative Toggle State is OFF and this state can be alternatively used as an OFF command within the Savant Pro App scene select window. (The Savant Pro App scene select page supports DIMMERS and one SWITCH currently.)

f. **CTTPick (Color Temp)[1].** This is toggle button that will turn ON a selected ColorTemp (CCT) depending upon the Data Table entry for the **Z/G/N** address as well as the CCT level entered in Address 4 (this populates within the Pro App scene select window). The alternative Toggle State is OFF and this state can be alternatively used as an OFF command within the Savant Pro App scene select window. (The Savant Pro App scene select page supports DIMMERS and one SWITCH currently.)

g. **RGB[1]:** This will create a Red, Green, and/or Blue slider depending upon what you have set in the Address 4 field (i.e. "0" creates a Red slider, "1" creates of Green slider, and "2" creates a Blue slider).

h. **WhiteColorChannel[1]:** This is the slider that controls the White channel on the ILC-400 controller if configured in the RGBW mode. This goes from 0 (off) to 100 (full white).

i. **SceneSaver Button:** This will either (i) create a previously stored Preset Color (1-24) from a database preserved within each ILC-x00 controller (and e-Node/dmx) depending upon what you set up in the **Address4** field or (ii) save a color state into Preset Color (1-24) which is specified in **Address4**.

j. **SceneRestore Button:** This will either (i) recall a previously stored Preset Color (1-24) from a database preserved within each ILC-x00 controller depending upon what you set up in the **Address4** field or (ii) recall a color state into Preset Color (1-24) which is specified in **Address4**.

k. **ColorTempSlider:** This is the slider that controls **C**orrelated **C**olor **T**emperature (**CCT**) on the ILC-400 controller (when set to 4-color mode). This goes from 0 (which maps to 1700K) to 100 (which maps to 7000K).

l. **CircadianSlider:** This is the slider that controls **Circadian Tuning** (**SUN**) on the ILC-400 controller (when set to 4-color mode). This goes from 0 (which maps to sunrise) to 240 (which maps to midday sun).

m. **SelectEffect:** This will select a factory programmed Effect within the ILC-x00 controllers (and a limited number of Effects within the e-Node/dmx device) depending upon the Effect number set within the **Address4** field. **Note**: use **SelectEffect** if you want to enable this feature within the scene selection menu within the Savant Pro App.

n. **Dimmer Button:** (Reserved).

o. **Device Identify:** This push button will flash for approximately 20 seconds the specific **Z/G/N** address device (both any connected LED loads as well as the controller's on-board LED). This may not be needed in your implementation, but is helpful in finding the current controller if the pages are not labeled.

p. **Discrete Power On:** This push button will issue the ON command to the targeted controller. This discrete command is recommended over the alternative Savant ON/OFF toggle for significantly less bus traffic is experienced with this discrete button. **Note**: The Savant standard Toggle ON/OFF button sends an ON to every single slider and switch

with a common Zone/Group/Node address while this discrete operation, only sends a single ON command.

q. **Discrete Power Off:** This push button will issue the OFF command to the targeted controller. This discrete command is recommended over the alternative Savant ON/OFF toggle for significantly less bus traffic is experienced with this discrete button. **Note**: The Savant standard Toggle ON/OFF button sends an OFF to every single slider and switch with a common Zone/Group/Node address while this discrete operation, only sends a single OFF command.

r. **Dissolve:** This push button will issue a separate Dissolve command with the type of Dissolve entered in **Address4** (from 0 to 4) and the Dissolve Rate (in seconds) entered in **Address5**. This function is typically used with a wildcard address to impact global dissolve rates for a group of controllers

Note: If you want to simply change the dissolve rate of a specific (non-slider) Entity, simply enter that Dissolve Rate (in seconds) within **Address5** column for that non-slider Entity. If you want to change the Dissolve Rate for a group of controllers use this Entity to save time. Following is a table documenting those Dissolve Rate

Dissolve Type (this number entered in Address4)	**Function**	**Controller Type**			
		ILC-100m ILC-400m (mono mode)	ILC-100c	ILC-400 (RGBW, RGB or Bi-White mode	DMX (e-Node/dmx
1	Dissolve function for transitions between from one state and another using direct value commands such as SET,L; SAT, S; HUE,H; RED,R, GREEN,G, BLUE,B; COLOR;VALUE	✓	✓	✓	✓
2	Dissolve function for transitions between ON and OFF and between PRESETS (RECALL,X)	✓	✓	✓	✓
3	Dissolve function for transition from one state another with the following effects -EFFECT(1) -EFFECT(4)		✓	✓	✓
4	Time to complete a full cycle with the following EFFECT function. (Min is 14 seconds—max is 240 seconds -EFFECT(3)		✓	✓	
0	Wildcard command to change all possible Dissolve Functions in unison (typically not used any longer after above discrete entries were developed)	✓	✓	✓	✓

s. **SequenceRate:** This push button will issue a separate Sequence Rate command (RFDimmerStop action) with the Sequence Rate entered in **Address4** (in seconds-***yes Address4 for convenience***). This function is typically used with a wildcard address to impact global Sequence Rate for a group of controllers
Note: It is not possible to change a Sequence Rate other than through this **Entity** (SequenceRate) or Action (RFDimmerStop). Alternatively, you can make manual changes to the factory setting for SeqRate within the e-Node Pilot or web-pilot Application for CS-Bus controllers.

SequenceRate in seconds (this number entered in Address4)	**Function**	**Controller Type**			
		ILC-100m ILC-400m (mono mode)	ILC-100c	ILC-400 (RGBW, RGB or Bi-White mode	DMX (e-Node/dmx
N	Specifies the time (after any dissolve) that the preset color is maintained before transitioning to the next in sequence. -EFFECT(1) -EFFECT(4) (not available on DMX)		✓	✓	✓

Motors

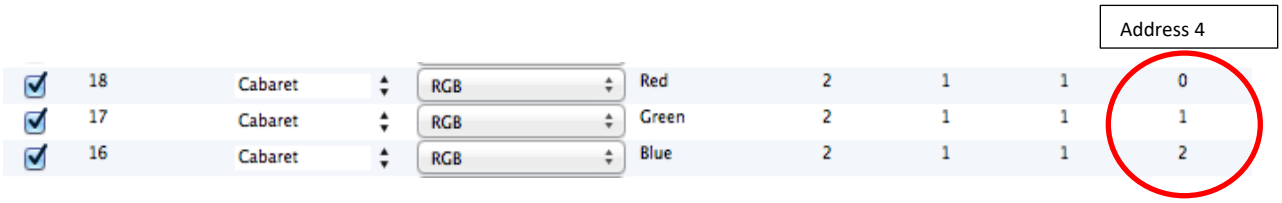
a. **Shade:** This will direct a motor Up or Down.
b. **MotorSlider.** This will direct a motor to a specific position (if the motor has a built-in encoder to provide feedback as to its position). Door motors can also be controlled and they will return a binary response 0.00 for top and 100.00 for bottom.
c. **ShadeLeft.** For systems with left/right motors, this will a motor leftwards.
d. **ShadeRight.** For systems with left/right motors, this will a motor rightwards.
e. **ShadeAdjStop.** For will direct a motor to stop.
f. **MotorRecall:** This will direct a motor to a previously assigned Preset location (Presets 1-24) for supported motor controllers (IMC-300) from a database preserved within each supported IMC-x00 controller depending upon what you set up in the Address 4 field. Currently motor position can be stored using the **MotorSave** Entity (see next). **Note**: it is required that you use the wildcard of "0" for Address 3 to recall the state for all motors in a system (on one IMC-300 controller).
g. **MotorSave:** This will save a current position if a motor to a previously assigned Preset location (Presets 1-24) for supported motor controllers (IMC-300) from a database preserved within each supported IMC-300 controller depending upon what you set up in the Address 4 field. **Note**: it is required that you use the wildcard of "0" for Address 3 to save the state for all motors in a system (on one IMC-300 controller) when settings for a bank of motors have been saved within a preset.
h. **Jog+:** This will direct a motor to jog or move minutely a specific amount toward Home.
i. **Jog-:** This will direct a motor to jog or move minutely a specific amount away from Home.
j. **Retract_Home.** This will direct a motor to retract or Go Home.

Notes: [1] **This Switch or Dimmer will auto-populate within the Pro App scene setup menu**.

5) Within RacePoint BluePrint Preferences/UI Defaults Tab
   -For Lighting--make sure "Enable Lighting screen auto population" checkbox is selected
   -For Motors/Shades-make sure "Enable Shades screen auto population" checkbox is selected
6) Generate Services, Sync with Services as you normally would.
7) If you have configured your Data Table as shown in Figure 1 for Lighting Control or Figure 2
8) For Motor Control, it is recommended that you add a text field to each page to denote which **Z/G/N** address that page is currently controlling.
9) Sync screens and save and upload the config.

Setting Up RGB Sliders in BluePrint:

If you would like to use a Red, Green, and Blue slider instead of the recommended Hue/Saturation/Brightness sliders, follow steps 1-4 in the *Setting Up Devices and Entities WithIn Blueprint.* The image below shows a Data Table setup for a single **Z/G/N** addressed device using the RGB sliders.



Note: You can have both **HSB** and **RGB** sliders simultaneously that auto-respond with Converging Systems' technology (cool feature for showing off to customers but not really necessary to control color).

1) Add three Entities for each **Z/G/N** address for which you wish to have RGB sliders.
2) Select **RGB** for each Entity from the dropdown.
3) In Address 1, enter the Zone address, and in Address 2, enter the Group address and in Address 3, enter the node Address ***and in Address 4, you will need to put 0, 1 or 2***, depending upon if you want this to control Red, Green, or Blue, (Red=0, Green=1, Blue=2).
4) Repeat these steps 1-3 for each **Z/G/N** addressed component for which you would like RGB sliders.
5) Generate services, sync screens, and save and upload the config.

Setting Up an Additional White Slider in BluePrint:

If you would like to use an additional White slider in addition to the RGB sliders established above, follow the below steps within *Blueprint.*

1) Add a **WhiteControlChannel** Entity for each **Z/G/N** address for which you wish to have White sliders.
2) In Address 1, enter the Zone address, and in Address 2, enter the Group address and in Address 3, enter the Node Address.
3) Repeat these steps 1-3 for each **Z/G/N** addressed component for which you would like White sliders.

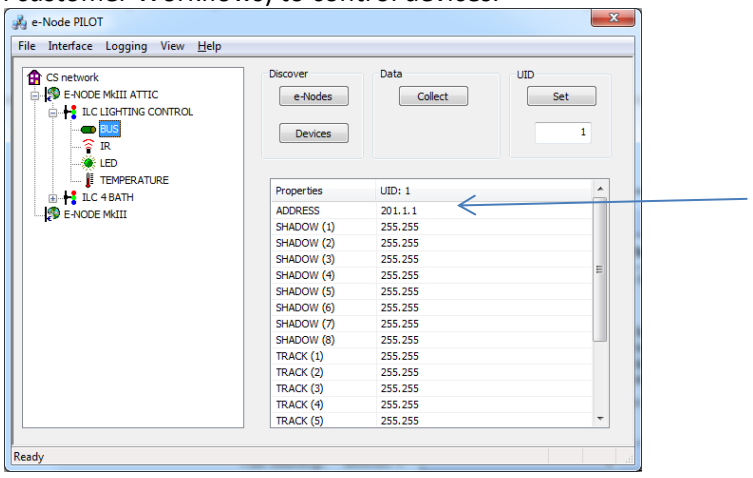
4) Generate services, sync screens, and save and upload the config.

Figure 1 Identifier #68 shows a Data Table setup for a single **Z/G/N** addressed device using the **WhiteControlChannel** (Entity) slider.

Hardware Required:
CONVERGING SYSTEMS
IP:
1) Converging Systems e-Node with specific number of connected CS-Bus controllers.
RS-232c:
2) Converging Systems e-Node with specific number of connected CS-Bus controllers to (i) initially setup the Zone/Group/Node **(Z/G/N**) addresses and to (ii) turn on NOTIFY to appropriate settings (see Figure 7). Then the e-Node can be taken out of the system and the IBT-100 replaced for its communication features only.

SAVANT
1) Any Savant system that is running da Vinci software 5.2.1 or higher.

FAQ/Common Mistakes
1) I am not able to control the CS-Bus controllers from my Savant interface.
   a. Make sure e-Node IP device is on the network and is accessible through the e-Node Pilot application.
   b. Make sure the IP address of the e-Node is on the control wire in Blueprint.
   c. Make sure that if authentication is being used for IP communication that the Username and Passwords have been set to the same values both within the e-Node and within Blueprint.
2) How do I find the addresses of my CS-Bus controllers?
   The addresses of each CS-Bus controller can be seen within the e-Node Pilot application under View Map. The **Z/G/N** addresses are the addresses that you assign within BluePrint within the Data Table (or within customer Workflows) to control devices.



3) How do control more than device at the same time?
Simply set up a **Z/G/N** address within the Data Table with a wild card for the field that overlay those devices that you wish to control. For instance, if you had three devices with **Z/G/N** address of 2.1.1 and 2.1.2 and 2.1.3 you would assign the address of 2.1.0 which would signal all devices to move at the same time.
Note: for a multiple-channel motor controller which may have a factory default address of 1.1.1, 1.1.2, 1.1.3, use the wildcard address of 1.1.0 to Store and Recall Presets. However, for the control of individual motors, use their non "0" address (i.e. 1.1.1 rather than 1.1.0).

4) How do I get feedback from a device if I am sending a wildcard command as explained above?
The CS-Bus network intelligently pools members of a group and provides automatic feedback of a "spokesman" motor for the group. This is seamless to the installer and the Group Sliders or Controls will respond accordingly. Specifically, if you sent out a command with a **Z/G/N** address of 2.1.0 destined for a triad of devices with addresses of 2.1.1 and 2.1.2 and 2.1.3, CS-Bus internal logic would query the controller with a "1" in the node location and respond back with its setting or position, but would "write" that value from the 2.1.0 (group wildcard) location (rather than from a different target of 2.1.1 which would be unreadable by Savant). This would insure that a slider for a wildcard address would get proper feedback, even though there was not a real 2.1.0 device populated. Note: this is a new feature and might require a firmware updated to CS-Bus controllers (consult the factory for more information).

5) I changed a light from the Pilot application using the Message window or the Virtual Keypad, but the change does not show up on the Savant Interface. Typically this occurs when the Telnet Enabled field within Pilot is not set (to Enabled) and the e-Node is not rebooted. The Pilot application uses UDP communication and Savant uses Telnet.

6) I changed a light from the Pilot application using the Message window or the Virtual Keypad, but the change does not show up on the Savant Interface. Typically this occurs when the Telnet Enabled field within Pilot is not set (to Enabled) and the e-Node is not rebooted. The Pilot application uses UDP communication and Savant uses Telnet.

7) If I change a light from one Savant UI using the HSB interface, will sliders on another Savant UI that implement RGB update to reflect the color state changes sent to the targeted controller.
This is another great feature of the color model within the ILC-x00 controllers. If Notify within the e-Node Pilot is set to Both, all sliders on all UI devices will update appropriately, even though they are set to different color spaces. (An RGB value of 240.0.0 will be reflected as an H/S/B value of 0.240.240 which is identical).

8) Can I use Color Temperature Mode? Use entity **ColorTempSlider** for standard Pro App and True App sliders but use **CCTPick** to set a specific Color Temperature already programmed in the Data Table in the Pro App Scene Select menu.

9) The System sends our command for RGB without a trailing value. Update to the latest Profile.

10) Reserved

11) I cannot populate more than one Switch on my Pro App scene select page for a particular **Z/G/N** address. This is a known limitation with Version 8.0 and 8.01 with Savant and hopefully will be resolved in the near future. If you desire Switch operation within the Scene Setup screens, simply select the most appropriate one (i.e. Pick the **Switch Effect** to have the choice of Effect(n) and OFF, pick **Switch ColorTemp** to have a choice of ColorTemp(n) and OFF.

12) The ON/OFF (orange/black) buttons on the Pro App may not always keep pace with the current operation, is this expected? The Dimmer sliders keep track with the current operation, but presently the Orange On/Black OFF buttons may not react properly. This has been resolved with the latest profile release.

State Variables/Feedback:

Lighting

CurrentSaturation,#

Keeps track of Saturation level of the sliders in the Data Table

Addresses 1/2/3: Z/G/N address
Type: String
Range: 0-100 (internal to Savant), 0-240 (external to device)

CurrentHue,#

Keeps track of Hue level of the sliders in the Data Table

Addresses 1/2/3: Z/G/N address
Type: String
Range: 0-100 (internal to Savant), 0-240 (external to device)

CurrentDimmerLevel,#

Keeps track of Brightness level of the sliders in the Data Table

Addresses 1/2/3: Z/G/N address
Type: String
Range: 0-100 (internal to Savant), 0-240 (external to device)

WhiteLevel,#

Keeps track of White level of the targeted controller's output.

Addresses 1/2/3: Z/G/N address
Type: String
Range: 0-100 (internal to Savant), 0-240 (external to device)

CurrentCCTSunLevel,#

Keeps track of CCT (color temperature level) and SUN (Circadian Level) of the targeted controller's output (only valid for ILC-400 in 4-channel mode).

Addresses 1/2/3: Z/G/N address
Type: String
Range: 0-100 (internal to Savant), 1700K-7000K (external to device)

Motor/Shades

CurrentMotorPosition,#

Keeps track of Motor position

Addresses 1/2/3: Z/G/N address

Type: String

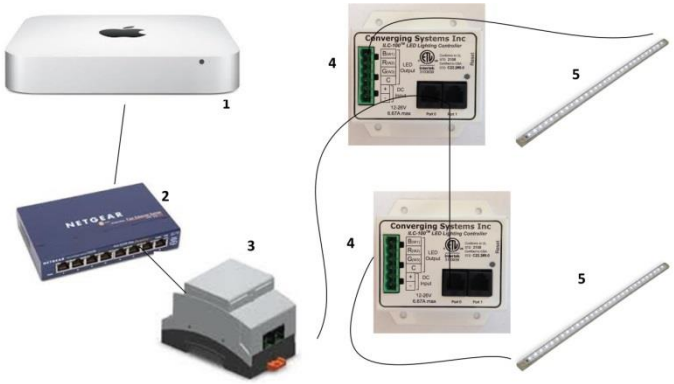
Range: 0-100 (internal to Savant), 0-100 (external to device)

Custom Work Needed:

No Custom work is REQUIRED. However, if you followed the Data Table example in this guide, you may want to add the current light name to each page that has sliders on it. Also you will need custom work if you wish to use the XY (TBD) for supported devices. Please refer to the separate Converging Systems Integration Note that is quite thorough on the programming of custom workflows where an expanded set of features is available.

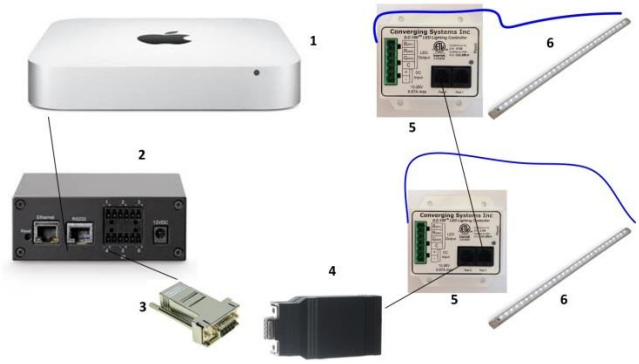
Wiring Diagrams:

For IP



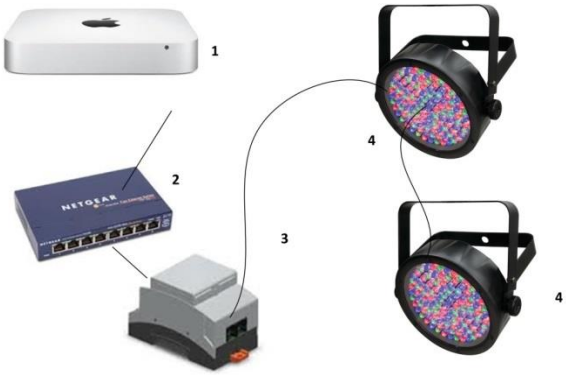
Wiring Diagram 1

For RS-232c



Wiring Diagram 2

For DMX



Wiring Diagram 3

Figures:

Figure 1 Data Table setup for Lighting Control

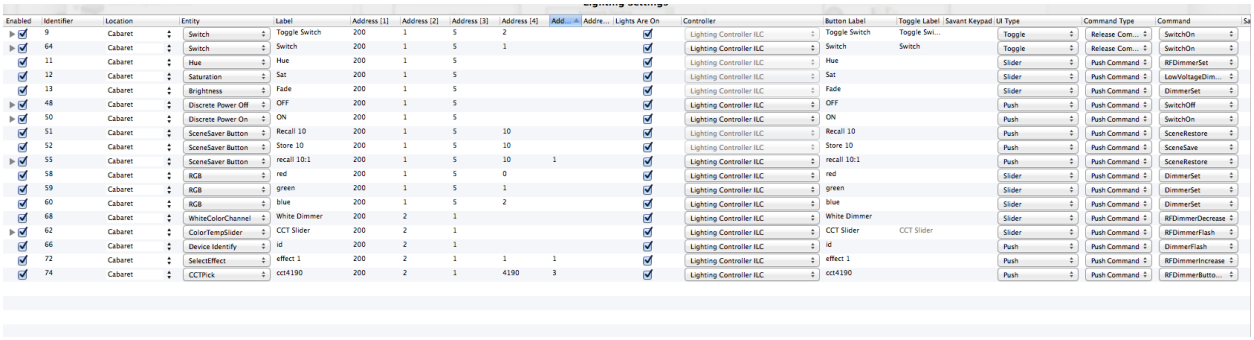


Figure 2 Data Table setup for Shades (for Motor Control)

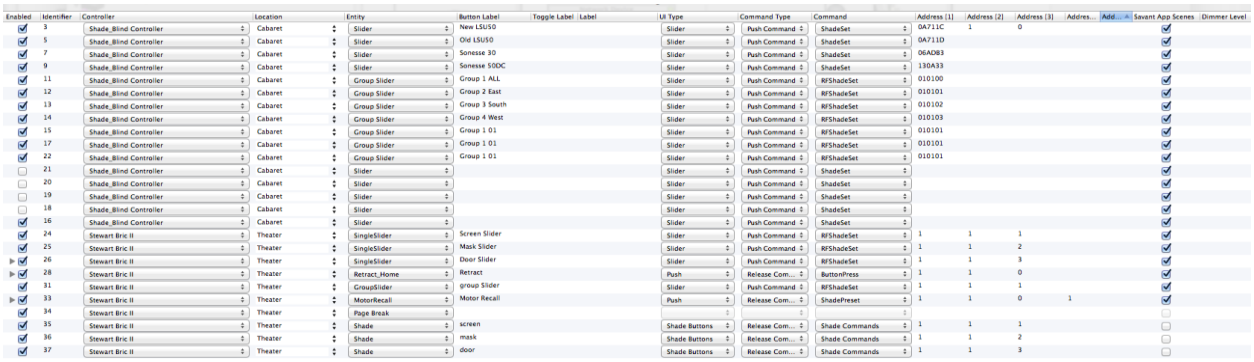


Figure 3

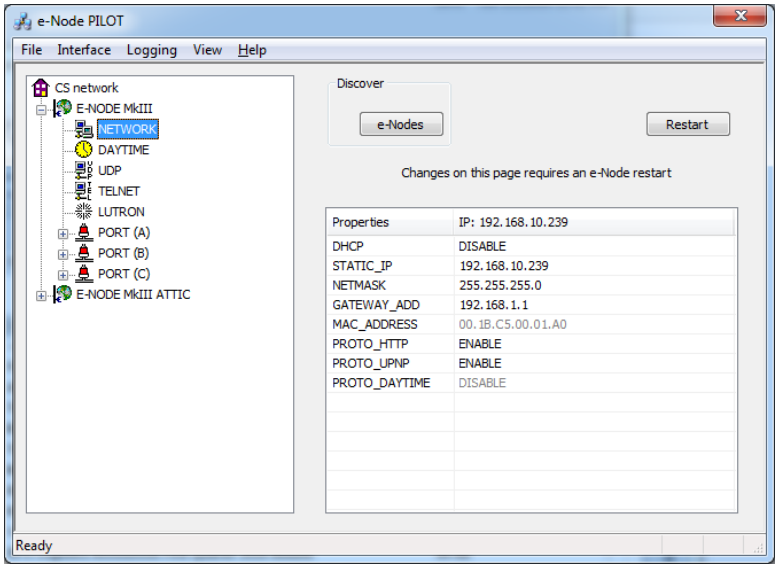


Figure 4

(reserved)

Figure 5

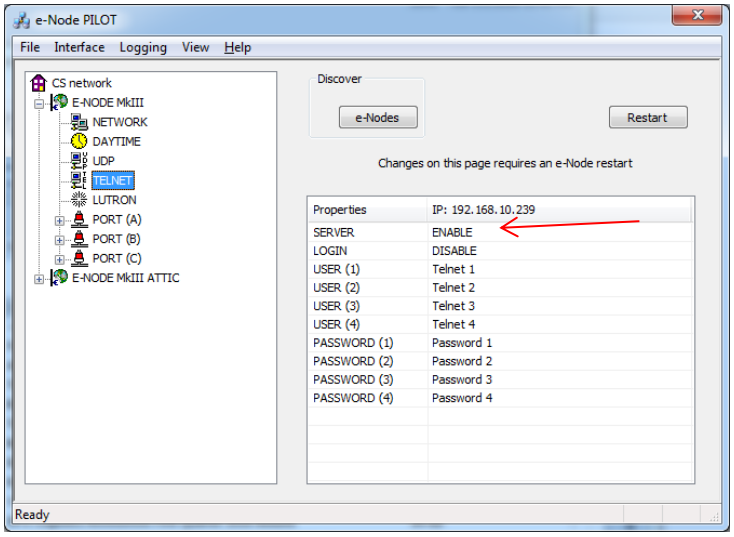


Figure 6

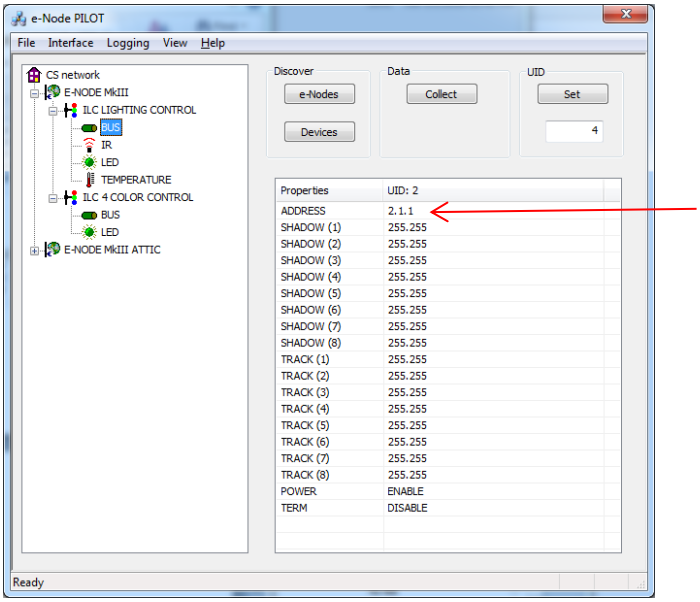


Figure 7