LightLEEDer Diagnostic Tool Software
Technical Bulletin

Overview:
This Technical Bulletin will provide instructions for using the LightLEEDer Diagnostic Tool Software with the LightSync USB Diagnostic Tool (LSDT). The LSDT (Part # 93000841) is a USB to RS-485 converter and is supplied with a USB type A male to USB type B mini male cable, 6" CAT-5 cable, and a 12VDC 300mA wall plug power supply, as shown in Figure 1 and Figure 2.
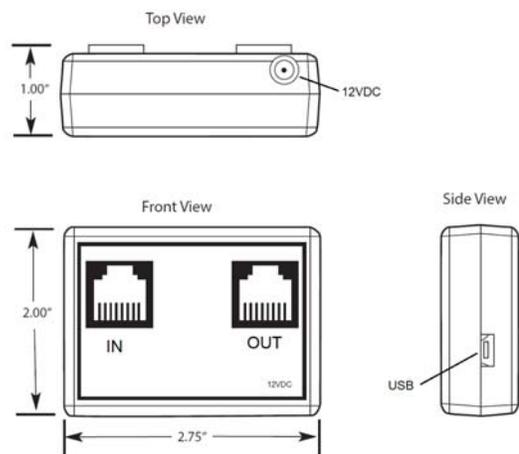
Figure 1   Figure 2

The LSDT is provided with RJ-45 In and Out LightSync ports, and a 12VDC input for power when connecting to LightSync devices.

You must have the ILC LightLEEDer Pro software installed on your computer to use this software which provides the proper driver for the USB connection. You will need to identify the COM port your computer has assigned for the diagnostic tool. With the device connected, open the Device Manager, and look under ports for "**Silicon Labs CP210x USB to UART Bridge".**

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The LightLEEDer Diagnostic Tool Software Rev 1.23 or better will provide 6 categories of operation, as shown in Figure 3.
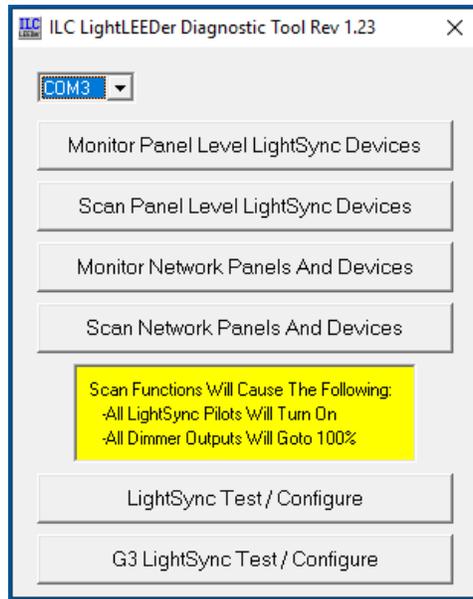
Figure 3

The Two Monitoring options are intended to log the ASCII COM data and can be used to look for non-ASCII characters.

The "**Monitor Panel Level LightSync Devices**" test requires placing the LLDT inline between the LightLEEDer or Evo panel Local Bus and the LightSync devices such as G3 switches or Occupancy input module. This will display ASCII data in Figures 5 and 6. If non-ASCII data is logged or responses are not occurring it may indicate a communication issue. Contact ILC Technical Support for more information.

The "**Monitor Network Panels and Devices**" test requires placing the LLDT inline between the LightLEEDer Advanced Network Controller and a network of LightLEEDer panels and network LightSync devices. In this option, you must choose the com line to be monitored for "LightSync Devices" or "Panels", see Figure 6.
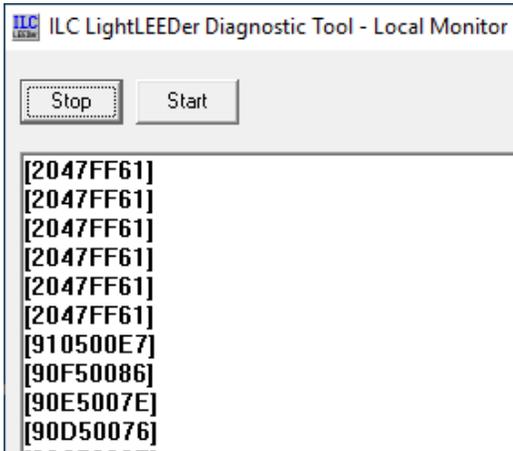
Figure 4 (No devices connected)

Figure 5 (LS G3 devices connected)
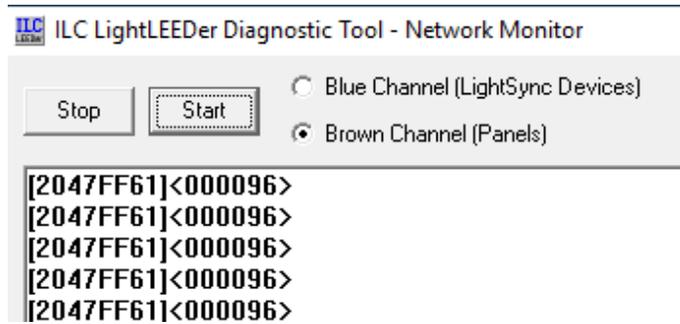
Figure 6

The "**Scan Panel Level LightSync Devices**" operation is used by unplugged the Local Bus data cable from the panel and plugging it only into the LSDT out port. Note that a 12VDC is required to power the LS devices on that dateline. Once initiated, the software automatically starts a scan and will find LS devices connected. A blue scan box will show the progress of the scan, you can rescan the devices if you have added or removed LS devices. In my example I found the LS devices address 04 and 05 as shown in Figure 7. Start the scan/cycle poll by clicking on "Start". The Cycle count will indicate& the number of times scanned, and each device will show an Error count.
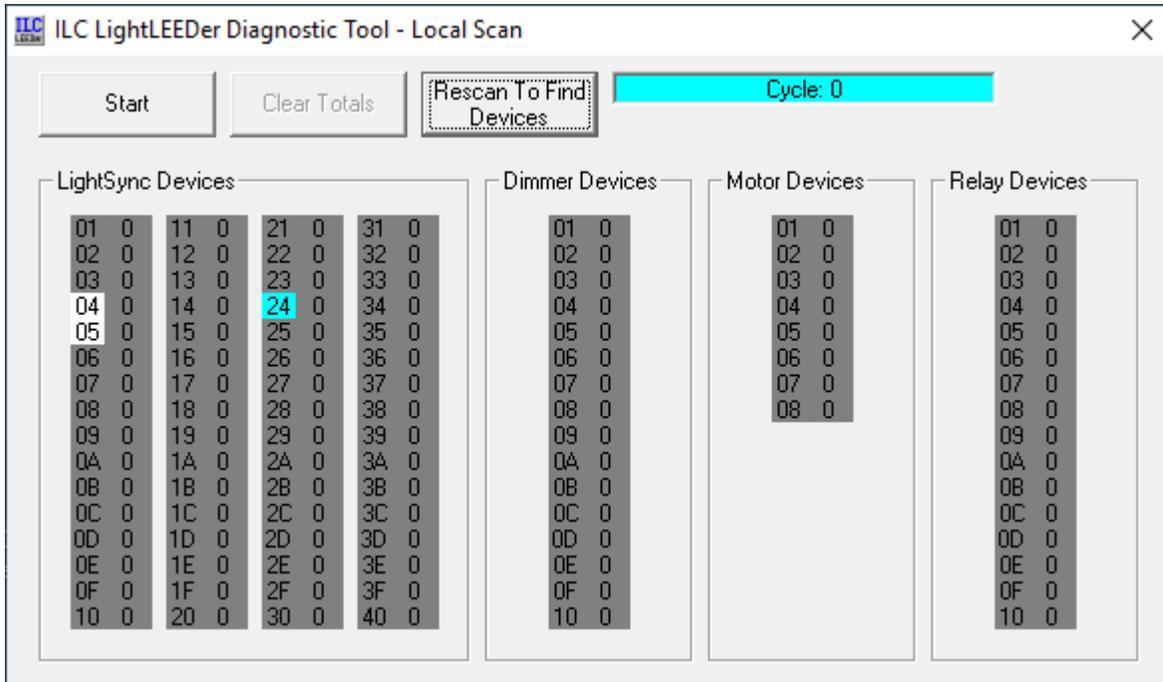
Figure 7

You can also directly select the devices you want to scan for communication by selecting the LS device address with your mouse. A communication error will first show as a yellow box and the software will count the number of failures and turn red once a sufficient number of failures has been reached as shown in Figure 8.
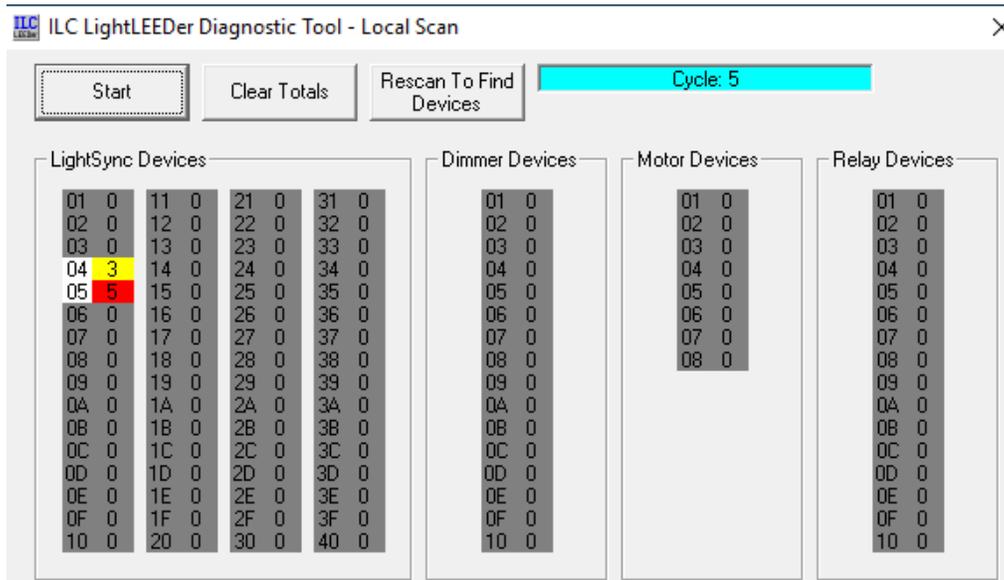
Figure 8 Needs new clip with lower area!

It also shows other devices in its scan such as Dimmer output modules, Motor Control Modules, and Relay driver modules. Note: if one or more devices change back of forth from yellow to red, then it is most likely that more than one device is set for the same address.

Additional test operations for LightSync devices can be performed by selecting the LightSync device address and then select "1-8 Inputs" for button stations, "On/Off inputs" for LSIM 4 input module or select a "Photocell" device as shown in Figure 9.
Pressing a button or activating the input will change the gray input box to white to indicate closure. Checking the Pilot box will drive the pilot's ON at the switch when pressed. The slide control at the right will send an 8-bit data back to the switch alternating the LED status for all 8 pilots for all of the 255 pilot status combinations possible.
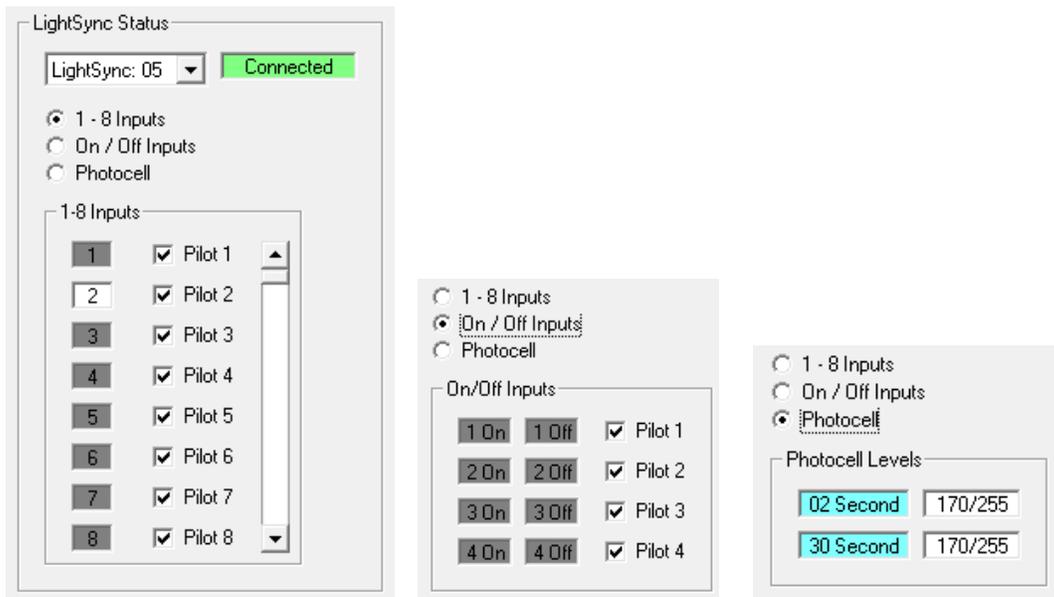
Figure 9

Dimmer Control will allow you to adjust the output level of each dimmer. Motor Control allows triggering a positive or negative closure for 1 sec. Relay control will allow status and control of a 4-relay set per relay device address allowing ON or OFF control and status.
There is also a "Connected" or "No Response" message box for each device type selected as shown in Figure 10.

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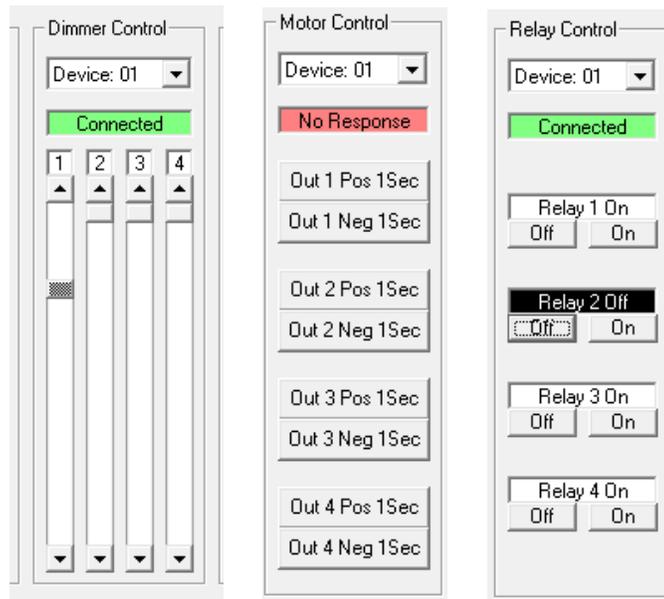
Figure 10

The "**Scan Network Panels And Devices**" option will scan for panels and network residing LightSync devices. Note: the LL-NCA must be shut off or disconnected during this test. You will connect the LSDT into the network in its place and be able to scan the network for all possible panels and LightSync devices. Figure 11 shows two LightLEEDer panels and one LightSync device are shown in this example scan.

Figure 11

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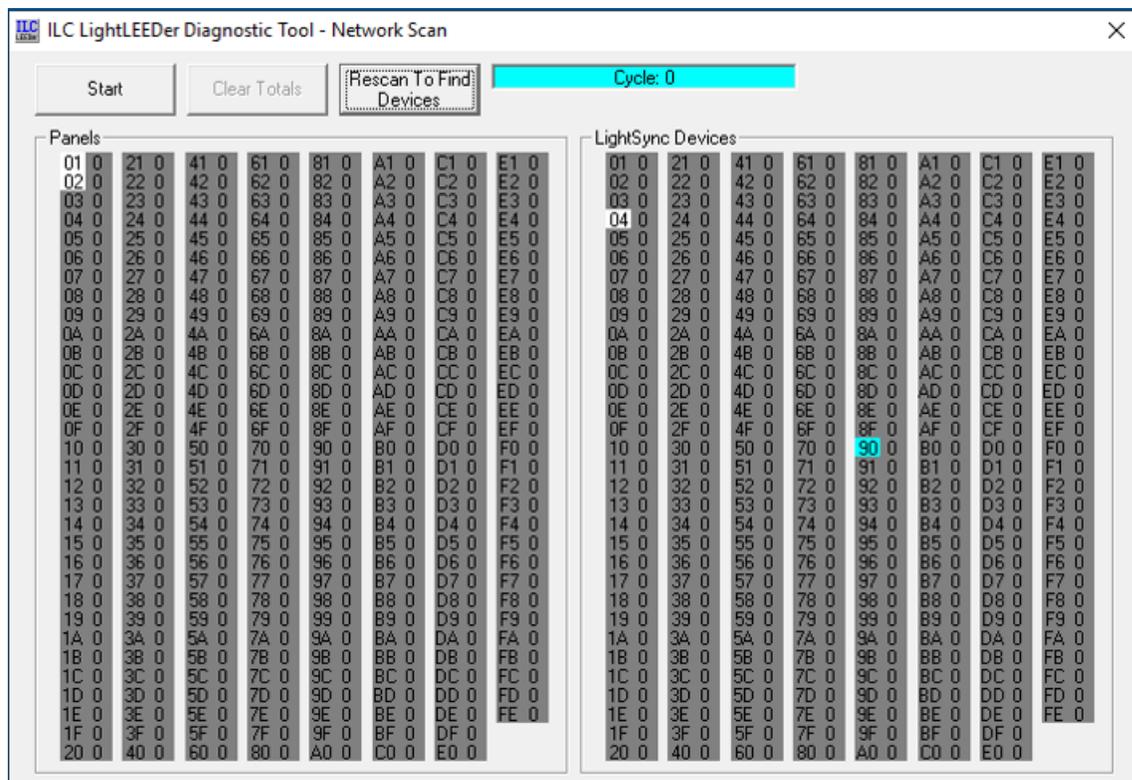
Press "Start" to start the polling. You should see a *green* count of "0" errors for the panel nodes or LS devices nodes as shown in Figure 12. You can stop the scan and clear the counts at any time.
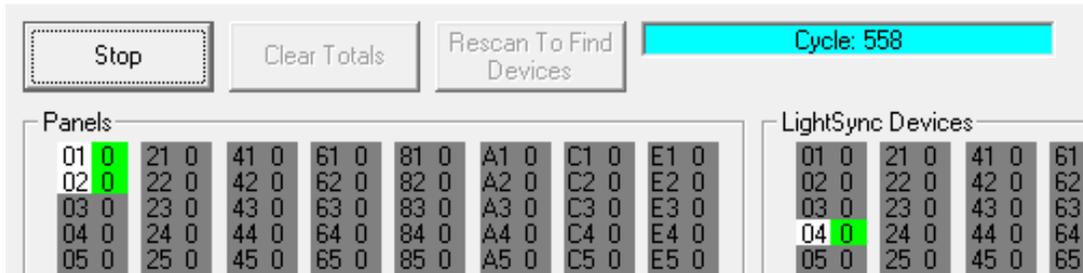
Figure 12

On the bottom part of the screen, you can call up individual panel status by selecting the panel node. You will see relay on/off status and control, plus the panel's local network LightSync device status, see Figure 13.
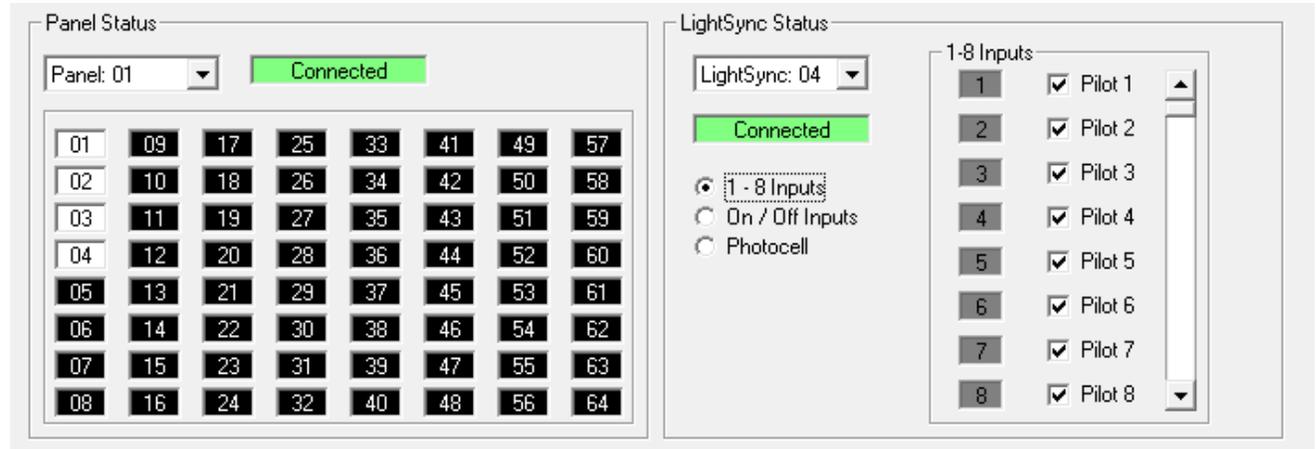
Figure 13

The "**LightSync Test / Configure**" option is intended for use with LightSync G2 and Classic switch stations. Disconnect the local LS bus data line from the panel and connect to the LSDT out port with the 12VDC power supply. Set the LS device address to "00", the software should display the device information read from the station. When the "Echo Input To Pilots" check box is selected the software display and switch will also show the Button press and pilot display, see Figure 14.
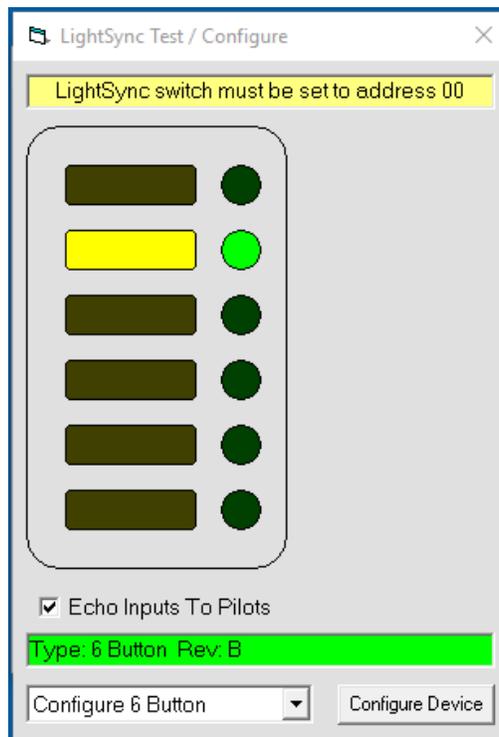
Figure 14

You can change the internal device configuration by selecting a configuration and clicking on the "Configure Device" button. Note: Only one device can be configured at a time.

Configure options for G2 & Classic stations include:

1 Button	**MZD2 Zone**	**Slider DB=0**
2 Button	**MZD3 Zone**	**Slider DB=2***
3 Button	**MZD4 Zone**	**Slider DB=4**
4 Button		**Slider DB=5**
5 Button		
6 Button		

When changing the device Configuration, you will get a pop-up warning to proceed and a conformation message requesting you cycle power to the device before the process is complete, See Figure 15.
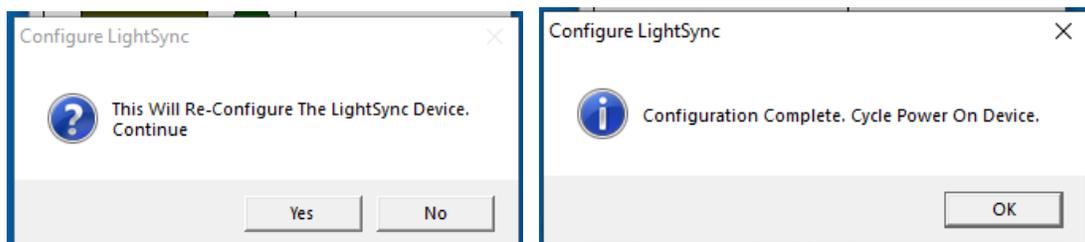
Figure 15

The "**G3 LightSync Test / Configure**" option is intended for G3 switch stations. You can set the LS device address directly or press "Find LS" to search for the device attached. Select "Echo Inputs to Pilots" to drive and test the status LEDs, both at the LS device and in the software. You can change the LS device configuration by selecting one of the listed options or see PD0628 for more information. Click on the "Configure Device" button to re-configure the device. Note: Only one device can be configured at a time.

LightSync G3 Configure option include:

1 Button Dim	**2 Button**	**MZD-2 Zone**	**2 Zone / 4 Scene**	**1-Scene**	**Test Mode**
2 Button Dim	**3 Button**	**MZD-3 Zone**	**3 Zone / 3 Scene**	**2-Scene**	
3 Button Dim	**4 Button**	**MZD-4 Zone**	**4 Zone / 2 Scene**	**3-Scene**	
4 Button Dim	**5 Button**	**MZD-5 Zone**	*(Combo station)*	**4-Scene**	
5 Button Dim	**6/7 Button**	**MZD-6 Zone**		**5-Scene**	
6 Button Dim	*(Non-Dim)*	*(Multi Zone Dimmer)*		*(Scene switch w/Capture)*	
(Original Scene switch without Capture)					

When testing the device button actions you can see the input action and the 2nd or 3rd device actions for stations that use more than one sequential address. For example, a 3 Zone /3 Scene station would show the button and pilot for the first 6 inputs and the Raise/Lower buttons of device 04, See Figure 16. Press and hold a Scene button (1,2,3) and for 30 sec and the station LED will flash indicating the capture operation is triggered Device 06 – input as shown in Figure 17.

Pressing the Raise or Lower buttons will trigger the matching dimmer inputs device 05 as shown in Figure 18.

Button Test	Hold Scene Button	Dimmer Button
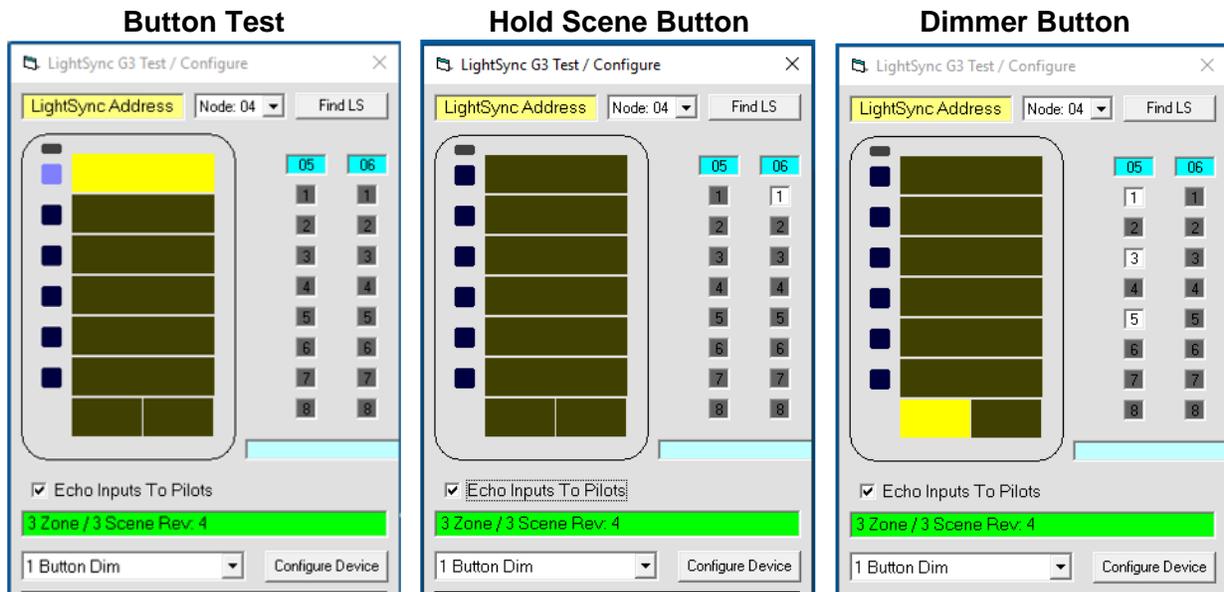
Figure 16	Figure 17	Figure 18

At the bottom of this screen, you will find the Bluetooth options for setting a Bluetooth ID and for testing the BT operation. First, confirm the LightSync G3 switch has the BT option, the top right button will have the BT symbol or an LS Bluetooth Pass-Thru Remote module that is typically mounted at the EVO panel, see Figure 19 for the LS-BTPT-R module.
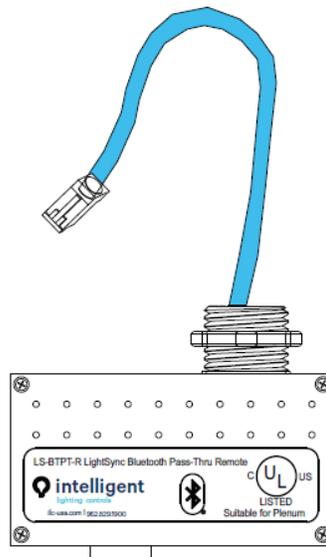
Figure 19

The "**Configure BT Module**" operation allows you to add a unique ID for identifying and connecting to. You will first need to be connected to a device that supports the Bluetooth option. The software will not show the current BT ID for the device, but you can set a new *random* number for the device if desired. Click the "Configure BT Module button. The software will sequence through a few steps including booting the device. When completed you will get a Blue tooth Config Completed message and the new random Bluetooth ID as shown in Figure 20.
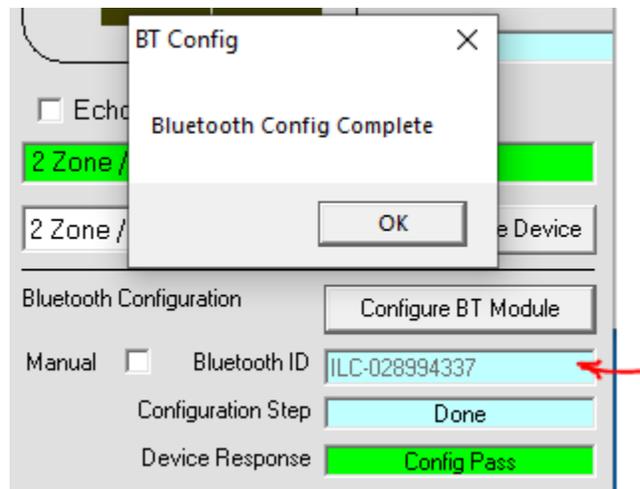
Figure 20

You can set a specific ID based on the customer's needs for easy identification from the Bluetooth App. Check the "Manual' Operation" box and add up to 9 digits. A room name or number can be used for easy customer identification as shown in Figure 21.
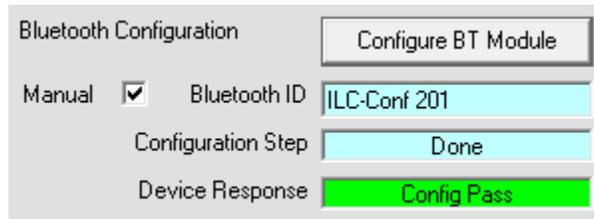
Figure 21

After configuring a new Bluetooth ID, you can test the Bluetooth communication, you will need another LightSync Diagnostic Tool and power supply and a 2nd LS Bluetooth device. Select the COM port for the 2nd LS-DT, then right-click "Test BT Connection". The software will run a test sequence and communicate between the two devices using the Bluetooth for confirmation, see Figure 22.

Figure 22