CONTENTS

1. INTRODUCTION

The IS32L3183A Demo Kit consists of a USB to LIN module, IS32LT3183A Main Board with three IS32LT3183-GRLA3-EBGUI Evaluation Boards, XH2.54mm 3Pin wire, USB type A to Micro USB type B cable, Power Adapter and a Windows based Graphical User Interface (GUI). The module, in combination with the GUI, will translate Windows GUI commands into formatted LIN command frames to control the three IS32LT3183-GRLA3-EBGUI Evaluation Boards.

2. HARDWARE INTRODUCTION

2.1 USB To LIN Module

The USB To LIN Module function is to convert the USB interface into a LIN communication interface for GUI interface communication and control with the IS32LT3183-GRLA3-EBGUI Evaluation Boards and can be used for LIN upgrade IS32LT3183-GRLA3-EBGUI Evaluation Boards program functions.

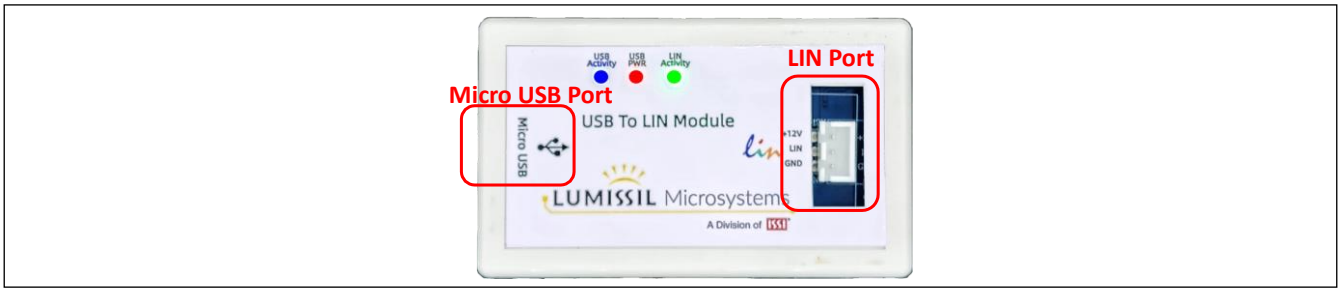


Figure 1 Photo of USB to LIN module

The USB to LIN module has a Micro USB Port that communicates with and powers the internal microcontroller after the USB cable is connected to a Windows PC.

USB Activity: This blue LED will blink when the USB To LIN Module is communicating with the PC.

USB PWR: This red LED will light when the Micro USB To USB wire is connecting to PC USB port.

LIN Activity: This green LED will blink when USB To Lin Module is communicating with the demo board.

LIN Port: XH2.54mm 3Pin connector. Three pins are +12V(input), LIN and GND.

2.2 IS32LT3183A Main Board

The IS32LT3183A Main Board is used to place 1 to 3 IS32LT3183-GRLA3-EBGUI Evaluation Boards, IS32LT3183A adopts BSM(Bus-Shunt-Method) technology to achieve automatic address allocation, IS32LT3183A's LIN_ OUT pin connects to the next IS32LT3183A's LIN_ IN pin.

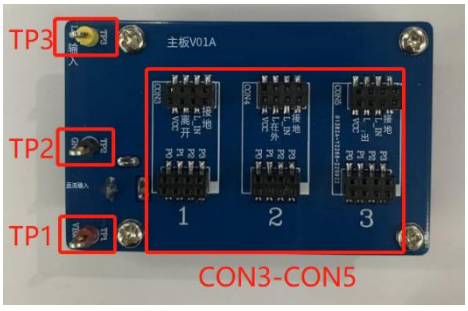


Figure 2 Photo of IS32LT3183A Main Board Top view

Figure 3 Photo of IS32LT3183A Main Board Bottom view

TP1: VBAT test point

TP2: GND test point

TP3: LIN INPUT test point

CON3~CON5: Place the IS32LT3183-GRLA3-EBGUI Evaluation Boards. Up to 3 IS32LT3183-GRLA3-EBGUI Evaluation Boards can be placed. It must be placed from CON3 to CON5. Just place IS32LT3183-GRLA3-EBGUI Evaluation Board on CON3 if there is only one.

CON1: DC 12V connector (Barrel 5.5/2.1mm)

CON2: LIN port, XH2.54mm-3P connector, connecting to the USB To LIN Module port of LIN.

Schematic

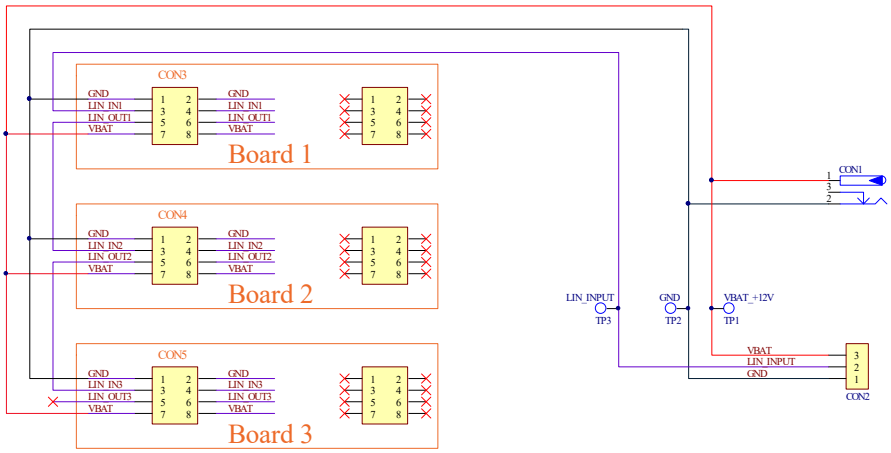


Figure 4 Schematic of IS32LT3183A Main Board

PCB Top View

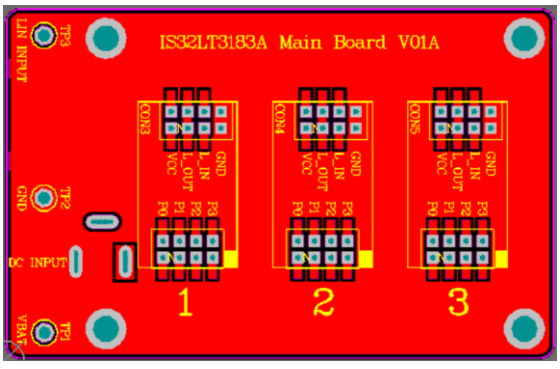


Figure 5 PCB Top View of IS32LT3183A Main Board

PCB Bottom View

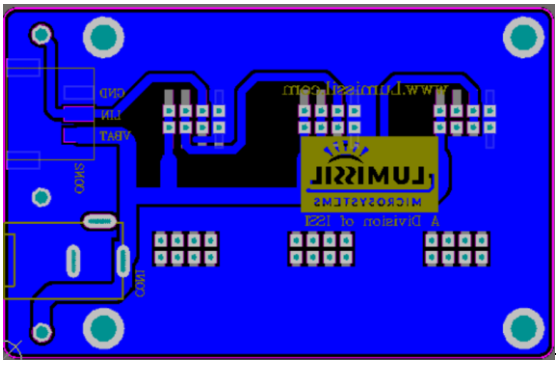


Figure 6 PCB Bottom View of IS32LT3183A Main Board

2.3 IS32LT3183-GRLA3-EBGUI Evaluation Board

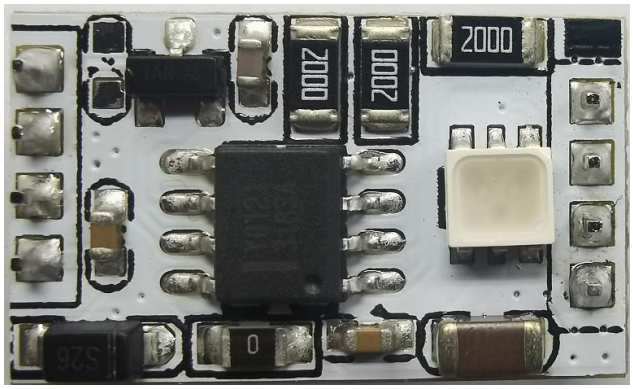


Figure 7 Photo of IS32LT3183-GRLA3-EBGUI Evaluation Board

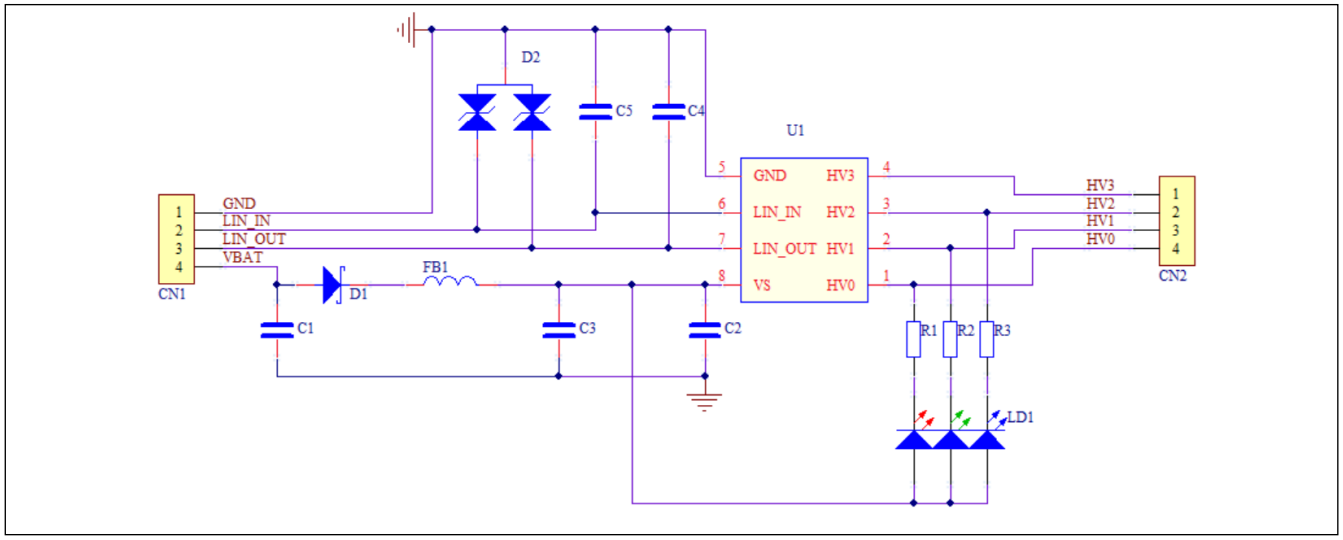


Figure 8 IS32LT3183-GRLA3-EBGUI Evaluation Board Schematic

BILL OF MATERIALS

Name	Symbol	Description	Qty	Supplier	Part No.
IC	U1	Constant current LED driver	1	Lumissil	IS32LT3183A-GRLA3-TR
Capacitor	C1, C2	CAP,0.1μF/50V,SMD,0603	2	Yageo	AC0603KKX7R9BB104
Capacitor	C3	CAP,4.7μF/50V,1206	1	Yageo	CC1206KKX7R9BB475
Capacitor	C4	NC	1		
Capacitor	C5	CAP,100pF/50V,0603	1	Yageo	AC0603KKX7R9BB101
Resistor	R1, R2, R3	RES,200R,1206	3	Yageo	AC1206FR-07200RL
Resistor	FB1	RES,0R,0805	1	Yageo	AC0805JR-07000RL
LED	LD1	LED, RGB, LRTBGVSG	1	OSRAM	LRTB_GVSG
Diode	D1	DSS26, SOD-123FL	1	JSCJ	DSS26
Diode	D2	PESD1CAN, SOT23	1	Nexperia	PESD1CAN
Connector	CN4, CN5	2.0mm-4PIN	2		X4611WV-04I

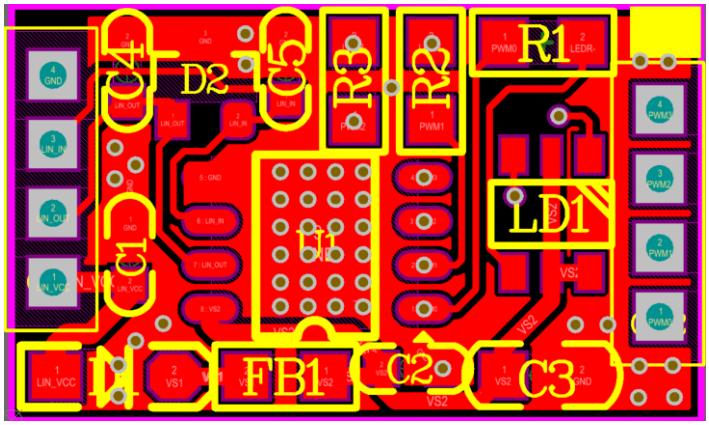


Figure 9 IS32LT3183-GRLA3-EBGUI Evaluation Board Layout - Top Layer

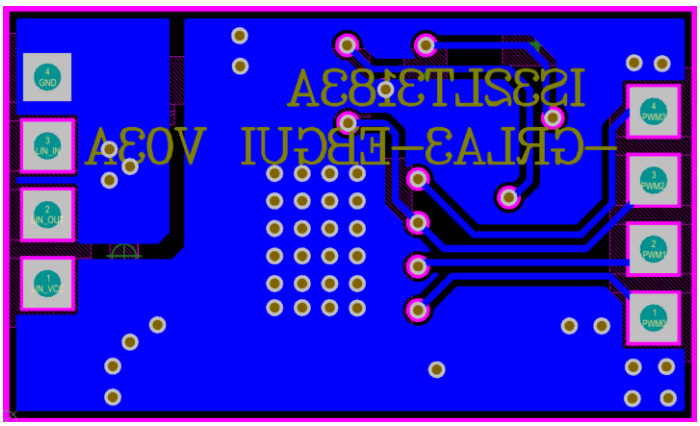


Figure 10 IS32LT3183-GRLA3-EBGUI Evaluation Board Layout - Bottom Layer

2.4 Diagram of Hardware Connection

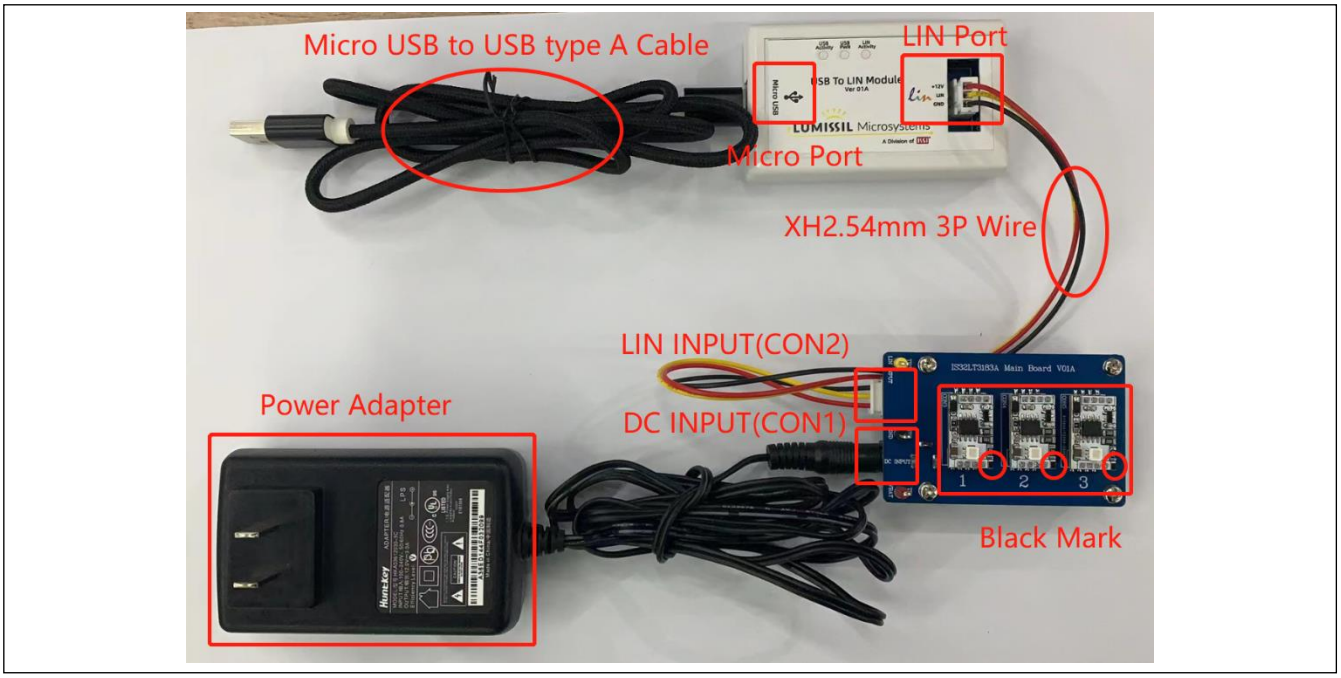


Figure 11 Diagram of Hardware Connection

Hardware connection mark and name Main and Eval Boards:

Place the IS32LT3183A-GRLA3-EBGUI demo board on CON1-CON3 female socket of the IS32LT3183A Main Board. The black mark of demo board faces to bottom right and pins of demo board should be aligned with female socket. Hot swap is allowed.

Connect LIN port of USB To LIN Module to LIN INPUT (CON5) port of IS32LT3183A Main Board with the XH2.54mm 3Pin wire. Pins should be aligned with the gap of socket.

Micro USB port connects PC USB port with Micro USB to USB type A cable.

DC INPUT (CON1) port is powered by a 12V power adapter.

3. GUI SOFTWARE INSTALLATION

Extract the files from “IS32LT3183A_Demo_GUI.rar” that will create the directory, “IS32LT3183A_Demo_GUI” with the following contents:

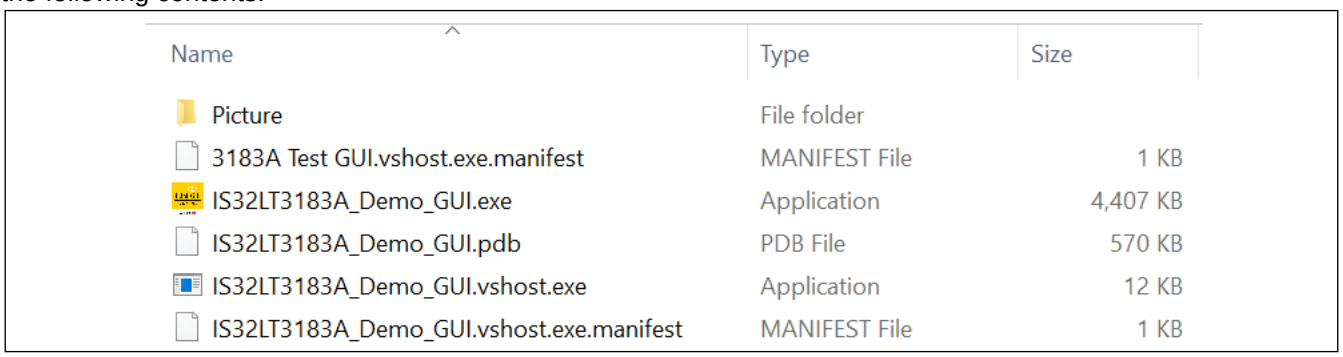


Figure 12 IS32LT3183A_Demo_GUI folder

Double click the “IS32LT3183A_Demo_GUI.exe” to open the GUI interface.

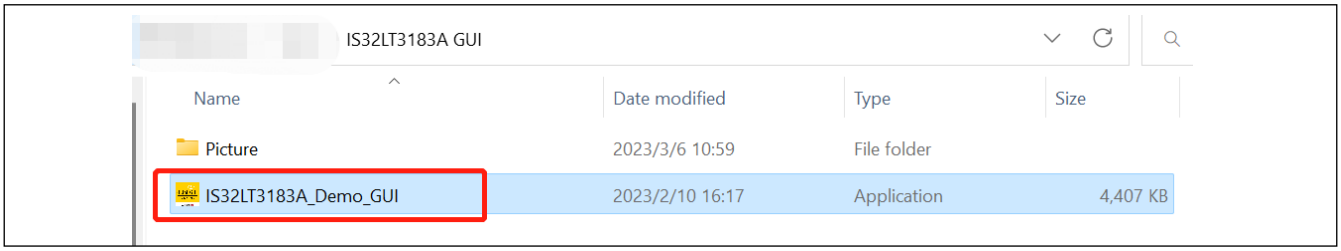


Figure 13 IS32LT3183A Demo_GUI.exe

4. GUI INTERFACE INTRODUCTION

4.1 SNPD (Slave Node Position Detection) Interface

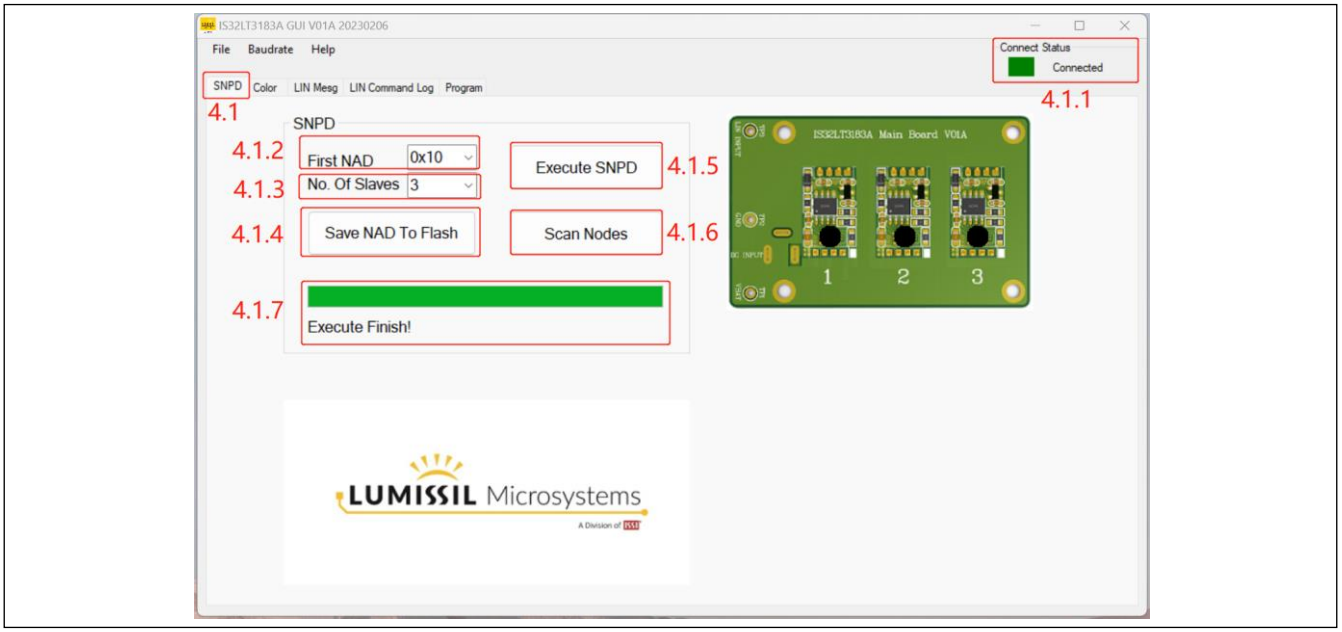


Figure 14 SNPD (Slave Node Position Detection)

4.1.1. Connect Status

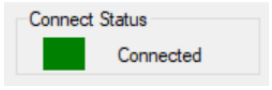


Figure 15 Connect status (Connected)

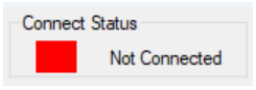


Figure 16 Connect status (Not Connected)

The Connect Status indicator will be green, and show “Connected” when the USB To LIN Module is connecting to the PC USB port as Figure 15.

The connect Status indicator will be red, and show “Not Connected” when the USB To LIN Module is not properly connected to the PC USB port as Figure 16.

4.1.2. First NAD

First address of NAD. The 0x10 is fixed to the first address of the IS32LT3183-GRLA3-EBGUI Evaluation Board. If there are three nodes, the three nodes’ addresses are 0x10, 0x11, and 0x12.

4.1.3. No. Of Slaves

Set the number of Slaves. 16 slave nodes are allowed at most for SNPD (Slave Node Position Detection). The default number is 3 for this IS32LT3183-GRLA3-EBGUI Evaluation Board. The number set must be consistent with the actual number of connected IS32LT3183-GRLA3-EBGUI Evaluation Boards, otherwise the allocation address will be wrong.

4.1.4. Save NAD To Flash

Save the allocated NAD (Node Address) to the flash of each node. Then NAD will be saved in the Flash of IS32LT3183A. If the IS32LT3183-GRLA3-EBGUI Evaluation Board has performed the save operation, the slave address and status could be scanned by Scan Nodes directly after power on.

4.1.5. Execute SNPD

Execute save node position detection. “7. Progress Bar and State” shows process and “Execute Finish” when it is finished executing.

4.1.6. Scan Nodes

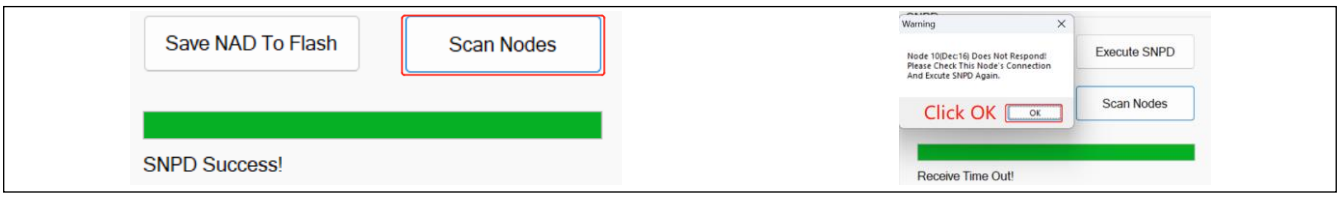


Figure 17 Scan Nodes

Figure 18 Scan Nodes warring

Scan Nodes. “7. Progress Bar and State” shows the process and result.

Figure 17 shows successful result as “SNPD Success”.

Figure 18 shows failed result as “Receive Time Out!”. Refer to the warning information to fix the error and retry scanning.

4.1.7. Progress Bar and State

Show progress and result for Execute SNPD and Scan Nodes.

4.1.8 SNPD Interface operation steps

Users can refer to the following steps to SNPD IS32LT3183-GRLA3-EBGUI Evaluation Boards.

Step 1: Refer to “2.4 Diagram of Hardware Connection” connect USB Type A cable to PC USB port, and connect the power adapter to an AC power source, double click the “IS32LT3183A_Demo_GUI.exe” to open the GUI interface. Check the connection status of the GUI and LIN tool is connected.

Step 2: Based on the current number of nodes, dropdown the “No. Of Slaves” control, select the corresponding nodes number (“First NAD” is fixed to 0x10, no setting required).

Step 3: Click “Execute SNPD” button, “Progress Bar and State” display “Execute Finish!”, indicates the end of SNPD execution.

Step 4: Click “Scan Nodes” button, “Progress Bar and State” display “SNPD Success!”, indicates that the SNPD was successful, otherwise a warning box will pop up warning that the SNPD failed.

Step 5: If need to save NAD information on the demo board, click "Save NAD To Flash" button. After clicking this button, the NAD will be saved in the flash. Powered on again, there is no need to perform SNPD again.

4.2 Color Interface

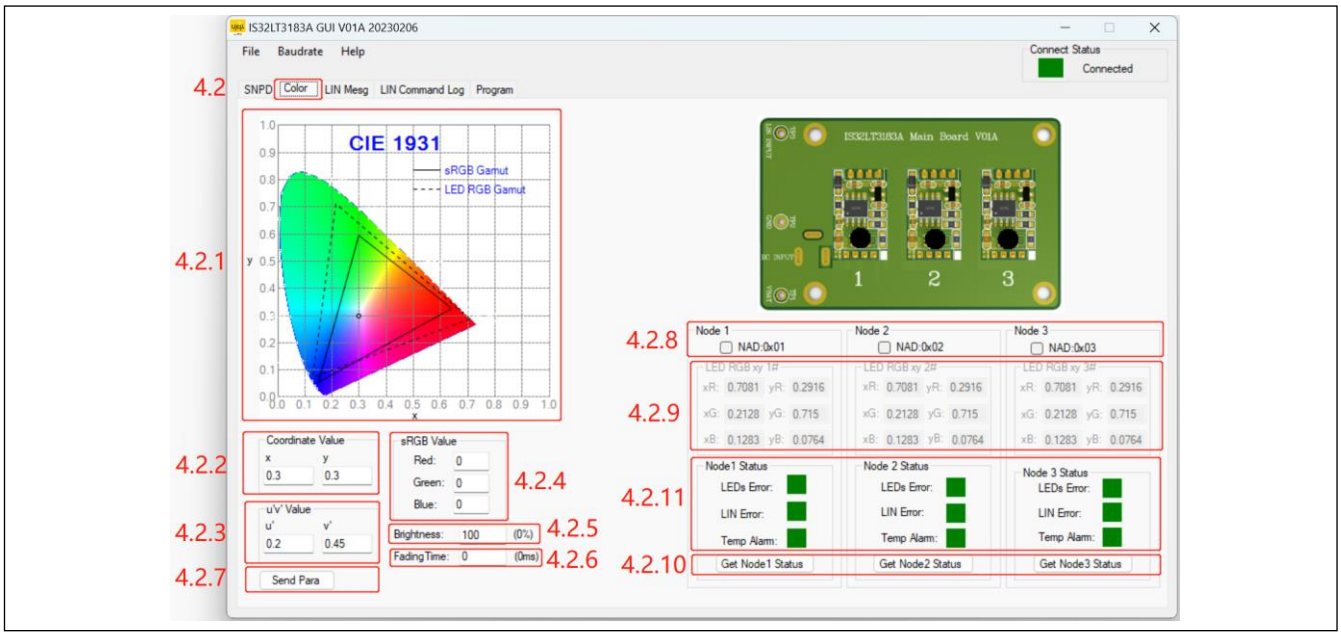


Figure 19 Color Interface

4.2.1. Coordinate Select

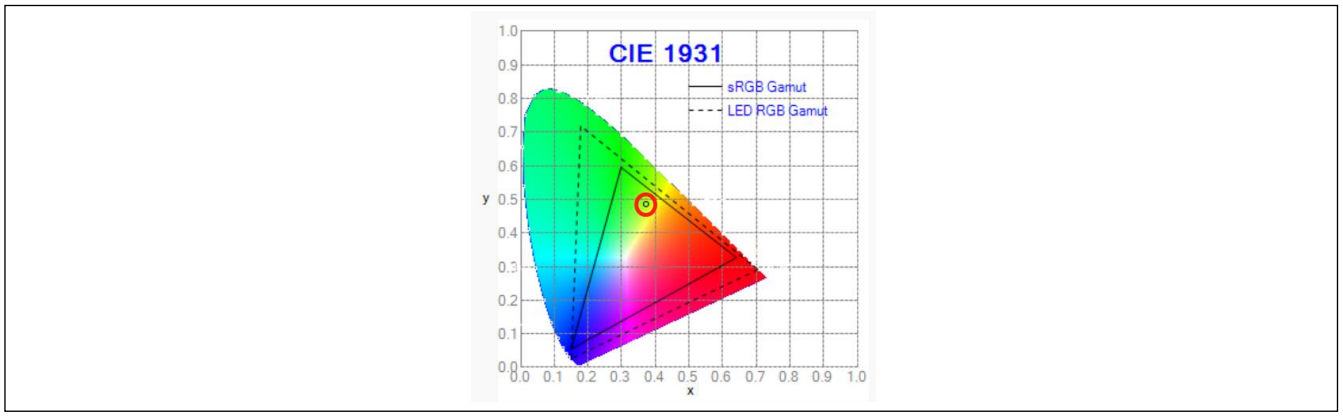


Figure 20 Coordinate Select

As the figure above shows, we can choose any color with the mouse. The selected color should be within the overlapping area of both the sRGB Gamut (solid frame) and the LED RGB Gamut (dotted frame). When the corresponding color is clicked, the data in the Coordinate Value box, u' v' Value box and sRGB Value box are automatically updated.

4.2.2. Coordinate Value

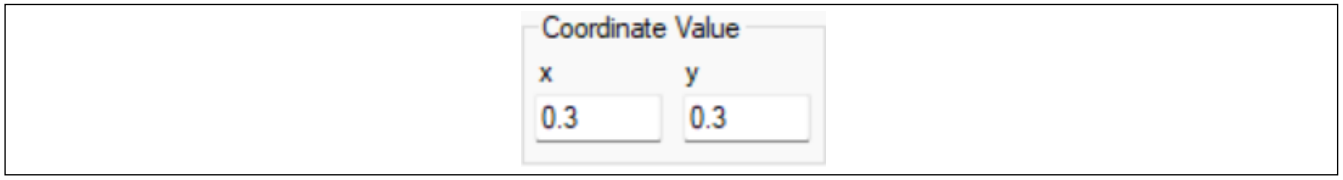


Figure 21 Coordinate Value

As the figure above shows, “Coordinate Value” sets the color coordinate of RGB LED for CIE1931. The data in u' v' Value box and sRGB Value box are automatically updated by the Coordinate Value box.

4.2.3. u’ and v’ Value

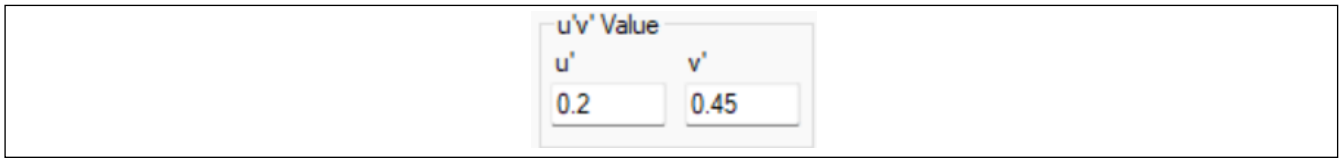


Figure 22 u’ and v’ Value

As figure above shows, “u’ v’ Value” sets u’ and v’ value of RGB LED. The data in Coordinate Value box and sRGB Value box are automatically updated by the u’ v’ Value box.

4.2.4. RGB Value

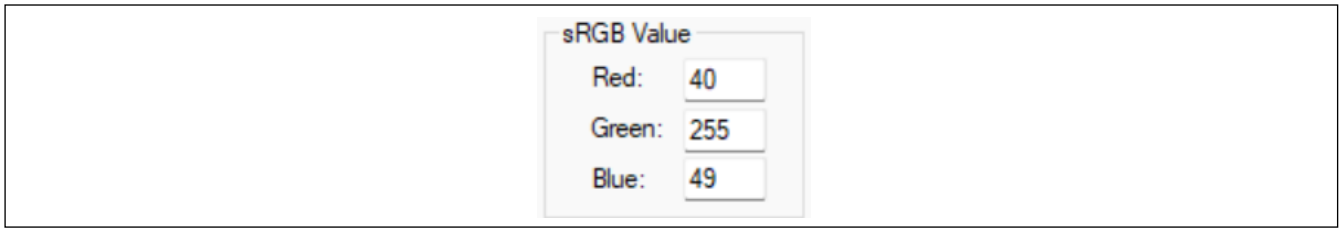


Figure 23 RGB Value

As figure above shows, “sRGB Value” set Red/Green/Blue value of RGB LED from 0~255. The data in Coordinate Value box and u’ v’ Value box are automatically updated by sRGB Value box.

The Red/Green/Blue color of sRGB is different to the RGB LED. If set the Red/Green/Blue to “255.0.0”, the red LED on the demo board is not only bright, but also is displayed according to the actual color coordinate value.

4.2.5. Brightness

Figure 24 Brightness

As figure above shows, “Brightness” set the brightness ratio of LED from 0~100%. LED will be shut down when set 0% in the box.

4.2.6. Fading Time

Figure 25 Fading Time

As figure above shows, fading time is set from 0~255 equaling to input value multiply by 20ms.

Linear transformation from one color to another, with time set by Fading Time.

4.2.7. Send Para (Parameter)

Figure 26 Send Para

As figure above shows, click "Send Para" and the set parameters will be sent to the demo board through the USB To LIN Module.

4.2.8. Nodes Select

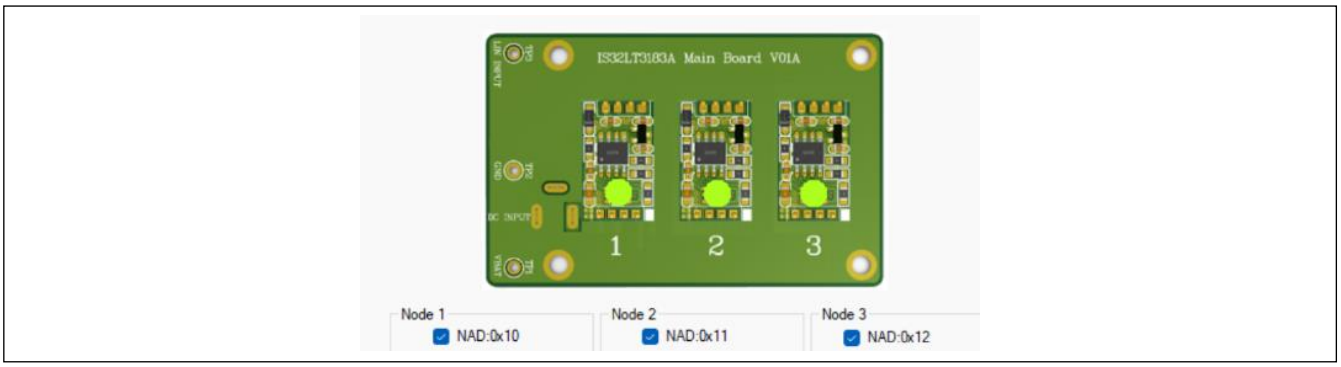


Figure 27 Nodes Select

As the figure above shows, there are three default nodes on the demo board. Only the selected node can receive control commands.

4.2.9. LED RGB xy

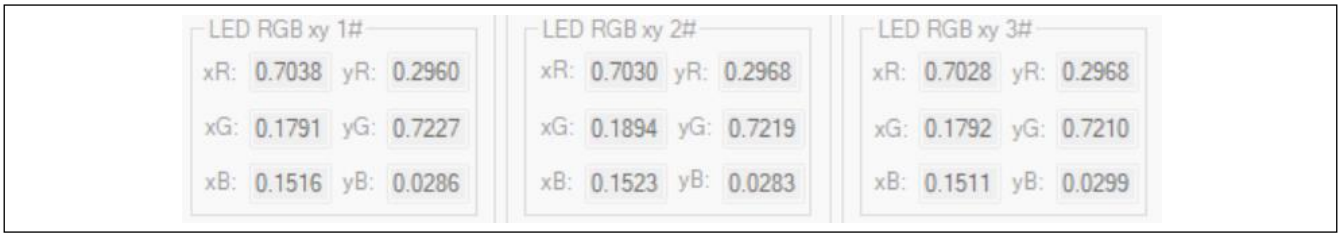


Figure 28 Read LED RGB xy.

The x and y values of RGB LED are as figure above shows. When Scan Nodes are completed after the demo board is powered on, it will be read automatically.

Each LED on the IS32LT3183-GRLA3-EBGUI Evaluation Board has independent RGB vertex coordinates, which are measured and stored in Flash before sample delivery. These vertex coordinates are used for matrix formula calculation of color correction.

4.2.10. Get Nodes Status

Figure 29 Get Nodes Status

Click “Get Node x Status” to read the status of the IS32LT3183-GRLA3-EBGUI Evaluation Boards, the buttons of nodes status are as figure above shows. Status of nodes will be shown in “11. Nodes Status”.

4.2.11. Nodes Status (Indications)

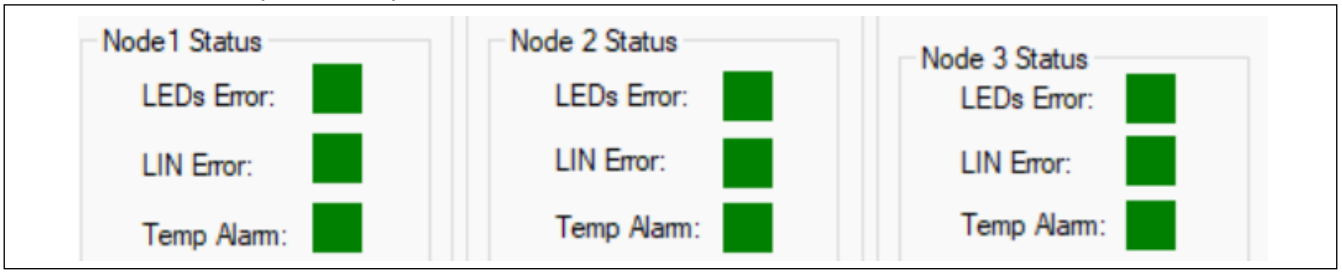


Figure 30 Nodes Status

Status of nodes will be shown as figure above. Green is normal and red is anomalous.

4.2.12 Color Interface Operating Steps

Users can send/read parameters to IS32LT3183-GRLA3-EBGUI Evaluation Boards through the following steps.

Step1： Refer to “4.2.8. Nodes Select”, select the nodes to be controlled.

Step2：Refer to “4.2.1. Coordinate Select”, select the coordinate value of the selected nodes. You can obtain the coordinate value by clicking with the left mouse button, or directly fill in the required coordinate value, u'v' value, and RGB value in the box, refer to “4.2.2. x, y Value”, “4.2.3. u’ and v’ Value”, “4.2.4. RGB Value”.

Step3：Refer to “4.2.5. Brightness”, fill in the brightness value.

Step4：Refer to “4.2.6. Fading Time”, fill in the time value required for Fading.

Step5：Refer to “4.2.7. Send Para”, after filling in the values in Steps 1-4, click the “Send Para” button.

Step6：To obtain the status of each node, refer to “4.2.10. Get Nodes Status”, obtain the node status by clicking “Get Node X Status” buttons. Node status refer to “4.2.11. Nodes Status”.

4.3 LIN Mesg (Message)Interface

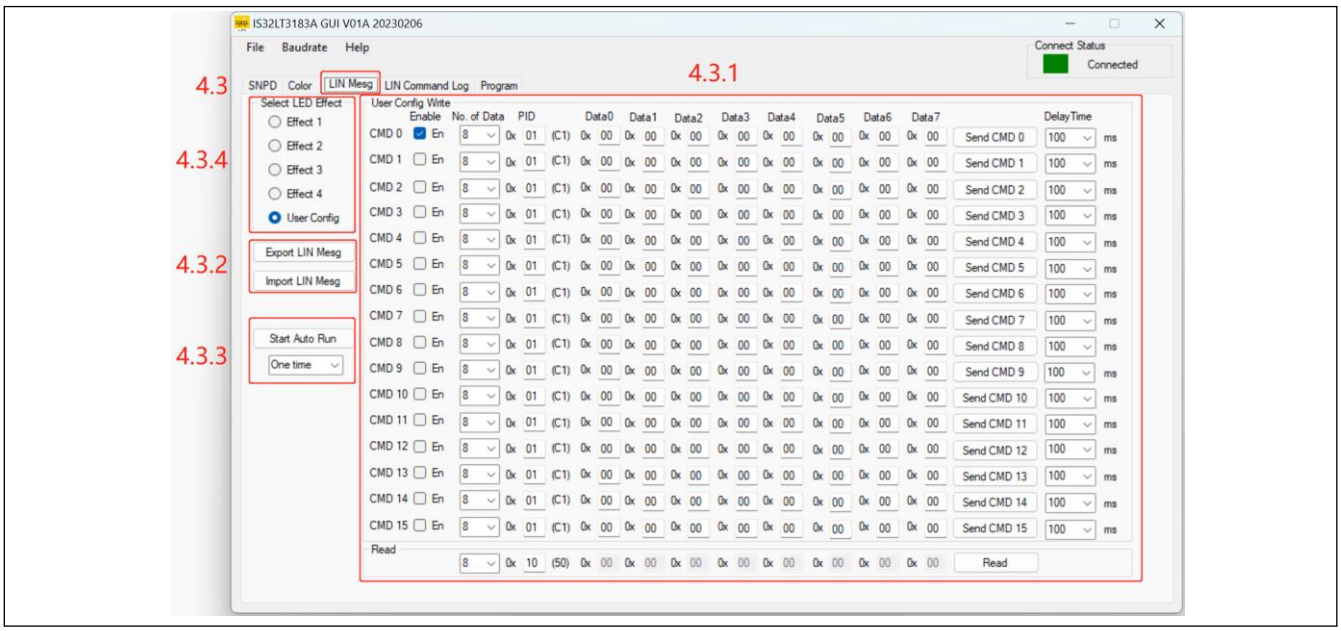


Figure 31 LIN message interface

4.3.1. LIN Message

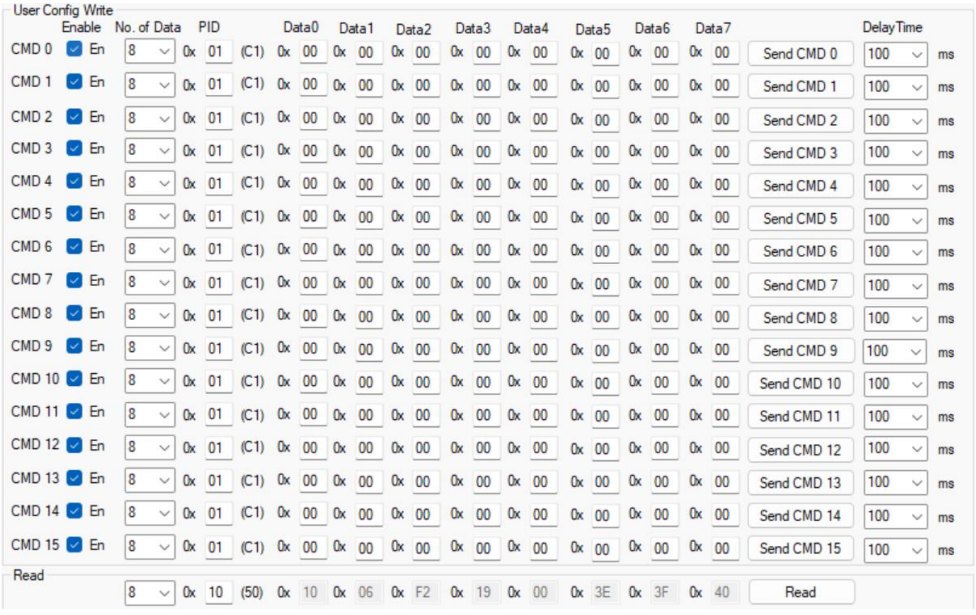


Figure 32 User config write and read.

As the figure above shows, there are 16 CMD commands and one Read command.

“Enable” is used to set commands sending enable. “En” button must be selected or commands won’t be sent.

"No. of Data" is used to set command data length. Each command can be set 1~8 bytes (8 bytes is default).

"PID" is used to set Protected Identifier Field (PID) of commands. Data range from 0x00 to 0x3F. The PID consists of two sub-fields, the frame identifier and the parity (Refer to LIN2.2A specification document).

The GUI automatically calculates the validation data and displays it in the () after the PID.

"Delay Time" is used to set commands Transition time. Transition time from the original color gradient to the newly set color. It only works at Auto Start Run mode.

"Send CMD x" buttons are used to send command for the current row ("En" button must be selected).

"Read" is used to read out the corresponding data of slave.

4.3.2. Export/Import LIN Message

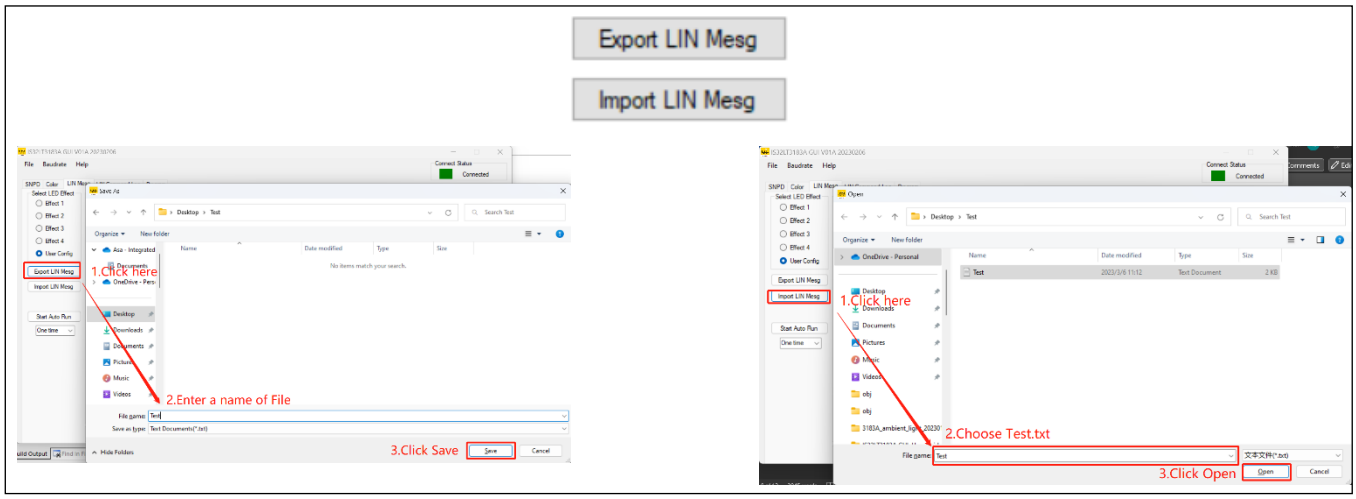


Figure 33 Export LIN Message

Figure 34 Import LIN Message

As Figure 33 above shows, LIN Message could be exported by "Export LIN Mesg" and save type as .txt.

As Figure 34 above shows, LIN Message could be imported through "Import LIN Mesg" and read type as .txt.

This function is used to save and recall preset data.

4.3.3. Start/Stop Auto Run

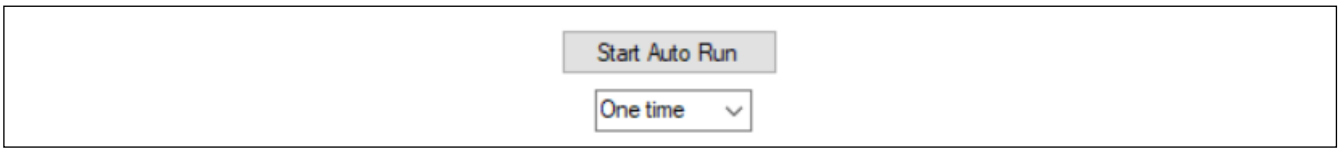


Figure 35 Start/Stop Auto Run

Automatically send preset LIN Message with a choice of single execution (One time) or cyclic execution (Cycling).

4.3.4. Select LED Effect

Effect 1~4: Select 1-4 effects. IS32LT3183-GRLA3-EBGUI Evaluation Board will enter automatic playback modes

Effect 1: Random color flicker

Effect 2: Random color flowing effect

Effect 3: Random color breathing

Effect 4: Random color droplet effect

User Config: Use LIN message config. IS32LT3183-GRLA3-EBGUI Evaluation Board is operated by instructions sent by GUI.

4.3.5 LIN Message Interface Operating Steps

Users can follow the steps below to import/export LIN Message.

Step1：Refer to “4.3.1. LIN Message”, fill in the corresponding box according to the LIN signal that needs to be sent.

Step2：Refer to “4.3.2. Export/Import LIN Message”, the 16 set LIN CMDs can be exported in txt format. We can also import the set LIN CMD into the LIN Message box.

Step3：Refer to “4.3.3. Start Auto Run”, by pressing the “Start Auto Run” button, the GUI can automatically cycle send enabled LIN CMDs or send enabled LIN CMDs only once.

Step4：Refer to “4.3.4. Select LED Effect”, control the nodes on the Demo board automatically run the led effect.

4.4 LIN Command Log Interface

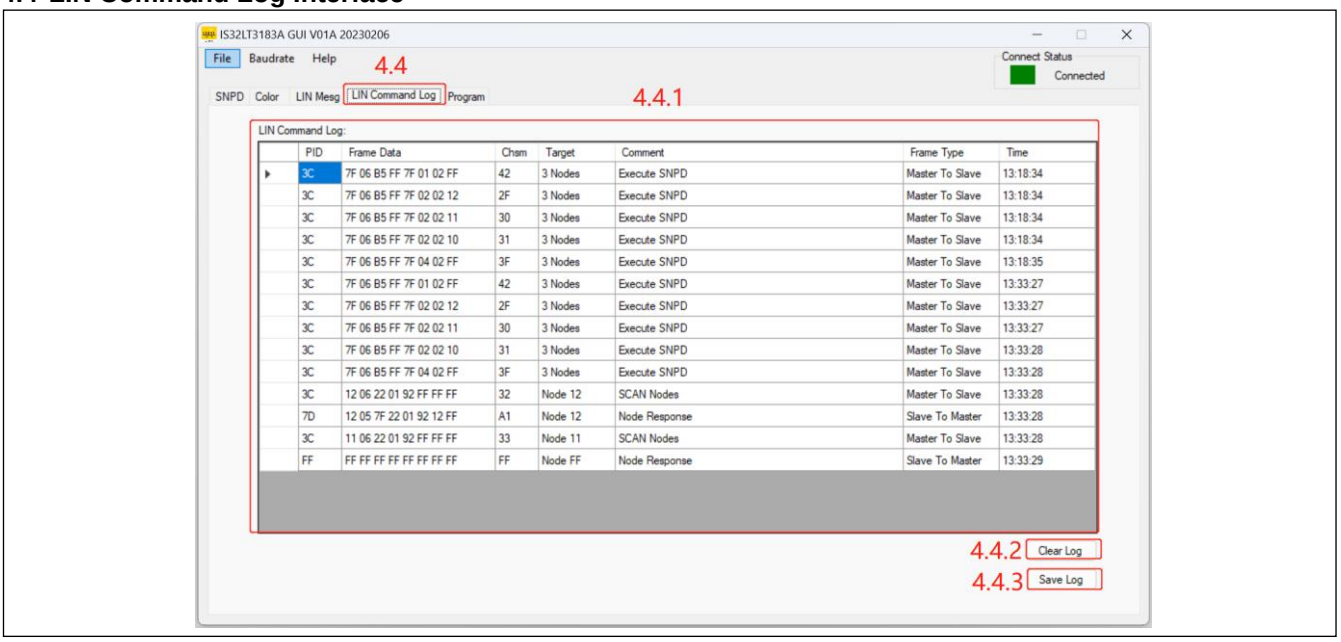


Figure 36 LIN Command Log Interface

4.4.1. LIN Command Log

All operation commands in the GUI interface will be displayed in the "LIN Command Log", Except commands sent via LIN to run "Effect X". This log can display the PID, frame data, checksum, target, comment, frame type, times and other information of the command.

4.4.2. Clear Log

Clear the “LIN Command Log”.

4.4.3. Save Log

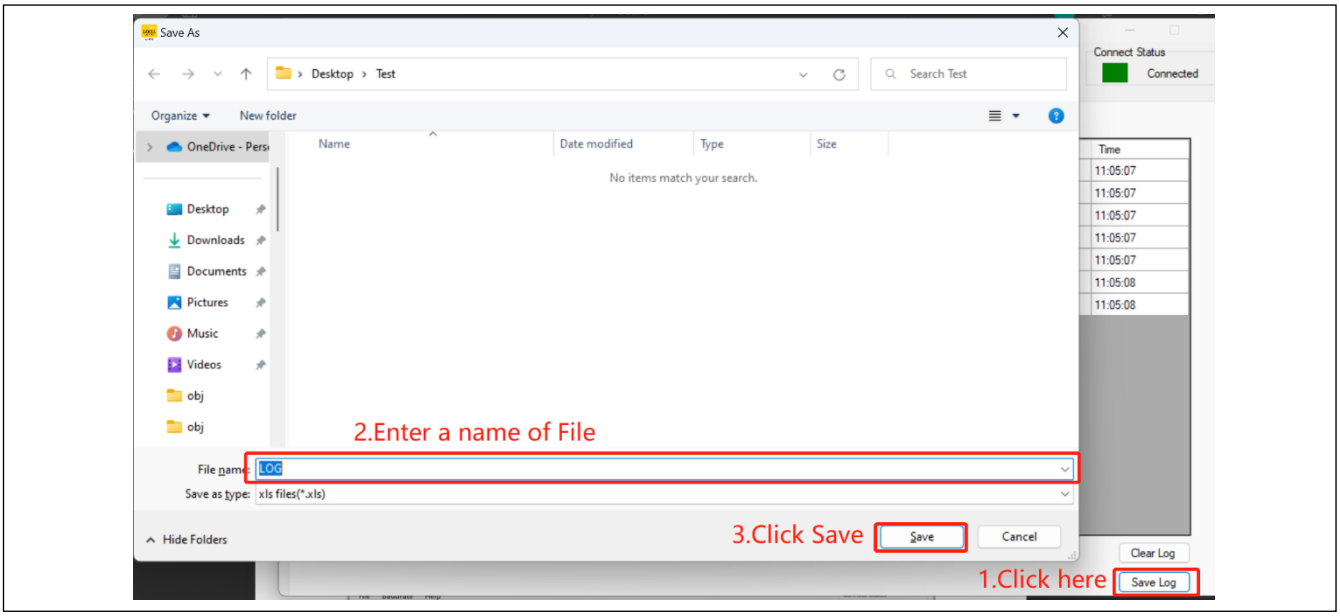


Figure 37 Save Log Interface

Follow the steps on the figure 37, click the “Save Log” button, enter a name of file, click “Save”.

You can save the LIN Command Log to the local file in “.xls”.

4.5 Program Interface (Upgrade User application code via LIN)

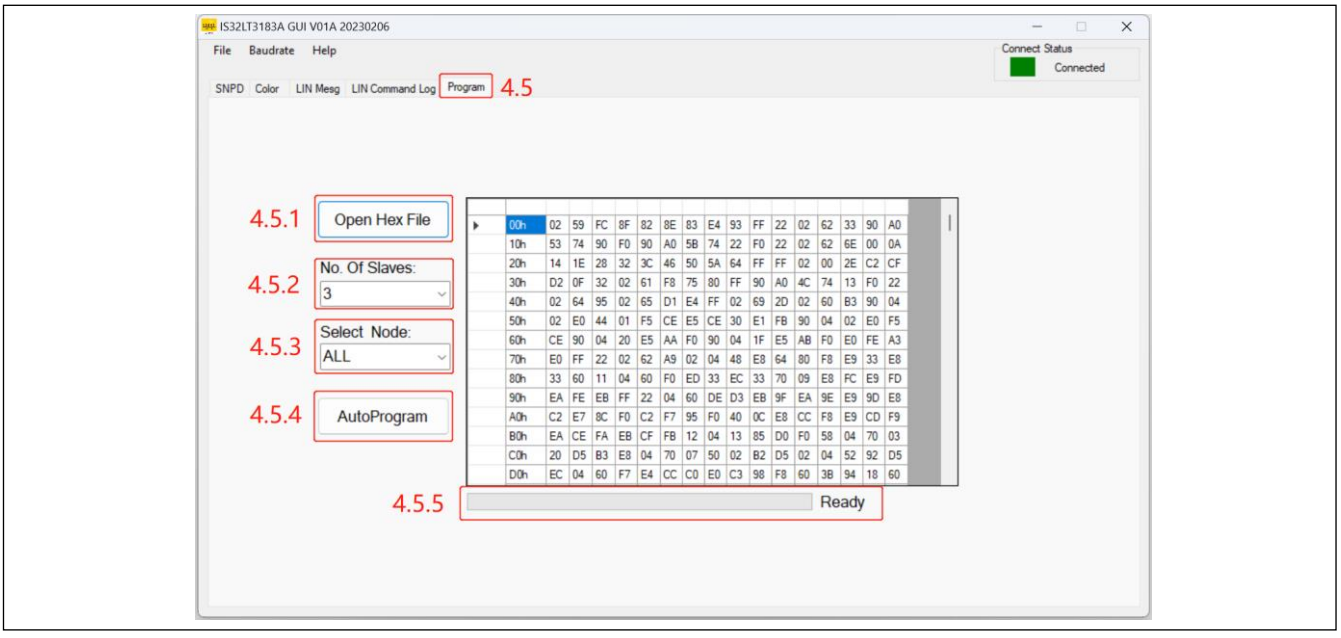


Figure 38 Program Interface

4.5.1. Open Hex File

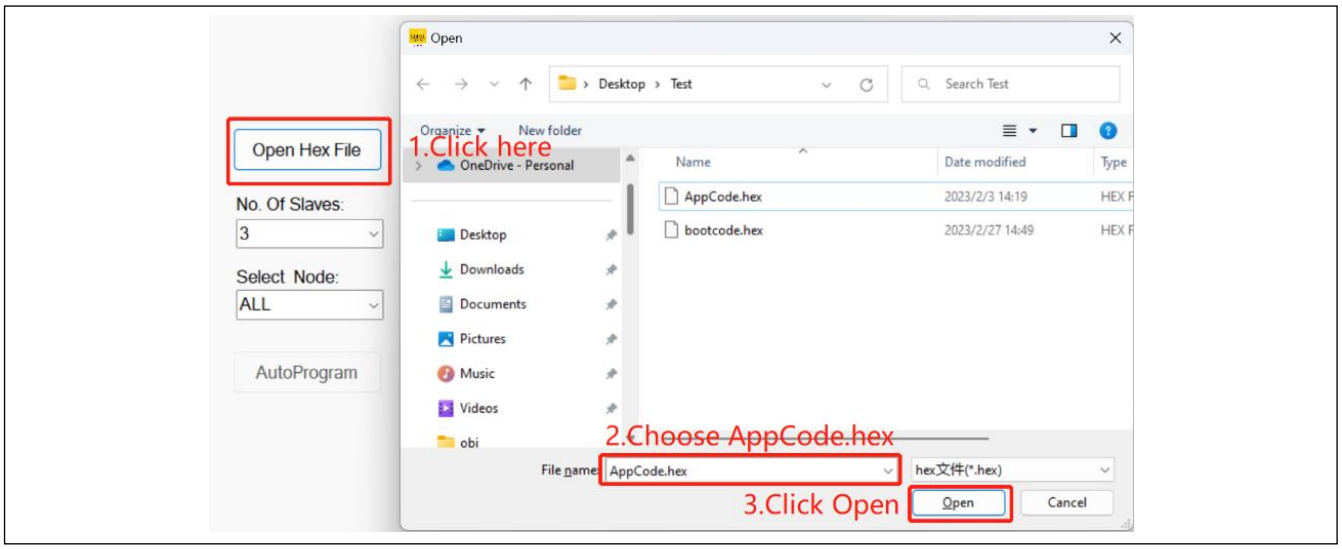


Figure 39 Open Hex File Interface

As figure 39 above shows, loading “AppCode.hex” (User application code) only supports “.hex” files.

LIN upgrades can only wipe and write applications. The addresses are 0x0000-0x6FFF (28K).

4.5.2. No. Of Slaves

The optional number of nodes is 1~16, and the default value is 3 nodes.

4.5.3. Select Node:

Select the node to be upgraded. ALL means to select all nodes, and the default value is ALL.

4.5.4. Auto Program

LIN upgrades customer application, progress and results are shown in "5. Progress Bar And Status".

4.5.5. Progress Bar and Status

Shows the upgrade progress and status.

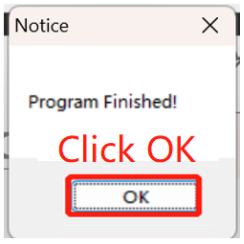


Figure 40 Notice Interface

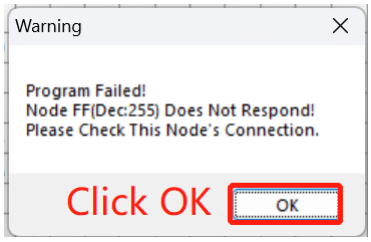


Figure 41 Warning Interface

After the upgrade is completed, a corresponding confirmation box will pop up.

As Figure 40 above shows, the upgrade is successful. Click OK to complete.

As Figure 41 above shows, if the upgrade fails, please refer to the warning prompt, fix the error and upgrade again.

4.5.6 Program Interface Operating Steps.

Users can refer to the following steps to upgrade IS32LT3183-GRLA3-EBGUI Evaluation Boards online

Step 1: refer to “4.5.1. Open Hex File”, load the “AppCode.hex”.

Step 2: refer to “ 4.5.2. No. Of Slaves”, select the number of nodes that require Program.

Step 3: refer to “4.5.3. Select Node”, select the node to be programmed。

Step 4: refer to “4.5.4. Auto Program”， click “Auto Program”， the user code of the selected node will be upgraded through LIN interface.

5. THE LIST OF DEMONSTRATION COMMANDS

5.1 Command A

Controls all IS32LT3183A to display with 10 selected colors and brightness. This command controls all nodes without NAD address.

No. of Data	PID	Data0	Data1	Data2	Data3	Data4	Data5	Data6	Data7
8	0x01	x	0x00	0x00	0x00	0x00	0x00	0x00	0x00

Data0: 8bit

low 4b: Color select 0~9 (10 colors)

high 4b: Luminance select 0~10 (0: LED off)

Data1-Data7: Fill in Data 0x00.

This command can be sent through the **4.3 LIN Mesg interface,** Refer to **4.3.1. LIN Message** for details

Example:

Use **4.3 LIN Mesg interface** send Command A Data :0x01 0xA1 0x00 0x00 0x00 0x00 0x00 0x00 0x00

Select Color 1, Select Luminance 10.

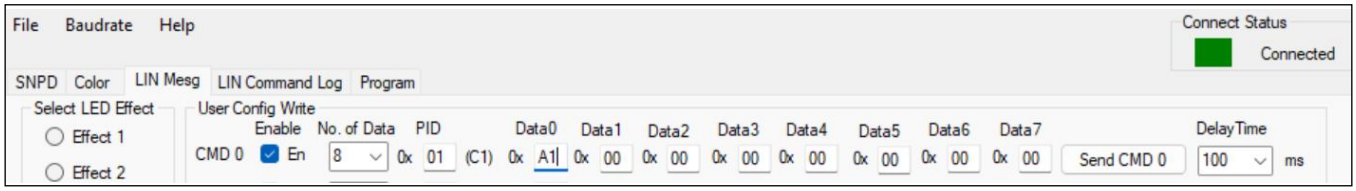


Figure 42 Example of Command A

Ten preset colors as below:

//R, G, B, // color	(x y)
{13, 82, 42}, // (0) ice blue	(0.2698 0.4114)
{120, 41, 1}, // (1) orange	(0.5050 0.4310)
{50, 38, 126}, // (2) blue	(0.2486 0.2047)
{186, 18, 0}, // (3) red	(0.5884 0.3710)
{41, 80, 2}, // (4) yellow green	(0.3694 0.5321)
{115, 26, 60}, // (5) purple	(0.3811 0.2673)
{52, 68, 24}, // (6) white	(0.3492 0.4282)
{7, 93, 15}, // (7) green	(0.2912 0.5178)
{111, 39, 21}, // (8) pink	(0.4433 0.3700)
{11, 47, 162}, // (9) deep blue	(0.1960 0.1847)

5.2 Command C

Control the IS32LT3183A node to display the corresponding RGB color and brightness

No. of Data	PID	Data0	Data1	Data2	Data3	Data4	Data5	Data6	Data7
8	0x03	x	x	x	x	x	x	x	0x00

Data0- Data1: 16bit select 16 nodes (NAD address 0x10 corresponds to the lowest bit, Data0 is the lowest 8bit of the address)

Data2: RED 8bit

Data3: GREEN 8bit

Data4: BLUE 8bit

Data5: Intensity 0~100, brightness up to 100, set to “0” to turn off the LED.

Data6: 8bit *20ms Time, set the fading time for fading colors, The maximum fading time =255*20ms=5.1s

Data7: Fill in data 0x00.

Data2-Data4: RGB color value uses color gamut space sRGB, and D65 point matrix is as follows：

RGB Working Space	Reference White	RGB to XYZ [M]	XYZ to RGB [M]$^{-1}$
sRGB	D65	0.4124564 0.3575761 0.1804375 0.2126729 0.7151522 0.0721750 0.0193339 0.1191920 0.9503041	3.2404542 -1.5371385 -0.4985314 -0.9692660 1.8760108 0.0415560 0.0556434 -0.2040259 1.0572252

Figure 43 sRGB and D65 point matrix.

This command can be sent through the **4.2 Color Interface** and **4.3 LIN Mesg Interface**, Refer to **4.2 Color Interface** and **4.3.1. LIN Message** for details

Example 1:

Use **4.3 LIN Mesg interface** send Command C data :0x03 0x01 0x00 0xFF 0xFF 0xFF 0x64 0x00 0x00

NAD address=0x10, sRGB data=0xFF, 0xFF, 0xFF, brightness=100, Fading time =0ms

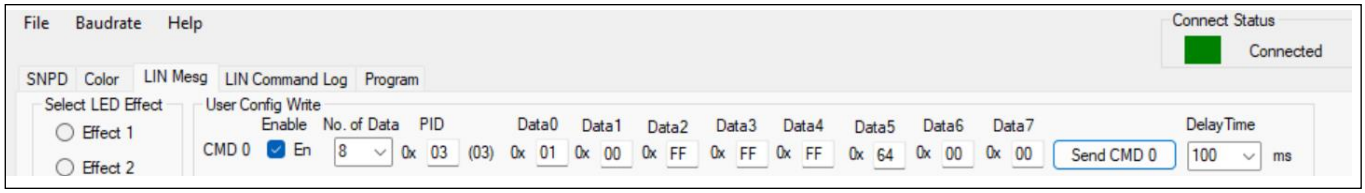


Figure 44 Example1 of Command C

Example 2:

Use **4.2 Color Interface** send Command C data:

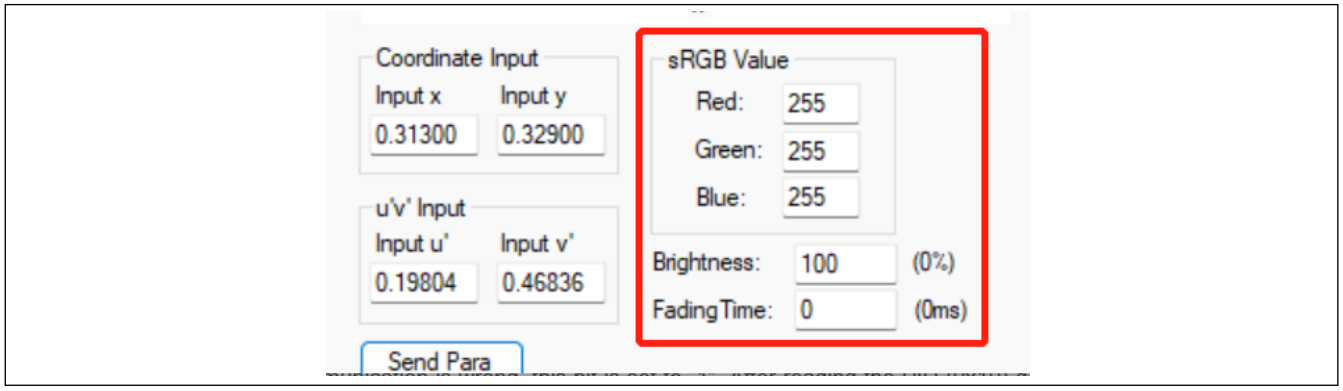


Figure 45 Example2 of Command C

5.3 Command D

Read the IS32LT3183A node monitoring information.

No. of Data	PID	Data0	Data1	Data2	Data3	Data4	Data5	Data6	Data7
8	0x10	x	x	x	x	x	x	x	x

PID is the same as NAD=0x10 means the first node.

Data0: Node status

Bit 0: Response Error. When LIN communication is wrong, this bit is set to “1”. After reading the PID (0x10) data, this flag bit will be clear to “0”.

Bit 1: LED hardware error state. When the LED occurs OPEN or SHORT fault, this bit is set to “1”. After reading the PID (0x10) data, this flag bit will be clear to “0”.

Bit 2: LED temp error state. When the internal temperature of the IC is above 120˚C, the flag is set to “1”. When the temperature is lower than 120˚C, the flag is set to “0”.

Data1-Data2: HV0 port (Red LED) 16bit PWM output value, Data1 is LSB, Data2 is MSB.

Data3-Data4: HV1 port (Green LED) 16bit PWM output value, Data3 is LSB, Data4 is MSB.

Data5-Data6: HV2 port (Blue LED) 16bit PWM output value, Data5 is LSB, Data6 is MSB.

Data7: This byte of data is invalid.

No. of Data	PID	Data0	Data1	Data2	Data3	Data4	Data5	Data6	Data7
8	0x11	x	x	x	x	x	x	x	x

PID is the same as NAD=0x11 means the second node.

Data0: Node status

Bit 0: Response Error. When LIN communication is wrong, this bit is set to “1”. After reading the PID (0x11) data, this flag bit will be clear to “0”.

Bit 1: LED hardware error state. When the LED occurs OPEN or SHORT fault, this bit is set to “1”. After reading the PID (0x11) data, this flag bit will be clear to “0”.

Bit 2: LED temp error state. When the internal temperature of the IC is above 120˚C, the flag is set to “1”. When the temperature is lower than 120˚C, the flag is set to “0”.

Data1-Data2: HV0 port (Red LED) 16bit PWM output value, Data1 is LSB, Data2 is MSB.

Data3-Data4: HV1 port (Green LED) 16bit PWM output value, Data3 is LSB, Data4 is MSB.

Data5-Data6: HV2 port (Blue LED) 16bit PWM output value, Data5 is LSB, Data6 is MSB.

Data7: This byte of data is invalid.

No. of Data	PID	Data0	Data1	Data2	Data3	Data4	Data5	Data6	Data7
8	0x12	x	x	x	x	x	x	x	x

PID is the same as NAD=0x12 means the third node.

Data0: Node status.

Bit 0: Response Error. When LIN communication is wrong, this bit is set to “1”. After reading the PID (0x12) data, this flag bit will be clear to “0”.

Bit 1: LED hardware error state. When the LED occurs OPEN or SHORT fault, this bit is set to “1”. After reading the PID (0x12) data, this flag bit will be clear to “0”.

Bit 2: LED temp error state. When the internal temperature of the IC is above 120˚C, the flag is set to “1”. When the temperature is lower than 120˚C, the flag is set to “0”.

Data1-Data2: HV0 port (Red LED) 16bit PWM output value, Data1 is LSB, Data2 is MSB.

Data3-Data4: HV1 port (Green LED) 16bit PWM output value, Data3 is LSB, Data4 is MSB.

Data5-Data6: HV2 port (Blue LED) 16bit PWM output value, Data5 is LSB, Data6 is MSB.

Data7: This byte of data is invalid.

This command can be sent through the **4.2 Color Interface** and **4.3 LIN Mesg Interface**, Refer to **4.2 Color Interface** and **4.3.1. LIN Message** for details

Example 1:

Use **4.3 LIN Mesg interface** send Command D read data

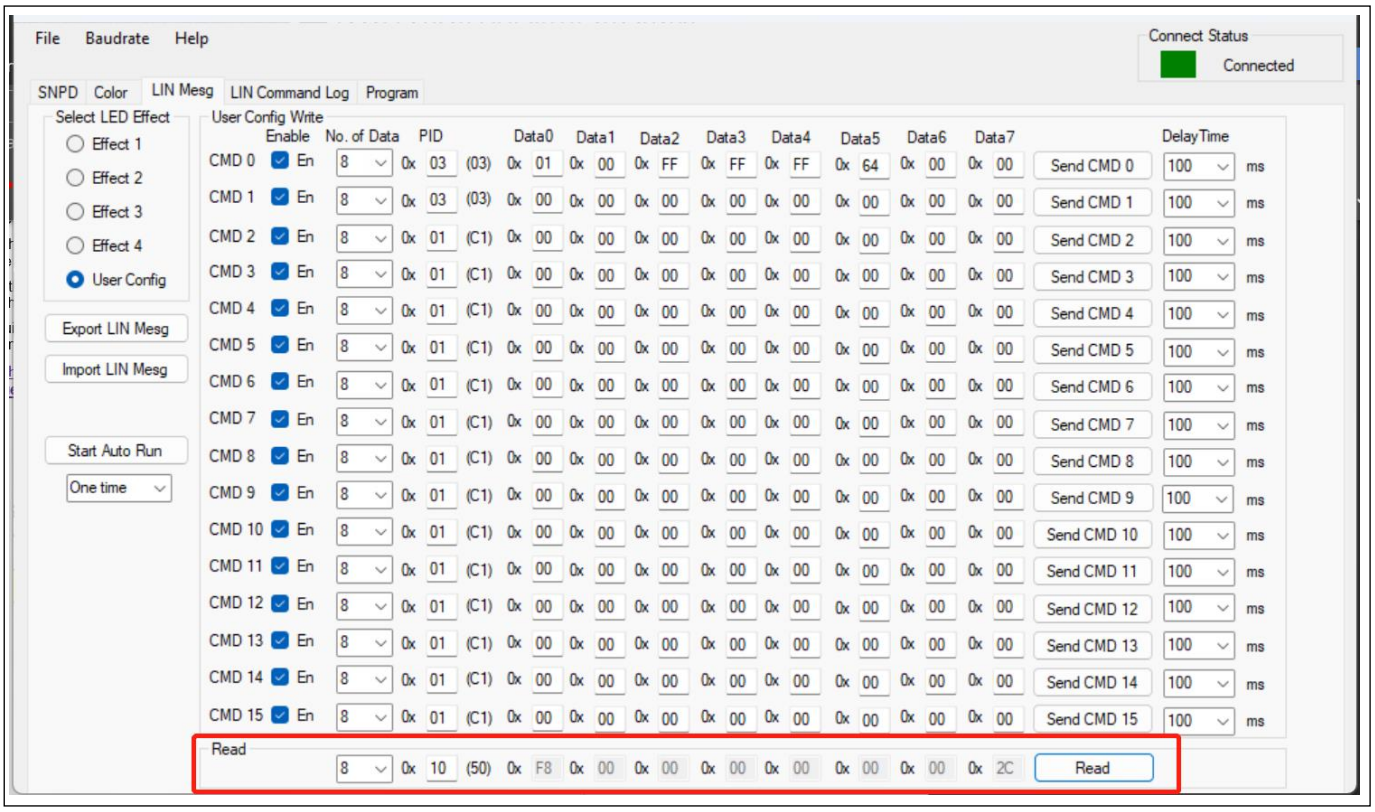


Figure 46 LIN Mesg interface sends Command D read data.

Example 2:

Use **4.2 Color Interface** send Command D read data:

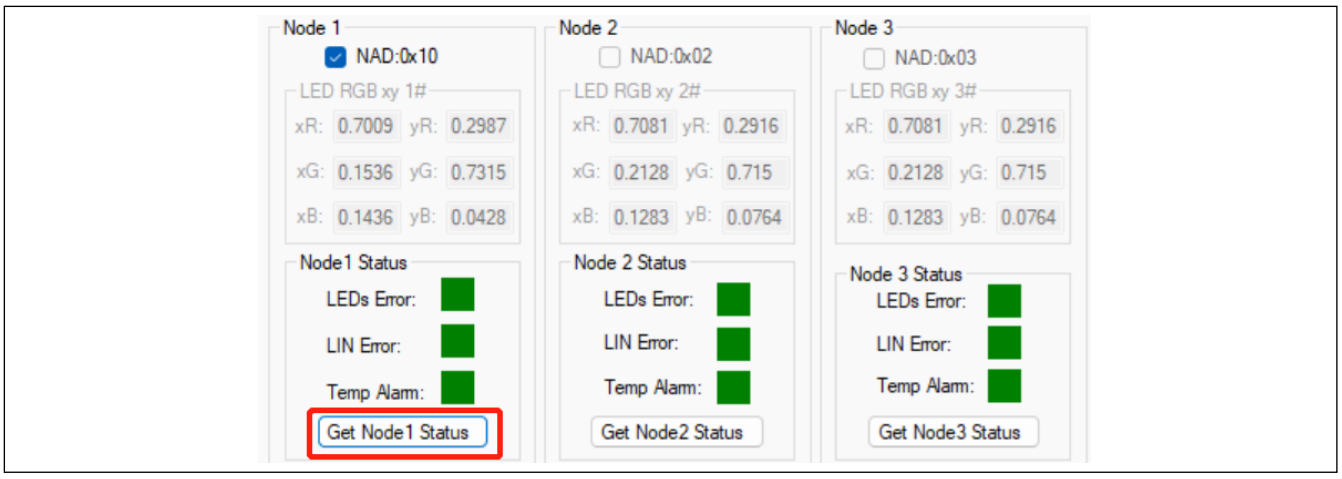
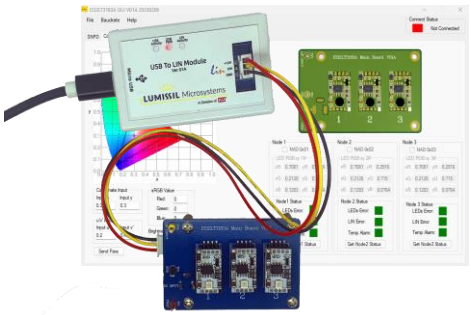
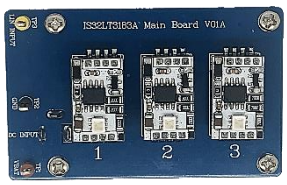


Figure 47 Color Interface sends Command D read data.

Notice: This document is a user guide for using the IS32LT3183A GUI. Please refer to < IS32LT3183A EzISP GUI User Guide Rev.A> for programming AppCode and BootCode.

6. ORDERABLE PART NUMBERS

Orderable Part Numbers	Picture Information	List
IS32LT3183A-GRLA3-DEMO_KIT		IS32LT3183A-GRLA3-USB2LIN 1pcs IS32LT3183A-GRLA3-EB_KIT 1pcs USB type A to Micro USB type B cable 1pcs XH2.54mm 3Pin wire 1pcs 12V/3A DC power adapter 1pcs
IS32LT3183A-GRLA3-EZISP		EzISP device 1pcs IS32LT3183A-Program 1pcs USB type A to USB type A cable 1pcs FC-2*5 10Pin line cable 1pcs
IS32LT3183A-GRLA3-USB2LIN	 IS32LT3183A-GRLA3-USB2LIN	IS32LT3183A-GRLA3-USB2LIN 1pcs USB type A to Micro USB type B cable 1pcs XH2.54mm 3Pin wire 1pcs
IS32LT3183A-GRLA3-EB_KIT	 IS32LT3183A-GRLA3-EB_KIT	IS32LT3183A-GRLA3-MB 1pcs IS32LT3183-GRLA3-EBGUI 3pcs 12V/3A DC power adapter 1pcs
IS32LT3183A-GRLA3-TR		

7. REVISION HISTORY

Revision	Detail Information	Date
A	Initial release	2023.03.28
B	Add ORDERABLE PART NUMBERS	2023.05.17
C	Update file name and format	2023.10.09