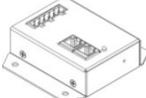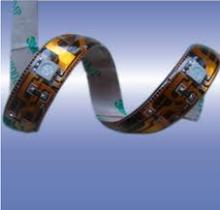## ILC-100 Intelligent Lighting Control Development Kit
(Ethernet and Serial Interface Options)
Date: Oct 1, 2013
Rev: 1.1

Thank you third-party developer for showing interest in supporting Converging Systems' innovative controller technology. In case you have received hardware from us to prepare for your device driver work, this backgrounder will show various items that may have been included with your kit. It also provides a very quick summary of how to initially plug in all units and verify their functionality. Your kit may differ from the standard kit documented below though.

Contents of Kit

Item	Included in this Kit	Picture
ILC-100 Intelligent Lighting Controller	1	
FLLA Flexible Linear Lighting Arrays	1	
e-Node Ethernet Adapter Firewall	1	
IBT-100 Serial Interface Adapter	1	

Power Supply	(see below)	
12v 500 ma power supply	no	See above
12v 500 ma power supply with dual ends	1	See above but with 2 female power plugs
24v power supply	no	
CS Bus Interface Cable (RJ-25 to RJ-25 straight 1-1,2-2,3-3,4-4,5-5,6-6)	1	
Leader Cable	1	\\

Important Developer Links on the Converging Systems website

CS-Bus Device Driver Toolkit (for writing Ethernet and Serial device drivers)	http://www.convergingsystems.com/inres_programmingdesignkit.htm
e-Node Pilot Application*	http://www.convergingsystems.com/customerportal/1000/downloads.htm#anch4
e-Node Commissioning Guide (how to run Pilot)*	http://www.convergingsystems.com/customerportal/1000/installation.htm#anch3

Note: you may be requested for a user name and password on several occasions to access certain of these documents. Those credentials are as follows:

User name	**csidealer**
Password	**4212color**

Setup

1. First un-package the above kit components. Plug in the **FLLA Flexible Linear Lighting Array** (LED strip) into the **Leader Cable** (if it is not already connected). The BLACK wire on the Leader Cable plugs into the pin on the FLLA strip that says either 12v or 24v. You will notice that the PCB of the FLLA has markings on it that say B(lue, R(ed), G(reen). These markings will match the colored wires on remainder of other pin locations on the 4-pin leader cable.

2. Plug in the supplied **Power Supply** into the mating 2-pin connector on the **ILC-100** Intelligent Lighting Controller as well as into the 2-pin power connector on the **e-Node** (if you are also setting up the **e-Node** device). Although it is difficult to plug these connectors the wrong way, pay attention to the polarity markings on the respective product's labels.

3. Power on the **Power Supply** and given the **FLLA** is correctly plugged into the **ILC-100**, the connected LED lamps should power on as RED. This indicates that the (i) **FLLA** strips are properly plugged into the **ILC-100**, and (ii) **ILC-100** is operating properly.

Depending upon whether you are testing the ILC-100 Lighting Controller with the e-Node (Ethernet adapter) or the IBT-100 (serial adapter), proceed to the appropriate section below:

E-Node Setup (for Ethernet connectivity)

a. Plug in the supplied **CS-Bus Interface Cable** between <u>either</u> RJ-25 Port (6P6C) on the ILC-100 (Port 0, the powered port, or Port 1, the unpowered port) and <u>either</u> of the 2 RJ-25 (6P6C) ports on the **e-Node**.

b. Plug in a network Ethernet cable (not included in kit) that will connect the **e-Node** to your local router or switch and another Ethernet cable to the same router or switch a local computer where you will be doing your development.

c. Provided the **e-Node** was powered on as per step #3 above, the **e-Node's** on-board amber LED (separate from RJ-45 Ethernet yellow/green LEDs) will change from a **fast flash** to a **slow flash** after the **e-Node** has been assigned an IP address by your local router. If you do not get a slow flash, this means that either (i) your network Ethernet cable is faulty, or (ii) your local router is not properly seeing the e-Node. Please check your network and network connections before proceeding. ***NO SLOW FLASH—NO e-NODE***.

d. We highly recommend that you download our e-Node Pilot application from our developer's website, <u>unzip</u> the application and launch it to determine the proper functionality of the **e-Node**. Once the e-Node Pilot application has launched, place your cursor in the upper left white box "called e-Node Found" within the application and right click to discover **e-Nodes**. The e-Node itself will populate in this smaller white box, AND the IP address of the e-Node found will appear in the larger white box located on the right side of the application's interface. For more information on using the e-Node Pilot application download the e-Node Pilot user guide (see above reference link).

   Note: Not only will the e-Node Pilot application allow you to determine the IP address of the e-Node, it will also let you change its various network settings as well as its network address.

e. ***After Pilot has discovered the e-Node and you have determined the IP address of the e-Node, we recommend that then and only then should you start your driver development effort***. Remember by default from the factory, the e-Node is set to UDP communication using the following parameters:

Mode of Communication	UDP Port
Transmission from e-Node (send)	5000 (this can be changed in Pilot for the e-Node if required)
Receipt of Data by e-Node (listen)	4000 (this can be changed in Pilot for the e-Node if required)

Please review the detailed instructions in the CS-Bus Device Driver Toolkit for more detailed information on protocol, syntax, and bi-directional commands supported.

IBT-100 Setup-for RS-232c Connectivity

a. Plug in the supplied **CS-Bus Interface Cable** between the Port 0 connector on the **ILC-100** Intelligent Lighting Controller (Port 0, the powered port, is required to power the **IBT-100** serial adapter which has no separate power supply) and either of the two RJ-25 (6P6C) ports on the **e-Node**.

b. Plug a serial cable (not included in kit) between the **IBT-100** and your development computer or your targeted serial controller.

c. Provided the **IBT-100** is plugged into Port 0 of the **ILC-100** and the **ILC-100** is powered on and operating, you should now be able to communicate with the **ILC-100** through the **IBT-100** serial adapter.

d. Remember the key parameters of the IBT-100 are as follows

Baud Rate	Parity	Valid Data	Stop Bit	Hand-Shaking
57600	N	8	1	None

Please review the detailed instructions in the CS-Bus Device Driver Toolkit for more detailed information on protocol, syntax, and bi-directional commands supported.

Converging Systems is standing ready to assist you with your device driver development. Do not hesitate to call us directly should you need any assistance. Please call us at 310 544 2628 for assistance.