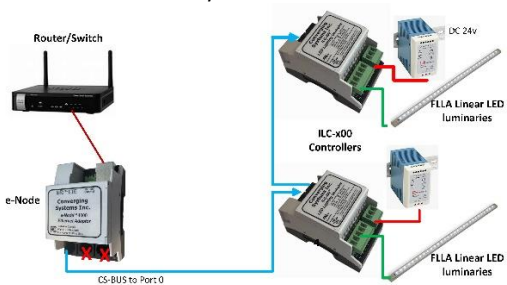

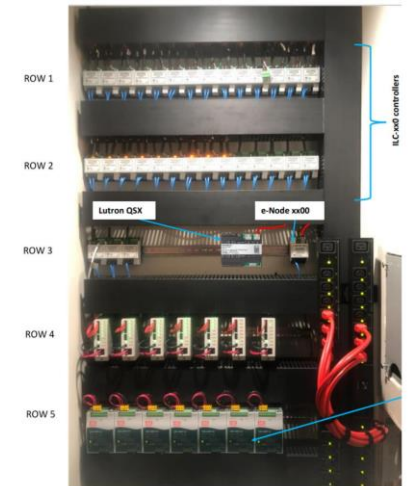


ILC –xxx Family Quick Reference Installation Guide (with e-Node for commissioning) *with SN Addressing*

Rev 7/27/2024

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. Up to 254 downstream ILC-xx0 devices require a single Converging Systems' e-Node 2000/4000 Internet Protocol (IP) gateway. *Full Installation Manuals are available for ILC-xxx family controllers, the e-Node, and IBT-100 at http://www.convergingsystems.com/lighting_install_library.php*


HARDWARE SETUP of ILC-x00 Controller using e-Node for commissioning and network communication

<p style="text-align: center;">Step 1 Overall System Architecture</p>  <p style="text-align: center;">Legend-for Wiring Selection/Function</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Color</th> <th style="text-align: left;">Function</th> </tr> </thead> <tbody> <tr> <td style="color: blue;">Blue (local comm)</td> <td>CAT 5 or better terminated with RJ25 (6P6C).*</td> </tr> <tr> <td style="color: green;">Green (load wires)</td> <td>Typically 16/18 awg with number of conductors 1 more than number of channels. See Step 3.</td> </tr> <tr> <td style="color: red;">Red (pwr. input)</td> <td>Low Voltage output from Class 1 transformer (running from Power Supply Unit/PSU to ILC-xx0 controller)</td> </tr> <tr> <td style="color: brown;">Brown</td> <td>Ethernet wire to e-Node</td> </tr> </tbody> </table> <p style="text-align: center;">*Note on CS-Bus Wiring</p> <p style="text-align: center;">CS-BUS WIRING STANDARD (using RJ-25/RJ-11 6P6C)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Pin 1_B</td> <td style="width: 30%;"></td> <td style="width: 30%;">You must</td> </tr> <tr> <td>Pin 2_B/W</td> <td></td> <td>maintain</td> </tr> <tr> <td>Pin 3_O</td> <td></td> <td rowspan="2">twisted pairs</td> </tr> <tr> <td>Pin 4_O/W</td> <td></td> </tr> <tr> <td>Pin 5_G</td> <td></td> <td rowspan="2">on pins 1&2,</td> </tr> <tr> <td>Pin 6_G/W</td> <td></td> </tr> </table> 	Color	Function	Blue (local comm)	CAT 5 or better terminated with RJ25 (6P6C).*	Green (load wires)	Typically 16/18 awg with number of conductors 1 more than number of channels. See Step 3 .	Red (pwr. input)	Low Voltage output from Class 1 transformer (running from Power Supply Unit/PSU to ILC-xx0 controller)	Brown	Ethernet wire to e-Node	Pin 1_B		You must	Pin 2_B/W		maintain	Pin 3_O		twisted pairs	Pin 4_O/W		Pin 5_G		on pins 1&2,	Pin 6_G/W		<p style="text-align: center;">Step 2 Communication Wiring Detail</p> <p>Network Connection. Cat5 or better Ethernet wire connecting e-Node to network switch. If using external PSU with e-Node 4000 (where POE switch is not available), connect e-Node's LAN connection to a non-POE port.</p> <p>ILC-x00 to ILC-x00 interconnections (CS-Bus wiring). Connect e-Node's Port 0 to the first ILC-xx0 (either Port) using prescribed CS-Bus wire (Step 1). Continuing interconnecting the first ILC-xx0 controller to the next controller in a daisy-chain fashion (without "Y"s or "T"s) by connecting Port 1 of one device to Port 0 of the next sequential device. Utilize standard CAT5 (or better) wiring and maintain 1/1 pinouts between ends (see CS-Bus Wiring Standard above). Also, maintain twisted pairs as shown (1&2, 3&4, 5&6).</p> <p>Note: The CS-BUS wiring (see Step 1) uses standard RJ-25 (RJ-11) 6P6C connectors available at Home Depot, Amazon, and all electrical distributors. You cannot use standard flat telephony cable for this type cable (i) does not have twisted pairs and (ii) utilizes typically a swapped wiring pinout (1-6, 2-5, 3-4, etc.) which is not compatible with the CS-Bus. Failure to follow the CS-BUS wiring standard will void your warranty. If you return a unit to Converging Systems with its communication chip destroyed this is a telltale sign that you used Telephone cabling. REPEAT-- DO NOT USE TELEPHONY CABLE. Also, do not attempt to use standard Ethernet cabling (568B or 568A) by simply cutting the browns or oranges for this will leave the twisted pairs inconsistent with our CS-BUS Wiring Standard (the middle two lines will not be a twisted pair and data integrity will be lost). If you do not have 6P6C RJ11/RJ-25 modular connectors and still wish to proceed, refer to the ILC-x00 family controller Instruction manual for more information.</p>
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Pin 6_G/W																											
<p style="text-align: center;">Step 3 Supply Wiring/Load Wiring</p> <p>ILC-xx0 Power. 24vDC PSU to ILC-xxx. Use standard CL2/3 rated 18/3* to connect PSU to ILC-xx0 controllers for short runs. Consult wiring table for larger gauge wire requirements for longer runs.</p> <p>e-Node Power. 12v~24vDC. Plug in compatible 12~24vDC supply (wall-wart) to 2-pin connector on all e-Node. Note: POE is available on e-Node 4x00. If POE not available in network, use wall wart above instead.</p> <p>FLLA/LED Linears connections. Connect the flying leads from the header end of the FLLA device to the ILC-x00 controller using recommended cabling (typically 16/18 awg). See Voltage Drop table for more info. http://www.convergingsystems.com/marketinginfotoc.php</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">RGB (4 pin)</td> <td style="width: 25%;">ILC-300c (C, G, R, B) Note: C is common+</td> <td style="width: 15%;">Mono (4- pin)</td> <td style="width: 45%;">ILC-400 (C,1) &/or (C,2) &/or (C,3) &/or (C,4) ILC-100m (C,W) Note: C is comm +</td> </tr> <tr> <td>RGBW (5 pin)</td> <td>ILC-400 (C,G,R,B, W) Note: C is common+</td> <td>Bi-White (3-pin)</td> <td>ILC-200 (C1 warm/C2 cool /C5 common+ ILC-400 (C1 warm/C2 cool/C3 warm C4 cool C5=+</td> </tr> </table> <p style="color: red; font-weight: bold;">*Use 3rd pin to connect to earth ground (mandatory for CS-BUS communication)</p>	RGB (4 pin)	ILC-300c (C, G, R, B) Note: C is common+	Mono (4- pin)	ILC-400 (C,1) &/or (C,2) &/or (C,3) &/or (C,4) ILC-100m (C,W) Note: C is comm +	RGBW (5 pin)	ILC-400 (C,G,R,B, W) Note: C is common+	Bi-White (3-pin)	ILC-200 (C1 warm/C2 cool /C5 common+ ILC-400 (C1 warm/C2 cool/C3 warm C4 cool C5=+	<p style="text-align: center;">Step 4 Sample Installation</p> <p>DIN-Rail Mounting. The ILC-xx0 and e-Node offer standard DIN Rail mounting features that will make installation very convenient for a centralized configuration. Remote mounting also acceptable. See this document for more information (and a larger image). https://www.convergingsystems.com/bin/doc/technotes/Class2wiring.pdf</p> 																		
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SOFTWARE SETUP-Commissioning Requires the e-Node.

Step 5
Web Page (uPnP) Discovery Mechanism

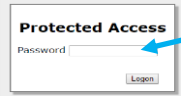
Use a Windows computer and open File Explorer and search for the **Network** tab to expand to see available uPnP* devices. Any connected e-Node(s) should appear



Then, **double click** on the e-Node icon to expose its webpage

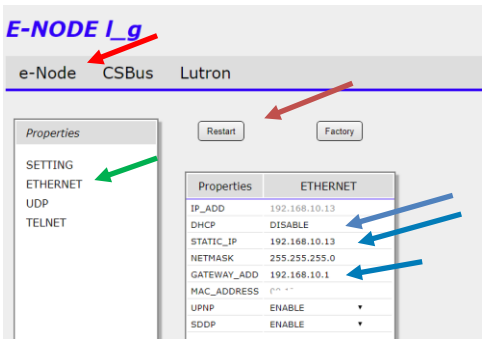


Next, **click** on the triple dash menu icon and you **may** be asked for a **Password**. Unless the **Password** has been changed or blanked out, enter **Admin** and select **Logon**



***Note on uPnP.** You may have to turn on Discovery or load the uPnP service within Windows to enable this type of Discovery

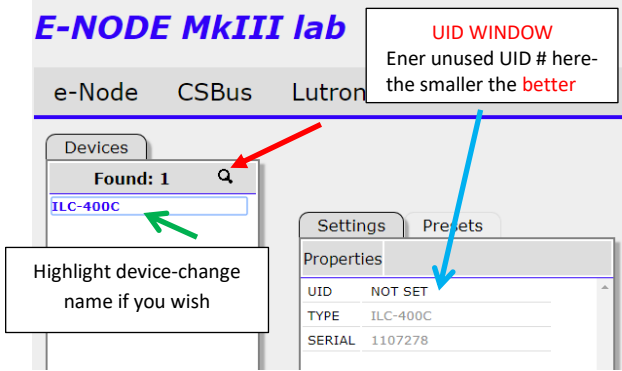
Step 6
e-Node web-Pilot Commissioning



e-Node Network Parameters. By default, the e-Node is set to **DHCP ENABLED**. To change to a Static IP address, **select** the **e-Node** tab to reveal the above setup screen. **Select** the **ETHERNET** tab and **enter** a static IP address under **STATIC_IP**. Then, **enter** gateway IP address under **GATEWAY_ADD**. Next, **select** **DHCP DISABLED** and hit **Restart** to **reboot** the e-Node to establish the new parameters.

Step 1
ILC-xx0 Activation **Part 1**
Assign UID to **EACH** Controller (so that each can be programmed)

E-NODE MkIII lab



UID WINDOW
Enter unused UID # here—the smaller the **better**

Highlight device-change name if you wish

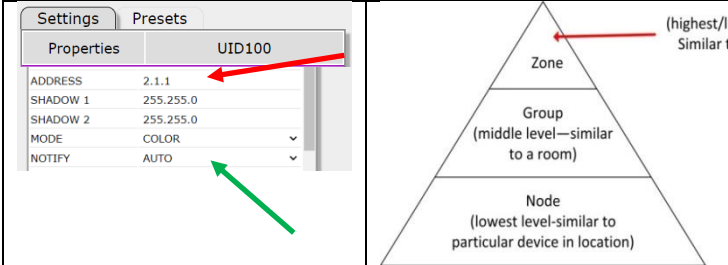
Discover ILC-xxx/Assign UID to Controller.

- Select** Spyglass to discover ILC-xx0 devices.
- Highlight** first ILC-xxx device, if desired change its alias name.
- Assign** an unused **UID** (unique ID) to that ILC device to activate (generally start with the UID value of "1" and work up sequentially) and enter this number into the UID field.

Note: If your device **does not** have SN Addressing (IMC-xxx) use the Pilot application to (i) **highlight** the e-Node to which the device is connected. (ii) **enter a unique UID** in the window, and (iii) **press** for ½ second the **discovery/reset** button on the IMC-x00 device using a paper clip (the on-board PCB LED will blink off for a moment then re-light which indicates success) and Select OK to the pop-up window. Once ID'd, the discovered device will appear.

Note: Make sure all control systems are powered off during this process for they may be issuing similar beacons on the bus which will interfere with this process.

Step 8
ILC-xx0 Activation **Part II**
Finish Activation-Assign **Zone/Group/Node** Addressing

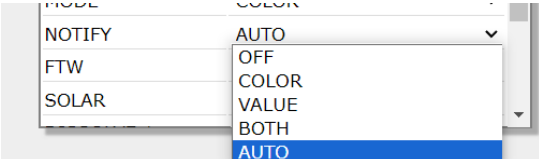


Finish Activation-Assign Z/G/N Address. Enter a discrete **Zone/Group/Node** address for each Lighting Controller identified within the previous pane. For more information on addressing, see [document](https://www.convergingsystems.com/em_pilot/other/ZGN_index.html) https://www.convergingsystems.com/em_pilot/other/ZGN_index.html

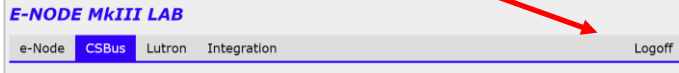
The factory default (**un-activated state**) for Lighting Controllers is **2.1.0** with the "0" acting as a wildcard **and** as an undefined address (with no bi-directional capability). **You will to change each device's ZGN Address which contains a "0" to one without a "0."** Typically, if you identify your first controller as a **2.1.1** and work upwards (**2.1.2; 2.1.3; ... 2.1.254**) sequentially among controllers, you will be fine for most installations. **If you leave the factory setting of 2.1.0, the controller is not completely activated and will trigger LEDs.**

Syntax for Entry. Enter the **Zone/Group/Node** address separated by **PERIODS** and hit **ENTER**.

Verify Bi-Directional Communication. Verify that **Notify** is set to **Auto** for most automation platforms. See specific Integration Notes for some legacy platformw which require BOTH versus AUTO.

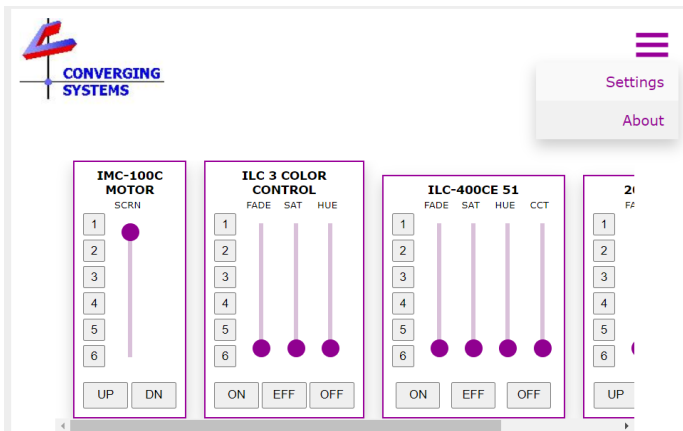


Step 9
Test



Test. If you are still navigating within one of the above left tabs (i.e., e-Node, CSBus...) simply select **Logoff** to expose built-in test user interfaces (**UI**). These screens are dynamic and morph to match the actual device being supported.. Test to see if your system is working.

If you have issues, refer to https://www.convergingsystems.com/troubleshooting/FAQ/LED/ttest_led.php for answers to most types of questions



Appendix

Documentation/Integration Resources/Troubleshooting

Expanded Setup Instructions

Quick Start Guide for e-Node

https://www.convergingsystems.com/bin/doc/ilc/enode_legalsize_ILCfamily3_4_webpilot.pdf

Expanded ILC-xx0 Family Documentation

https://www.convergingsystems.com/bin/doc/ilc/ilc_manual_2_0_rev1.pdf

Integration Resources

Integration with Lutron

https://www.convergingsystems.com/inres_lutron.php

Integration with Crestron

https://www.convergingsystems.com/inres_crestron_landing.php

Integration with other Platforms

https://www.convergingsystems.com/inres_atoz.php

Initial Setup and Commissioning Guide

https://www.convergingsystems.com/bin/doc/system/HW_SWSetupGuide_v1b.pdf

Troubleshooting

FAQ/Troubleshooting Knowledge Base

https://www.convergingsystems.com/troubleshooting/FAQ/LED/ttest_led.php



Important Safety Information

The ILC-x00 LED Controller and specified associated components are listed under UL File-325 and has been tested by the following safety agency:
TO REDUCE THE RISK OF ELECTRIC SHOCK, THIS EQUIPMENT HAS A GROUNDING TYPE PLUG THAT HAS A THIRD (GROUNDING) PIN. THIS PLUG WILL ONLY FIT INTO A GROUNDING TYPE OUTLET. IF THE PLUG DOES NOT FIT INTO THE OUTLET, CONTACT A QUALIFIED ELECTRICIAN TO INSTALL THE PROPER OUTLET. DO NOT CHANGE THE PLUG IN ANY WAY.

POUR REDUIRE LES RISQUES DE CHOC ELECTRIQUE, CET APPAREIL EST EQUIPE D'UNE FICHE AVEC MISE A LA TERRE COMPORTANT UNE TROISIEME BROCHE (BROCHE DE TERRE). CETTE FICHE NE PEUT ETRE BRANCHE QUE DANS UNE PRISE AVEC MISE A LA TERRE. S'IL N'EST PAS POSSIBLE DE LA BRANCHER DANS LA PRISE, FAIRE POSE UNE PRISE APPROPRIEE PAR UN ELECTRICIEN QUALIFIE. NE PAS MODIFIER LA FICHE
*UTILISER A L'INTERIEUR SEULEMENT

