SLSS CANAnalyser Pro Software



Users Manual



Based on software version 1.1.0.54L

The information contained in this Publication is Proprietary to Serosys Technology LLC



1. Getting started

You must use a USB2.0 compatible cable with the CANAnalyser dongles, not a charge-only USB cable.

1.1. Hardware

For compatibility to the Pro version of SLSS CANAnalyser, please purchase one of our hardware variants.

The latest list of variants can be found online here: https://serosys-tech.com/product-lineup/

Table 1. Supported Hardware Options

Hardware Model	Basic Feature Information
Pocket CAN	Our basic CAN hardware module with many great features at an entry point
	Send and Receive messages and export data with limitations on maximum bus messages plus selectable dual CAN bus monitoring and support for CAN DBC import along with graphical analyser and TCP interface and reverse engineering tools
Desk CAN / Desk CAN FD	The starting point professional CAN hardware module with more features and power
	Upgraded micro offering higher CAN bus traffic support and full dual CAN bus monitoring plus male and female DB9 ports for CAN traffic pass-through bus tapping, CAN message event triggering, macro message sending and API interface. Optional variant with CAN FD
Storage CAN / Storage CAN FD	Advanced Features and data storage hardware module for a customized experience
	Desk CAN plus a micro-SD reader for recording extended or standalone CAN traffic and the ability to configure the hardware as a CAN gateway. Optional variant with CAN FD
Lab CAN	Tailored for a more integrated hardware programmable lab environment including CAN FD
	Desk CAN with upgraded support for dual CAN FD and programmable GPIO interface and the ability to configure the hardware as a CAN gateway and comes with an industry standard rack mount bracket
Car CAN	A true standalone data logger that can be wired into a vehicle or other test device
	Dedicated standalone hardware module with micro-SD card and GPIO intended to interface to a vehicle. It can be programmed to send / receive messages and interface and trigger on GPIO hardware events and comes with a mounting bracket

1.2. Connector Pinouts

1.2.1. DB9 (D-sub9) Connector

For Hardware modules with 2 of the 9-pin connectors, the pinout is the same for both Male and Female connectors. They are internally connected pin to pin and will pass through bus traffic even if unpowered.

Pin #	Function
1	No Connection
2	CAN bus CH-A Low
3	Ground
4	CAN bus CH-B Low
5	No Connection
6	Ground
7	CAN bus CH-A High
8	CAN bus CH-B High
9	12V B+ (only on Car CAN. All other variants this is N/C)



Power

- Only available on Car CAN
- Input power voltage supply range: +7 V to +28 VDC (nominal ~= 12 VDC)
- Reverse voltage and transient voltage protection

Ground

• Ground pins are all connected internally

CAN Bus High / Low

• Even though the differential CAN Bus high and low pins do not require a ground reference, it is recommended that ground is carried with these pins for common-mode voltage rejection to avoid potential damage to the transceivers

1.2.2. GPIO Connector

Applicable to Lab CAN and Car CAN dongles only



GPIO pins 1 and 2 are inputs

GPIO pins 3 and 4 are outputs

Electrical Parameters

- Automotive grade I/O
- Short Circuit Protection on all 4 pins
- At overtemperature the regulator is automatically turned off by the integrated thermal protection circuit
- Inputs from -43VDC to 45VDC
- Outputs provide up to 100mA steady state at CMOS logic levels (0V / 5V)
- Output supports 60V blocking voltage protection
- Outputs support input overvoltage protection to 28VDC

Mating Connector

Pluggable System Terminal Block. There are many suppliers of this style of connector. This is one example:

Phoenix Contact	1840382
LCSC Part #	C480547
Package	Pitch=3.5mm

https://www.phoenixcontact.com/en-us/products/pcb-plug-mc-15-4-st-35-1840382



MC 1,5/ 4-ST-3,5 - PCB connector

1840382

PCB connector, nominal cross section: 1.5 mm², color: green, nominal current: 8 A, rated voltage (III/2): 160 V, contact surface: Tin, contact connection type: Socket, number of potentials: 4, number of rows: 1, number of positions: 4, number of connections: 4, product range: MC 1,5/..-ST, pitch: 3.5 mm, connection method: Screw connection with tension sleeve, screw head form: L Slotted, conductor/PCB connection direction: 0 °, plug-in system: COMBICON MC 1,5, locking: without, mounting: without, type of packaging: packed in cardboard

2. SLSS CANAnalyser Software



If desired to use more than 1 dongle on the same PC, please note that multiple instances of the CANAnalyser software may be run at once! So if you want to connect 2 dongles, you can run the SW twice.



To ensure all buttons are accessible and all information is visible, a minimum resolution of 1366 x 768 at 100% scale is required.

2.1. The Main Screen Layout

SLSS CANAnalyser - C X	
Choose CAN Lhardware Choose CAN Channel Select COM pot Channel A Connect (Chr+G) So A Ato search and connect at start-up Connect (Chr+G) Aways record CAN data Search module (Chr+M) Amount of unique ID's: 0 Amount of collected data: 0	Тор
Incoming CAN Data Channel Count Rew Data ASCII Text Data B1 Data B2 Data B3 Data B4 Data B5 Data B6 Data B7 Data B8 Change C	Bottom
INFO: Database successfully connected INFO: Database successfully connected INFO: Started automatic search for connected CAN dongle! - Found COM12 - Found COM5 - Connection retablished automatically HW-Module: CAN-Device-001 @0500kbit/s_cv:1033 _ connection alive] Log-Buffer: 2077 / 10000	Message Center

The screen is broken into 3 main vertical regions: Top, Bottom and Message Center.

The Top area contains all the common functions that transpose into the bottom feature tabs and will be context adjusting based on which feature tab is open in the bottom. You will always have all the required controls within reach that are agnostic of which feature tab is open.

The Bottom area shows the CAN traffic or gives you access to the various functions within each feature tab.

The Message Center area shows general log information and other important information.

Here is a description of each of the numbered zones on the main screen:

- 1. This is the area where all the module hardware physical connection options are made
- 2. This area controls the CAN connection speed and channel modes and lets you choose the format you want to see and record all data
- 3. The place to record information about your project that you desire to save notes and give titles and information for future reference. By default, a directory will be created and used under **Documents**\SLSS CANAnalyser Projectspace
- 4. Allows the user quick button access for recording / playing / pausing CAN data in the logger and shows the amount of traffic

- 5. These buttons are unique and context specific in most cases to the currently selected feature tab plus fixed buttons for the CAN DBC file input as well as access to the visual graphical analyser and message filters and offers global access to send / stop sending CAN messages from any mode as well as entering Macro sending mode
- 6. This is where to select the desired feature tab
- 7. This is the Bottom area where all relevant information is displayed related to the respectively selected feature tab
- 8. This is the Message Center area which shows information such as the connection status, hardware module information and connection speed and message buffer usage.
- 9. The software should install and start in English by default, however if a user desires to change the operating language to German, simply leftclick on the flags to alternate between English and German language.



If the connection status (Connection Alive message in the bottom of the screen) is red then your PC has low resources. Please close other applications for improved performance.

2.2. Understanding the LEDs on the CAN Dongles

All hardware modules except for Car CAN have 3 dual colored LEDs.



- 1. LED 1 Power and Connection Solid Red Hardware module is powered up. Blinking purple Hardware module has an active live connection to the software.
- LED 2 CAN bus CH-B Green Incoming CAN traffic received. Red Outgoing CAN traffic is being sent. Amber Incoming and Outgoing traffic
- 3. LED 3 CAN bus CH-A Green Incoming CAN traffic received. Red Outgoing CAN traffic is being sent. Amber Incoming and Outgoing traffic

2.3. Establishing the Connection Between Software and CAN Dongle

2.3.1. Connection Speed, Connection Mode and List Entry Style

CAN speed (kbit/s) 1		CAN ID display format	
500	500	Q	Hexadecimal	~
New list entry	per incoming	(2	CAN Data display format	
ID		~	Hexadecimal	~

1. Shows the Connection Speed for each channel. The speed and mode can be changed from here

2. Select the option from drop-down menu to view Incoming Messages either by unique ID's or by pure scrolling messages

- ID Only 1 unique ID row is shown in all the data available in the Incoming CAN data tab and just the data changes
- Data Every message received is shown in a unique row similar to the logged data so the same ID may be seen multiple times.

2.3.2. Set the Connection Speed and Connection Mode for each Independent Channel

Channel			CAN speed (kbit/s) 500	500	-	CAN IE Hexad) display format lecimal	~	Project Nar	
		Search module (Ctrl+M)		New list entry per in ID	comin	g	CAN D Decim	ata display forma al	at ~	Creation Da
t of u	unique ID's: 0 collected data: 0				Н	7 쯂			DBC	DBCI D
	Hardware cor	figuration		CCircle DBC Date						× ge C
	CAN CAN FD			-						
	CAN Channel	CAN speed		Bus interaction mode		Send CAN messages	0	Configurable term	ination resist	or
	CH_A	500 (1)	~	nomal 2) ~	enabled	(3)~	disabled	6	~
	CH_B	500	~	nomal	~	enabled	$\mathbf{\nabla}_{\mathbf{v}}$	disabled	4	~
	_			_		_				

Press the image of the gears to open the Hardware Configuration window. The Connection Speed and Connection Mode for each channel can be adjusted here.



Settings menu is only accesible when the dongle is disconnected. Make the desired changes and then reconnect.

1. The drop-down menu lets you choose from available CAN speeds that are able to be independently set for each channel.



500 kbit/s is the default standard used in most automotive applications (HS-CAN).

2. The drop-down menu lets you choose between normal mode (*Allows full send and recieve interaction on the bus*), Listen Only mode (*Only able to receive bus messages but not able to send*), or Off (*Channel is completely shut off, no receiving or sending possible*).



In Listen Only mode, if the dongle is connected to a bus that has a single node only, the Incoming data will show a very fast message count. This is because it is not an active multi-node bus. Once there are at least 2 nodes on the bus plus the dongle, it will operate normally. Also, the SW will allow the Sending tab to appear as if it is sending messages, however they will not be sent to the actual bus

- 3. The drop-down menu allows the user to lock out or enable each CAN channel from being able to send messages or not. If these are disabled, the Send CAN Messages Tab will not be functional
- 4. The drop-down menu allows a SW configurable option for enabling or disabling the 120 ohm bus terminating resistor (independently per channel)



If your hardware dongle has a letter A or B in the serial number, this menu option is non-functional and those hardware units are permanently enabled for 120 ohm termination resistance

2.3.3. Connecting to the Dongle Hardware

There are a few ways of connecting the hardware module to the software.

Please make sure you are using a USB 2.0 data cable and that the Solid Red color LED is lit up before trying to connect.



Manually selecting a COM port and then connecting

- 1. Select the COM port for your hardware dongle in the drop-down box and then
- 4. select the Connect button

This will tell the software to look for the hardware dongle on that port. If if finds the hardware and connects to it, the hardware connection LED will begin blinking purple. If it does not find it, please select a different port and ensure the proper USB driver has been installed.

Automatically searching for your hardware dongle after the program has already been loaded

3. Select the Search Module button and let the software automatically search through the available COM ports to find your hardware dongle. If if finds the hardware and connects to it, the hardware connection LED will begin blinking purple. If it does not find it, ensure the proper USB driver has been installed.



Automatically searching for your hardware dongle upon loading the software

2. If desired, the check-box next to "Auto search and connect at start-up" may be selected. Once selected, the next time the software is loaded, it will automatically search for the hardware dongle upon start-up. If if finds the hardware and connects to it, the hardware connection LED will begin blinking purple. If it does not find it, ensure the proper USB driver has been installed.



Automatically searching for the dongle may take up to 10 seconds

2.4. Selecting Your Desired CAN Bus to Monitor

To change between CAN bus monitoring and sending between the CAN channels supported by your hardware.



1. Select the drop-down to choose your CAN channel. Once selected, the software will showing incoming traffic and send outgoing traffic on the specified channel.

2.5. Controlling Recording / Displaying of CAN Traffic

The buttons allow control over the data recording and display as well as the showing of high level data recording quantities

Choose CAN hardware	Choose CAN Channel	
COM24 (CAN-Device-001 @0	🗸 Channel A 🗸 🔍	Disconnect (Ctrl+T)
 Auto search and connect a Always record CAN data 	at start-up	Search module (Ctrl+M)
	Amount of unique ID's: 12 Amount of collected data:16	2 (6) 399 (7)

- 1. The Play button is activated by default to show all incoming CAN message data
- 2. The Pause button is used to pause the display and recording of CAN message data
- 3. The Record button is used to record the CAN message data in the buffer
- 4. The Stop button is used to stop the display and recording of CAN message data



If a DBC file is loaded, a context box will ask if the user desires to enhance the log files. This will take some time to postprocess and add all of the DBC human readable signal data to the logfile and will be available in the exports. See the section **Incoming DBC Signals Feature Tab** for more details.

- 5. If desired, the check-box next to "Always record CAN data" may be selected. Once selected, the next time the software is loaded, it will automatically begin recording available CAN data into the buffer
- 6. This displays the number of unique CAN arbitration ID's seen on the incoming data bus
- 7. This displays the total quantity of messages received

2.6. Selecting the Global Data format to view CAN ID and CAN Data

These 2 drop-down menus allow the user to select their prefered data format used throughout all feature tabs and data exports.

CAN speed	(kbit/s)		CAN ID display format	
500	500	(Q)	Hexadecimal	~
New list entr	y per incoming		CAN Data display format	2
ID		\sim	Hexadecimal	~

1. For Arbitration ID (CAN ID), choose between Hexadecimal, Decimal or Binary format

2. For CAN data, choose between Hexadecimal, Decimal or Binary format

2.7. Contextual Buttons and Features

These 9 buttons offer some dynamic functionality. Depending on the selected analysis tab, some buttons dynamically change to fulfill the associated application purpose while others maintain functionality specific to the current analysis tab



Row A. These buttons are available in the following Feature tabs: "Incoming CAN Data" and "CAN Logfile Recorder"

Row B. These buttons are available in the following Feature tabs: "Send CAN Messages" and "Reverse Engineering"

Row C. These buttons are available in the following Feature tabs: "Incoming DBC Signals" and "DBC Data"

Within each row, this is what each button does:

#	Row A	Row B	Row C
1.	Clears the current message list of all data and begins a fresh data view	Clears the current list of messages to be sent	This button is not available
2.	Loads a previously saved list of CAN data and opens it in a separate CAN data viewer window	Loads a list of previously saved data such as CAN messages or reverse engineering data	This button is not available
3.	Saves all currently displayed CAN data	Saves all currently displayed data / configuration	This button is not available
4.	Opens the message filtering setup in a separate window	Opens the message filtering setup in a separate window	This button is not available
5.	Opens the Graphical Analyser Viewer in a separate window	Opens the Graphical Analyser Viewer in a separate window	Opens the Graphical Analyser Viewer in a separate window
6.	Starts or Stops messages in the active Send list from any mode	Starts or Stops messages in the active Send list from any mode	Starts or Stops messages in the active Send list from any mode
7.	Enters Macro sending mode on the bottom of the screen (replacing the message center) This can be toggled on / off at any time	Enters Macro sending mode on the bottom of the screen (replacing the message center) This can be toggled on / off at any time	Enters Macro sending mode on the bottom of the screen (replacing the message center) This can be toggled on / off at any time

#	Row A	Row B	Row C
8.	Exports all data to a choice of CSV format (multiple CSV files) or Excel format (in multiple worksheet tabs)	Exports all data to a choice of CSV format (multiple CSV files) or Excel format (in multiple worksheet tabs)	Exports all data to a choice of CSV format (multiple CSV files) or Excel format (in multiple worksheet tabs)
9.	Opens a separate window to create and manage DBC message entries	Opens a separate window to create and manage DBC message entries	Opens a separate window to create and manage DBC message entries
10.	Loads in a fully created DBC file and applies it to the current messages	Loads in a fully created DBC file and applies it to the current messages	Loads in a fully created DBC file and applies it to the current messages
11.	Saves the current DBC data into a DBC file	Saves the current DBC data into a DBC file	Saves the current DBC data into a DBC file

2.7.1. Exporting Data



If you have a large amount of buffer data, the export may take a long time. Pressing the export button, if Excel export is chosen, the message center at the lower part of the screen informs the user that the export process has begun. The CANAnalyser software will continue normal operation until the export is completed and then a pop-up message will inform the user when the Export is complete. Avoid pressing the export button again before this process is completed to prevent it restarting the Export request. The CSV export is much faster!

Upon pressing the Export button, there are 2 options presented for Export as Excel or Export as CSV.

🔏 Export file type selection 🛛 —	×
Select the desired export file type	
 Export as Excel workbook (slower export time) *All export data saved as various worksheets in a single Excel file 	
 Export as csv files (faster export time) *csv does not support multiple worksheet tabs so multiple files will be saved for each tab 	
, Used csv file separator	
Use specified data filters for export data	
Start export	

Since CAN data may contain ASCII characters that may conflict with a comma (standard default CSV delimiter), there is an option to choose another delimiting character if desired.

Once the export is completed, this message will be displayed

Incoming CA	N Data CAN Log	ile Recorder Se	end CAN Messages Reverse Engine	ering Incoming D	BC Signals DB	C Data			
ID	Channel	Count	Raw Data	ASCII Text	Data B1	Data B2	Data B3	Data B4	Data B
0x2FD	CH_B	3262	1 128 130 63 252 160 2 0	ш?й				3F	0xFC
0x77	CH_B	4930	0000000		Data export cor	npleted!		×	0×0
0x20A	CH_B	4982	0000000		24.5			þ	0x0
0x76	CH_B	4973	0 0 0 0 17 0 0 240	ιð	The data has been successfully exported!			þ	0x11
0x102	CH_B	1966	0000000					þ	0×0
0x17F	CH_B	984	113100000	ql				þ	0×0
0x273	CH_B	940	0 255 254 0 254 254 252 192	ÿþ þþüÅ			ОК		0xFE
0x276	CH_B	965	254 0 254 0 254 0 254 0	þþþþ	0xFE	0x0	0xFE	0x0	0xFE
0x289	CH_B	969	128 12 192 0 0 0 0 0	▲ A	0x80	0xC	0xC0	0x0	0×0
0x318	CH_B	968	0000012800	0	0x0	0×0	0x0	0x0	0×0
0x325	CH_B	981	001600000	0	0x0	0×0	0x10	0x0	0×0
0.040	011.0	000	0.0.0.0.0.000	m Å	0.0	0.0	0.0	0.0	0.0

INFO: Search device on COM3... - Found device CAN-Device-001 @0500kbit/s on COM3 !

INFO: Starting data export to Excel - You will be informed as soon as the process is completed!

HW-Module: CAN-Device-001 @0500kbit/s cv: 1034 connection alive Log-Buffer: 28085 / 500000

2.7.2. Message Filtering Button

This is a separate window that opens to be able to move to a separate screen or show as a separate window to be able to view the impact of adjusting filter settings on the fly in different feature tabs

		IIIIIII	hill.	0	🌋 SLSS CANAnalyser CAN filter settings			– 🗆 X
Choose CAN COM24 (CA	I hardware N-Device-001 @0 ∖	Choose CA Channel A	N Channel	t (Ctrl+T)	I P		Filter ontions	
 Auto sea Always r 	rch and connect at ecord CAN data	start-up	Search mode	ıle (Ctrl+M)	Start ID 2 End ID	3 Show	Hide new incoming and unfiltered ID's automatically Include this filter in the Log-Area as well 7	
		Amou Amou	nt of unique ID's: 12 int of collected data:18589			Hide (4) Show	V hide all listed ID's	
Incoming CA	N Data CAN Logfil	e Recorder	Send CAN Messages Reverse Engine	ering Incoming DBC	ID (hexadecimal) 5	Visible O	Designation	
ID	Channel	Count	Raw Data	ASCII Text	0x7F	0	8	1
0x242	CH_A	202	5 58 31 150 193 0 3 0	0:A 0	0x42			
0x7F	CH_A	236	0 0 255 240 0 0 64 0	ÿð @	0x77			
0x42		224	0000000		0x242			
0x77	CH_A	359	0 0 15 254 255 255 251 254	lþýýûþ	0x42E			
0x42E	CH_A	89	100 0 128 1 0 0 0 0	d 🗉	0x14B	0		
					0x42C	0		
					0x7A	0		
					0x7B	0		
					0x177			
					0x230			
					0x167			
					0x49	Π		

- 1. This is the Incoming CAN Data Feature tab to see the immediate impact of the filters being applied
- 2. Enter in a single CAN ID or a range (Start ID to End ID) to use as your filter criteria
- 3. After selecting your CAN ID or CAN ID range, select either **Show** or **Hide** to affect the checkboxes in the table below for visibility of the selected IDs
- 4. This button can be toggled to Show or Hide ALL visible ID's (checkboxes) in the table below
- 5. Lists all current received message ID's on the active bus
- 6. List of checkboxes to show which ID's will be shown or hidden
- 7. Checkbox options of where to apply the impact of the filter settings

8. If a CAN DBC file is currently loaded, the human readable designations of the ID's will be shown here for reference

Incoming CAN Data CAN	Logfile Recorder [ID FILTER ACTIVATED]	Send CAN	Messages Rev	erse Engineerin	g Incoming D	BC Signals DBC	C Data			
Time	∆t Start [µs]	∆t Message [µs]	ID	Channel	ASCII Text	Data B1	Data B2	Data B3	Data B4	Data B5	Data B6
04.01.2024 22:27:25.867	1209052	787	0x2A2	CH_B	À-ĐHø&'	0xC0	0xB7	0xD0	0x48	0xF8	0x26
04.01.2024 22:27:26.163	1505867	771	0x2A2	CH_B	ÈÅßOé ³³ /41	0xC8	0xC0	0xDF	0x4F	0xE9	0xB3
04.01.2024 22:27:26.466	1808497	792	0x2A2	CH_B	OATUIXN AC	tive data filters	found!			×	0x58
04.01.2024 22:27:26.764	2106054	749	0x2A2	CH_B	Øÿ∖iÓlį					:	0xD3
04.01.2024 22:27:27.065	2407868	789	0x2A2	CH_B	álldíi'	Do you	want the data fil	ter to also be app	lied to the expo	rted)	0xEC
04.01.2024 22:27:27.362	2704721	744	0x2A2	CH_B	ò n imòTØ	data?					0x54
04.01.2024 22:27:27.665	3007421	777	0x2A2	CH_B	ùl)ríql♠)	0x71
04.01.2024 22:27:27.962	3304188	735	0x2A2	CH_B	Ш<₩÷1/2{		1	Yes N	o Can	cel	0xBD
04.01.2024 22:27:28.265	3607566	740	0x2A2	CH_B	IG~ïØþZ	0xB	0x1F	0x47	0x7E	0xEF	0xD8
04.01.2024 22:27:28.561	3903662	716	0x2A2	CH_B	ISUöV?I	0x18	0x24	0x55	0x86	0xF6	0x56
04.01.2024 22:27:28.864	4206403	788	0x2A2	CH_B	&,fî PÅ	0x26	0x2C	0x66	0x8B	0xEE	0×50
04.01.2024 22:27:29.161	4503199	753	0x2A2	CH_B	/3w æÛà	0x2F	0x33	0x77	0×0	0xE6	0xDB

If a filter setting is active at the time that an Export of the log file is requesting, a dialog box will ask if the user only wants to export the filtered data or the entire dataset or to cancel out.

2.7.3. Graphical Analyser Viewer

Often it is easier to visually represent data to make it user friendly for simpler data analysis. This simple and adjustable graphical interface allows analysis of data bytes independently and the User can save the graph image / data for future use.

Multiple windows may be opened to view more than one graph. Right-click on a message in the Incoming CAN Data tab will allow a CAN ID to be directly brought up in the graph as well as clicking the contextual button in the top part of the main screen.



- 1. This shows the CAN ID identifier.
- 2. Individual bytes may be enabled / disabled on the graphical viewer as well as buttons to turn them all on / off and reset them.
- 3. The Play and Pause buttons are included in the viewer for easy access to pause the Incoming data whenever necessary and then play it again.
- 4. Pressing this button will export a screenshot of the graph in .PNG image file format.
- 5. These are adjustment sliders to control the X and Y graph parameters to optimize the view of the data. Please see note below on reseting the zoom level
- 6. This is the main graphical viewing area. Moving the mouse in this area will also show the X and Y coordinates of the precise position.
- 7. These buttons allow clearing the graph (new graph data) and loading and saving the data as well as exporting the image file.
- 8. These buttons allow for different graph formats (standard / spline / area / point).
- 9. These button allow for hiding the cursor or locking its position.



After changing the X-axis zoom or the Y-axis zoom, to reset the view again, please click the small circle button next to the slider (red box below)



2.8. Message Center Details



- 1. Hardware module connection information (once connected properly). Otherwise it states that there is no module connected.
- 2. Displays connection quality (if connected). (Green color / Yellow color / Red color) If Yellow and Red colors are blinking then consider closing other programs to free up system resources.
- 3. Shows the current log buffer size used and the maximum size. To increase the log buffer size, see next section.
- 4. Logged Data from the SLSS CANAnalyser. This may be scrolled through (scoll-bar on the right) to view important chronologically listed SW log data
- 5. Button to clear out the SLSS CANAnalyser log data
- 6. Button to export the SLSS CANAnalyser log data

2.9. Increase Log Buffer Maximum Size

🌊 SLSS	CANAnalyser				
Main	Settings File Handling A	lditional Windows	TCP Inte	rface Abou	ut
	Connect	Ctrl+G			T
Choose	Disconnect	Ctrl+T			
COM24	Search modules	Ctrl+M		Connect (Ctrl+G)
Auto	500 -		Sea	rch module (Ctri	(+M)
	Open Filter Selector Use filter in Log-Area	Ctrl+F	• 15		
Incoming	Use filter in DBC-Area		Revers	e Engineering	Incomina DE
ID	Buffersize Log-Area (Log-	rows maximum)	•	10000	
0x205	Highlight color settings		•		
0x7B	Highlight maximum amo	unt of bytes	• 000	Űÿ	iÇ♠
0x7A	Separate selection of send	Inotation	► 75 0 0	:0	IÃK

Going into this menu allows you to increase the maximum recording log buffer size. Note that the larger the log buffer, the longer it takes to save the exported data

3. Feature Tabs

3.1. Incoming CAN Data Feature Tab

This is the default tab and the most important tab that gives an overview of all current incoming CAN data.

As a general comment on formatting columns, each column may be shrunk or widened to suit individual preferences.

Clicking on the header of each column will also sort the table order based on the column (low to high or high to low)

Incoming CAN Da	ata CAN Lo	file Recorder	Send CAN Mes	sages Reverse	Engineering	Incoming DBC Signals	DBC Data					6		
1	Channe	2)Count	ASCII Text 4	Data B1	Data B2	Data B3	Data B4	5 Data B5	Data B6	Data B7	Data B8	Change Count	Interval [µs]	Designation
0x10	CH_A	1744	1)1/20	0x49	0×0	0x29	0×0	0×BD	0x0	0xDC	0x0	1743	100100	
0x12AAEAAB	CH_A	697	ýOľO	0xFD	0×0	0x30	0x0	0xCF	0x0	0x96	0x0	696	250966	
0x1AA	CH_A	870	91.@	0x39	0×0	0x12	0x0	0xB8	0x0	0x40	0x0	869	199365	
0x1AB	CH_A	870	l + l ë	0x0	0x89	0×0	0x2B	0×0	0x10	0x0	0xEB	869	200142	
0x1FF	CH_A	348	T	0x0	0×0	0×0	0x0	0×0	0x0	0x0	0xCF	347	501173	
0x15555555	CH_A	57	CANBUS-1	0x43	0x41	0x4E	0x42	0x55	0x53	0x2D	0x31	0	3002043	
0x1AAAAAAA	CH_A	2	SEROSYS	0x53	0x45	0x52	0x4F	0x53	0x59	0x53	0x0	0	48027778	
0x1FE	CH_B	34695	@	0x40	0x0	0x0	0x0	0×0	0x0	0x0	0x0	34694	5001	
0x1AB	CH_B	865	÷IÓV	0x0	0xF7	0x0	0x16	0×0	0xD3	0x0	0x56	864	200136	
0x7AF	CH_B	865	0 V 0 %	0x0	0x89	0x0	0x56	0×0	0x9B	0x0	0x25	864	200106	
0x7AE	CH_B	865	10çC	0x95	0×0	0x30	0×0	0xE7	0x0	0x43	0x0	864	199363	0
0x2A2 (9)	CH_B	525	Ôll<òOÕR	0xD4	0x7	0xE	0x3C	0xF2	0x4F	0xD6	0x52	524	302447	Vehicle_Message
0xAAAAAAA	CH_B	57	CANBUS-2	0x43	0x41	0x4E	0x42	0x55	0x53	0x2D	0x32	0	3002039	

1. **ID** column - Displays the Arbitration ID of each unique CAN message received or sent (*Note that Pocket CAN does not show sent messages in this chart*)

Extended ID's display the entire row in green color

Standard ID's display the entire row in black color

2. Channel - Displays the source of the CAN data for each row:

Channel	Data Source
CH_A	Data received from the bus into the hardware module on CAN bus CH-A
CH_B	Data received from the bus into the hardware module on CAN bus CH-B
SEND_A	Data from the hardware module on CAN bus CH-A
SEND_B	Data from the hardware module on CAN bus CH-B



Pocket CAN limitations: It will only show CH_A or CH_B but not both. It also will not show SEND_A or SEND_B data on the incoming tab. Sent data may only be viewed in the Send Can Message tab.



SEND_A and SEND_B entries will only be shown if the hardware dongle receives an acknowledgement on an active bus. Therefore if the dongle is not connected to a bus where the send function receives verification that the message was sent, these entries will not be shown on this view.

3. Count - The count of how many times the CAN ID was sent or received, regardless if there was any change in Byte data.

4. **ASCII Text** - Displays the concatenated ASCII converted data of the current 8 data bytes for the CAN ID. Note that to display certain ASCII special items, this is the nomenclature to represent these special characters:

[CR] = carriage return

[LF] = line feed

[SC] = semicolon

- 5. Data B(x) 8 columns showing the current 8 data bytes for the CAN ID. (*Note the red colored entries. This is the changing byte highlighting. This will be described in more detail in the next sub-section*)
- 6. Change Count The count of how many times the data changed for this CAN ID
- 7. Interval (us) The time delta in microseconds between the last 2 times this CAN ID was received or sent
- 8. Designation Human readable message name of the CAN ID. This only populates if a valid CAN DBC has been loaded
- 9. If a valid CAN DBC is loaded and the Designation is shown, clicking on the CAN ID will expand that Designation box to show the human readable CAN signals for that row. Note only one row shows at a time. (see image here)

ID	Channel	Count	ASCII Text	Data B1	Data B2	Data B3	Data B4	Data B5	Data B6	Data B7	Data B8	Change Count	Interval [µs]	Designation
0x1AB	CH_A	8255	6 8 ¢	0×0	0x36	0x0	0xA1	0×0	0x38	0x0	0xA2	8254	199896	
0x10	CH_A	16510	* 0 0 >	0xB0	0x0	0x8D	0x0	0x15	0x0	0x3E	0x0	16509	99939	
0x1AA	CH_A	8255	ÔltÝ	0xD2	0x0	0x1B	0x0	0x74	0x0	0xDD	0x0	8254	199882	
0x12AAEAAB	CH_A	6603	0 É 6	0x96	0x0	0xC9	0x0	0x36	0x0	0x2	0x0	6602	249391	
0x1FF	CH_A	3301	1	0×0	0×0	0×0	0x0	0×0	0×0	0×0	0×98	3300	498720	
0x1FE	CH_B	329987	x	0x58	0×0	0×0	0x0	0×0	0×0	0×0	0×0	329986	4993	
0x1AB	CH_B	8249	- I - O	0×0	0xA8	0×0	0x83	0×0	0xAC	0×0	0x4F	8248	199890	
0x7AF	CH_B	8249	0 0 V ö	0×0	0x9C	0×0	0x3	0×0	0x56	0×0	0xF6	8248	199894	
0x7AE	CH_B	8249	y 0 – 0	0x79	0×0	0x97	0x0	0xAC	0×0	0x15	0×0	8248	200491	
0x2A2	сн_в	5188	įÇÁ&ėľNÚ	0xA1	0xC7	0xC1	0x26	0xE8	0xCF	0x4E	0xDA	5187	300631	Vehicle_Messages * KPH: 511.050 * RPM: 2,480.250 * BAT_VOLTS: 13.920 * TRANS: Drive
0x15555555	CH_A	550	CANBUS-1	0x43	0x41	0x4E	0x42	0x55	0x53	0x2D	0x31	0	2999949	
0xAAAAAAA	CH_B	310	CANBUS-2	0x43	0x41	0x4E	0x42	0x55	0x53	0x2D	0x32	0	6465653	

Byte Highlighting

This feature allows a visual aid to more easily detect the changing of data bytes. There are 2 styles used in this software.

Color changing of the data

Data B1	Data B2	Data B3	Data B4	Data B5	Data B6	Data B7	Data B8
0x3A	0x98	0x1	0xC4	0x81	0x4B	0x0	0×0
0x0							
0x80	0x0	0x7	0x10	0x0	0x0	0x0	0x0
0x6	0×0	0xAD	0x1B	0xFE	0x1	0x37	0x91

Color changing of the data cell

Data B1	Data B2	Data B3	Data B4	Data B5	Data B6	Data B7	Data B8
0x0	Dx0	0×0	0×0	0x0	0x0	0x0	0×0
0x7F	0xFF	0xC7	0xC	0x0	0x0	0x0	0×0
0x6	0x0	0xAD	0x1B	0xFE	Ox1	0x37	0x91
0x3A	0x97	0x1	0xC3	0x81	0x4B	0×0	0×0

These methods are mutually exclusive and selectable in the setting menu. To change between these modes, you must disconnect first and then change the selection in the settings menu and then reconnect.

Settings Menu Options

Main	Settings File Handling	g Additional Windows	тср	P Interface	About	
	Connect	Ctrl+G	1			1
Choose	Disconnect	Ctrl+1				CAN spe
COM13	Search modules	Ctrl+M	l	Disconnec	t (Ctrl+T)	500
🖌 Auto	500	•		Search modu	ule (Ctrl+M)	ID
	Open Filter Selecto	r Ctrl+F				
	Use filter in Log-Ar	ea	- •			
Incoming	Use filter in DBC-A	rea	► R	everse Engine	ering Incoming	DBC Signals
ID	Buffersize Log-Area	a (Log-rows maximum)	-		ASCII Text	Data B
0x205	Highlight color set	tings 1	•	✓ Highlig	ghting activated	
0x7B	Separate selection of	of send notation	•	Highlig	ght background	80
0x7A				Green	-	ЗA
0x430	CH_A 1	7 63 0 173 2	7 72 25	Blue	3	3F
0x415	CH_A 2	0 0 240 24	0 15 25	✓ Red	-	0
0x4B0	CH A 2	2 255 0 128	0 192 0	0 243	⊽1Å ó	0xFF

1. Enter this sub-menu to access the options of the byte highlighting behavior

2. Activate byte highlighting or disable it (It is on by default) or change modes to highlight the background or not

3. Select the color you prefer. Red is the default

Right-Click Menu

Using the mouse Right-click function on the Incoming Data provides a menu of quick access tasks to access that are convenient from this location. It is good to left-click select a cell in a row first to ensure the right-click context menu reacts to the data in the selected row as applicable

3.2. CAN Logfile Recorder Feature Tab

This feature tab is used to display and store a running log of all data received sequentially. This data bay be saved or exported for further analysis.

Incoming CAN Data CAN Lo	Amount o Amount o ogfile Recorder Ser	of unique ID's: 12 of collected data: 37124 nd CAN Messages Re	3 verse Engineerir	g Incoming DE	3C Signals DBC	Data			DBC DBC		H		
Time	∆t Start [µs]	∆t Message [µs]	ID	Channel	ASCII Text	Data B1	Data B2	Data B3	Data B4	Data B5	Data B6	Data B7	Data B8
27.10.2023 14:16:51.209	0	0	0x1FE	CH_B	0	0xE	0x0						
27.10.2023 14:16:51.214	775	775	0x1FE	CH_B	0	0x13	0×0	0x0	0x0	0x0	0x0	0x0	0x0
27.10.2023 14:16:51.219	5009	4234	0x1FE	CH_B	0	0x18	0×0	0x0	0x0	0x0	0x0	0x0	0x0
27.10.2023 14:16:51.224	10008	4999	0x1FE	CH_B	G	0x1D	0x0						
27.10.2023 14:16:51.229	15043	5035	0x1FE	CH_B		0x22	0x0						
27.10.2023 14:16:51.234	20041	4998	0x1FE	CH_B	1	0x27	0×0	0x0	0x0	0x0	0x0	0x0	0x0
27.10.2023 14:16:51.239	25039	4998	0x1FE	CH_B	6	0x2C	0×0	0x0	0x0	0×0	0x0	0×0	0x0
27.10.2023 14:16:51.244	30037	4998	0x1FE	CH_B	1	0x31	0×0	0×0	0x0	0×0	0x0	0x0	0×0
27.10.2023 14:16:51.249	35073	5036	0x1FE	CH_B	6	0x36	0×0	0x0	0x0	0×0	0x0	0x0	0×0
27.10.2023 14:16:51.254	40072	4999	0x1FE	CH_B	[SC]	0x3B	0×0	0×0	0x0	0x0	0x0	0x0	0x0
27.10.2023 14:16:51.259	45070	4998	0x1FE	CH_B	@	0x40	0×0	0×0	0x0	0×0	0x0	0x0	0×0
27.10.2023 14:16:51.264	50067	4997	0x1FE	CH_B	E	0x45	0×0	0x0	0x0	0x0	0x0	0x0	0x0

- 1. As described in earlier sections, the play / pause / record / stop buttons have a direct impact on the data logger.
- 2. The data will scroll down vertically with new data appearing in the top row and pushing older data down and off the screen.
- 3. All recorded data may be exported either in the export format of the CANAnalyser SW (to be able to be loaded again) or as an export for external data analysis in either Excel or CSV formats.

3.3. Send CAN Messages Feature Tab

This feature tab is used to allow the user to create and send single or multiple CAN messages onto the bus. By default, data will be sent in the Periodic mode. More details will be listed below.

Incoming	CAN Data CAN I	Logfile Record	mount of uniq mount of colle er Send CA	ue ID's ected da N Mess	:0 ata:0 ages Reve	rse Engine	ering Inco	ming DB(C Signals DBC Dat	1 a	T 🐼 🔰 12	M X	DBC DBC DBC		9		
Create no CA 1A	ew CAN transmit m N-ID* (hexadecimal B 29bit ID (CAN2.0B	essage) B1 <u>A2</u>	B2 23	B3 FA	B4 00	85 1A	B6	B7	B8	Trans 100	mission period [ms]	Ð	Send mode Number of passes *	Periodic 11 Delay time after e 100 tinually) Serialized — end of list [ms]	10	
ID	Extended	Number sent	Send to channel	(13)	Start Stop sending message	3 Trans	smission per (editable)		Raw Data		Raw Data Hex	Designatio	DN	Send 5	Edit 6	Clear (7))
0x434		0	Both	~		250		1	37 14 21 15 20 247	7 0 36	0x25 0xE 0x15 0xF 0x14			send	edit	delete	▼
0x204		0	Both			300			192 0 125 0 0 0 0)	0xC0 0x0 0x7D 0x0 0x0			send	edit	delete	▼
0x430		0	CH B			100			2 0 173 27 254 1 5	1 145	0x2 0x0 0xAD 0x1B 0xF.			send	edit	delete	▼
0x242		0	Both	~		500			5 58 31 151 193 0	31	0x5 0x3A 0x1F 0x97 0x			send	edit	delete	▼
0x5A		0	Both	~		400			0 0 0 11 245 81 16	0	0x0 0x0 0x0 0x0B 0xF5.			send	edit	delete	•
0x430		0	Both	~		250			55 0 172 28 72 254	1 55 76	0x37 0x0 0xAC 0x1C 0x			send	edit	delete	▼

 In this area, the user can type in a CAN ID followed by the 8 Byte values desired and then specify the Transmission period in ms and then hit the Create broadcast message button to create an entry in the table below to be sent on the bus when activated. The 29 bit ID box may be checked to add as an extended ID. This process may be done multiple times. Each time the button is pressed, the active data entered will become another entry in the table.

- 2. When viewing this window while messages are being sent, this column shows a count of how many times each message was sent.
- When viewing this window while messages are being sent, the checkboxes may be checked or unchecked dynamically to turn on and off sending of individual messages on the list if desired.
- 4. The transmission / delay period may be changed dynamically by double-clicking in the cells on this column if desired as a fast way to edit the transmission speed.
- 5. At any time, the user may press the **Send** button to manually send any message once (regardless of whether the messages are automatically sending or not).
- 6. To edit an existing message entry in the table, select Edit to open a window of parameters to change and then Save changes.
- 7. Select Clear to delete a message entry from the table.
- 8. The up and down arrows may be used to move a message up or down the list order. Note that this is not useful in Periodic mode but it is useful on the Serialized mode.
- 9. The load and save icons are used to load a previously saved list of messages to send or to save the current list. Note that a saved file can be also opened as a macro (see next sub-section)
- 10. Pressing this button toggles between sending / stopping the list of messages to be sent to the bus.
- 11. Select the box to move between Periodic or Serialized messages to be sent. When Periodic is selected, the 2 boxes under it are grayed out and not required, however, when Serialized is selected, the user may specify a set number of passes that the list should be sent and if a delay time is desired at the end of the list before starting the next pass.
- 12. The global Start and Stop sending button works in all tabs. Note that the green arrow in the icon means that there are messages that can be sent and pressing it turns the arrow red to show that it is sending. If that arrow is red, pressing it will stop sending and then turn the arrow green. If the arrow is grey, that means there are no messages ready to be sent yet and messages will need to be added first
- 13. The drop-down box allows the message to be selected to send to either Channel A, Channel B or both channels
- 14. This will enter the Macro sending options mode (see next sub-section)

3.3.1. Separate Selection of Send Notation

Set	tings File Handling Addition	al Windows	тс	P In	terface	About			
	Connect	Ctrl+G		1				1	
	Disconnect	Ctrl+T					_		CAN
	Search modules	Ctrl+M			Disconnect	t (Ctrl+T)			500
	Open hardware configuration	Ctrl+H		Sea	arch modu	le (Ctrl+N	<u>/</u>)		New ID
	Open Filter Selector	Ctrl+F			חו	- min : 16			_
	Use filter in Log-Area		•	80	ID	-max:			
	Use filter in DBC-Area		۲					I	_
	Buffersize Log-Area (Log-rows n	naximum)	۲	lever	se Engine	ering In	ncomin	g DBC	: Sign
	Highlight color settings		۲		howed	- 1			
	Highlight maximum amount of	bytes	•		B5	B6		B7	
	Separate selection of send notati	ion	•	~	Show s	eparate	contr	ols	

This menu item only impacts the Send Messages area. This allows the user to specify if they want to use separate send notations from the mean CAN ID dispaly format. Note that using the separate send notification allows the user to specify either Decimal or Hexadecimal in the Send message formatting.

Cre	Create new CAN transmit message													
	CAN-ID* (hexadecimal) 2F1 29bit ID (CAN2.0B)	B1 FF	B2	B3	B4	B5	B6	B7	B8	Transmission period [ms] 100				

Create new CAN transmit message Data input mode — o decimal — hexadecimal CAN-ID* B1 B2 B3 B4 B5 **B6 B**7 B8 Transmission period [ms] 753 100 255 29bit ID (CAN2.0B)

3.3.2. Send Macro Messages

This sub-section will describe how to make use of the macros feature. There are 6 macro slots that may be used.



There can only be one visible send list so the active list of messages is still tied to the regular send button.

Create n	ew CAN transmit me	essage											Send modeO	Periodic —(Serialized -		_	
CA	N-ID* (hexadecimal)) B1	B2	B 3	B4	B5	B6	B7	B8	Trans	mission period [ms]	_	Number of passes *	Delay time after	end of list [ms]			
1/	AB	A2	23	FA	00	1A				100		1	1	100				
Ō	29bit ID (CAN2.0B))										•	* leave blank to send con	tinually				
ID	Extended	Number sent	Send to channel		Start Stop sending message	Transr [ms] (e	nission peri editable)	od	Raw Data		Raw Data Hex	Designatio	n	Send	Edit	Clear		
0x434		0	Both	~		250			37 14 21 15 20 247	0 36	0x25 0xE 0x15 0xF 0x14			send	edit	delete		▼
0x204		0	Both	~		300			192 0 125 0 0 0 0 0		0xC0 0x0 0x7D 0x0 0x0			send	edit	delete		V
0x430		0	Both	~		100	6	5	2 0 173 27 254 1 51	145	0x2 0x0 0xAD 0x1B 0xF			send	edit	delete		•
0x242		0	Both	~		500	(9	5 58 31 151 193 0 3	1	0x5 0x3A 0x1F 0x97 0x			send	edit	delete		V
0x5A		0	Both	~		400			0 0 0 11 245 81 16	0	0x0 0x0 0x0 0x0B 0xF5			send	edit	delete		•
0x430		0	Both	~		250			55 0 172 28 72 254	55 76	0x37 0x0 0xAC 0x1C 0x			send	edit	delete		•
· ···	-	•	n 4		-	075								. IC)ic 🖬	nic •••	- I	-
a	mate 2		Speed	i			Radi	0			Lighting		Transmission		(empty)			E
C	VUsers Vrzlot \Downlo	oads\Climat	C:\Us	ers \rz	lot \Downloads \	Speec	C:\L	Jsers \r.	elot \Downloads \Radio		C:\Users\rzlot\Download	ls\Lightir	C:\Users\rzlot\Downloa	ads\Transi	1	P 1	∞ 1	0 6 10

- 1. The red M button toggles the macros at the bottom of the active send list. Note that the Macro button is on the main buttons at the top of the screen. If the macros are toggled off, macros cannot be used
- 2. This is the name of the file of the loaded macro in each slot. If a file is not loaded in one of the slots, it will say (empty)
- 3. The open button allows a previously saved list of sent messages to be loaded as a macro
- 4. If it is desired to view / edit the messages from the macro, pressing this button will replace the active send list data with the data from the macro. If the current visible send list has different data than the macro, a context box will ask if you want to save the current active send list before overwriting it
- 5. Toggles the send mode between periodic and serialized
- 6. Sends the macro once
- 7. Sends the macro infinitely until stopped
- 8. Removes the macro from the list
- 9. Opens a master list of macros that prefills all 6 slots
- 10. Saves the current list of 6 macros into a single reloadable file to repopulate the macros
- 11. This is the active send list.

3.4. Reverse Engineering Feature Tab



As of V53, the bitwise search mode is disabled. This will be reenabled in a future release.

This feature allows the user to locate the specific target bytes or bits that are changing in a specific Arbitration ID based on a set of criteria. This is useful if the user knows the ID of an action on the bus, however the user needs to find out the specific data that is changing within that ID. The data may be search by bytes or bits as a criteria.



- 1. Specify the target Arbitration ID
- 2. Specify the deviation limit of data change (in decimal value) of what is being searched for in the data changes
- 3. This is the drop-down to select if the search should be done with the bytes structure or a bits structure
- 4. This is only accesible when the user selects a bit selective search mode (more detail below the next image)
- 5. To narrow down the deviation, the user may select a matching hit if the data deviation is either rising or rising and falling from the nominal value specified in the Min. search deviation
- 6. Pressing this button adds the search criteria to the list and the search begins immediately based on the current traffic on the bus
- 7. As the search criteria matches a hit on the bus, this number will increase to let the user know there is a match to the search criteria
- 8. There are 3 buttons here to interact with rows in the existing search items. The first button allows the search row to be enabled or disabled. The second button lets you edit the search criteria. The third button will delete that search criteria row
- 9. To view the matching hits, pressing this button opens the hit list window. (details below)

Create new search gri	Create new search grid														
CAN-ID* (hexad	ecimal) I	Min. search deviation*	Search n	node*	Start p	Bitwise search osition (bit)	only	Search	direction*	_					
1AB 10 bit selective 1 with a contraction of the selective 1 with a co					16	2	16 3	rising &	falling	~					
Byte Bit 4															
ID	Extended	Min. deviation	Start position	Signal length	Sear	1	63	62	61	60		58	57	56	Show hit list
		10	(Dit)			2	55	54	53	52	51	50	49	48	
0x1AB	U	10	0	1	byte	3	47	46	45	44	43	42	41	40	hit list
						4	39	38	37	36	35	34	33	32	
						5	31	30	29	28	27	26	25	24	
						6	23	22	21	20	19	18	17	16	
						7	15	14	13	12	11	10	9	8	
						8	7	6	5	4	3	2	1	0	

- 1. Search mode is changed to a bit selective search. With a bit selective search, these next items open up.
- 2. Choose the starting bit position for the search criteria. Note that bits go from 0 to 63 on the bus data
- 3. Choose the number of bits in length. For example, if the starting bit position is 16 and the length is 16 bits then the search will be from bit position 16 to end at 32.
- 4. Selecting either of the start or length position boxes opens up a visual aid chart showing the 64 bit positions and where they align to the 8 bytes in a CAN 2.0 package

🌊 SLSS CANgineer -	list of search results					- 🗆 X
5)					
ID (* = extended)	Location (byte) [bit - length])	Value at start (decimal)	Value at start (binary)	Value at end (decimal)	Value at end pinary)	Value change (decimal)
427	(B2)	117	000000001110101	201	000000011001001	84
427	(B4)	135	000000010000111	164	000000010100100	29
427	(B4)	164	000000010100100	216	000000011011000	52
427	(B6)	33	000000000100001	220	000000011011100	187
427	(B8)	71	000000001000111	130	000000010000010	59
427	(B2)	36	000000000100100	47	000000000101111	11
427	(B4)	41	000000000101001	216	000000011011000	175
427	(B6)	25	000000000011001	220	000000011011100	195
427	(B8)	31	000000000011111	130	000000010000010	99
427	(B2)	36	000000000100100	161	000000010100001	125
427	(B8)	31	000000000011111	45	000000000101101	14
427	(B4)	15	000000000001111	47	000000000101111	32

1. This column shows which byte contains the target location of the matching hit in the specified arbitration ID (showing in Decimal)

- 2. These columns show the decimal and binary value of the start of the change
- 3. These columns show the decimal and binary value of the end of the change
- 4. This column shows the delta of the value change to match the hit criteria
- 5. The table may be saved and also a previously saved table may be loaded for reviewing again.

3.4.1. Reverse Engineering CANgineer Search Parameters

Load and save search parameters from Reverse Engineering Tab



3.4.2. Reverse Engineering CANgineer Result Window

View the data results from the Reverse Engineering feature.



8	SLSS CANgineer - list of search results														
	ID (* = extended)	Location (byte) [bit - length])	Value at start (decimal)	Value at start (binary)	Value at end (decimal)	Value at end (binary)	Value (decin	change nal)							

There is the ability to Load and save the data from the Result Window.

3.5. Incoming DBC Signals Feature Tab

This feature tab is used to see the human readable information to match the CAN ID to the specific messages and signal names. This tab also shows other non-human readable contextual data about the construct of the signals.

Amount of unique ID's: 12 ID - min: 65 ID - max: 1200 ID - max: 1200 ID - max: 1200														
Incon	ning CAN Data CAN Log	file Recorder Send CAN Mes	sages Reverse Engineering	Incoming DBC Signa	Is [ID FILTER ACT	IVATED] DBC Dat	a	(4))		(3)		
Show message settings Show mapping values Show message names														
	ID (* = extended)	Signal name 2	Message name	Frame (bytes)	start bit	Signal length	Little Endian (Intel)	Sign	Scaling	Offset	Unit	Display value (2)	(5)	
•	0x77	BattTrac_U2_ActI	Battery_Traction_2	8	21	12		without	0.5	0	volt	2,255.000	0	
	0x77	BattTrac_I2_ActI	Battery_Traction_2	8	7	18		without	0.05	-6553.52	ampere	3.000	0	
	0x77	AwdLck_Tq_RqMn	SteeringPinion_Data2_HS1	8	27	12		without	1	0	Nm	0.000	0	
	0x77	AwdLck_Tq_RqMx	SteeringPinion_Data2_HS1	8	23	12		without	1	0	Nm	4,095.000	0	
	0x77	AwdLckRgen_Tq_RqMn	SteeringPinion_Data2_HS1	8	7	12		without	1	-4095	Nm	-4,095.000	0	
	0x77	Brk TerrMdeChng_D_Rdy	BrakeSnData_5_HS1	8	54	3		without	1	0	SED	Mode_Change_Ava	0	
	0x77	Brk TerrMde_D_Actl	BrakeSnData_5_HS1	8	38	3		without	1	0	SED	Special_Operating_	0	

- 1. Load / Save CAN DBC buttons. Use the Load button to load the DBC file that populates the respective human readable data in this tab as well as the Incoming CAN Data tab / CAN Logfile Recorder tab and the data export.
- 2. The key human readable signal name, message name and display values are shown here.
- 3. By default, the DBC will load and populate the view for ALL CAN ID's that match to the DBC file. If it is desired to monitor live CAN bus traffic data in real time to see only the actual data messages on the bus then pressing the **hide empty** button will hide all rows that do not match live CAN data on the bus to make it easier to view. Pressing the **show all** button will revert back to show the entire list again.
- 4. This button opens a window to create new DBC signals or edit ones that already exist if a DBC file was loaded.
- 5. The "i" button will be lit up blue if there is detailed additional information about that particular signal. Click on the blue "i" button for additional information.

Dr.	Caireal								
CAN ID CAN ID	t ID (CAN2.0B)	Signal name* (ma ID designation* (r	x. 32 charac nax. 32 char	ters) Frame acters)	(bytes) Start bit*	Number	of bits* S	iignal type (L Intel	_SB -> MSB) ~
Sign*		Scaling*	Offset*	Minimur	m value Maximum	value Unit			
without	~	0	0	0	0	_		Create sig	gnal 1
ID (decimal)	Signal name	e	Start bit	Number of bits	Scaling offset	Unit	Edit	2	Clear 3
23	BattTrac_U	2_Actl	21	12	0.510	volt		edit	delete
	D								
23	Batt Irac_12	Actl	7	18	0.05 -6553.52	ampere		edit	delete
23	Batt Irac_12 TesterPhysi	2_Actl calReqSOBDMB	7	18 64	0.05 -6553.52	ampere unitless		edit edit	delete delete
123 2023 2031	Batt Irac_12 TesterPhysi TesterPhysi	<pre>2_Actl calReqSOBDMB calResSOBDMB</pre>	7 7 7 7	18 64 64	0.05 -6553.52	ampere unitless unitless		edit edit edit	delete delete delete
2023 2031 465	TesterPhysi SOBDMB_(?_Actl calReqSOBDMB calResSOBDMB GWOnBoardTester	7 7 7 39	18 64 64 8	0.05 -6553.52 1 0 1 0 1 0	ampere unitless unitless unitless		edit edit edit	delete delete delete delete
23 2023 2031 465 465	Batt Irac_12 TesterPhysi TesterPhysi SOBDMB_(SOBDMB_(?_Actl calReqSOBDMB calResSOBDMB GWOnBoardTester GWNMProxy	7 7 7 39 47	18 64 64 8 8 8	0.051-6553.52 110 110 110 110 110	ampere unitless unitless unitless unitless		edit edit edit edit edit	delete delete delete delete delete
123 2023 2031 1465 465 465	Batt Irac_12 TesterPhysi SOBDMB_(SOBDMB_(SOBDMB_/	2_ActI calReqSOBDMB calResSOBDMB GWOnBoardTester GWNMProxy AutoSarNMReser	7 7 7 39 47 63	18 64 64 8 8 8 8	0.05 -6553.52 1 0 1 0 1 0 1 0 1 0 1 0	ampere unitless unitless unitless unitless unitless		edit	delete delete delete delete delete delete
23 2023 2031 465 465 465	Batt Irac_12 TesterPhysi SOBDMB_(SOBDMB_(SOBDMB_/ SOBDMB_/	_Actl calReqSOBDMB calResSOBDMB GWOnBoard Tester GWNMProxy AutoSarNMReser AutoSarNMReser	7 7 7 39 47 63 55	18 64 64 8 8 8 8 8 8	0.051-6553.52 110 110 110 110 110 110 110 11	ampere unitless unitless unitless unitless unitless unitless unitless		edit edit edit edit edit edit edit edit	delete delete delete delete delete delete delete
123 2023 2031 1465 1465 1465 1465 1465	Batt Irac_12 TesterPhysi SOBDMB_(SOBDMB_(SOBDMB_/ SOBDMB_/ SOBDMB_/	_Actl calRegSOBDMB calResSOBDMB GWOnBoard Tester GWNMProxy AutoSarNMReser AutoSarNMReser	7 7 7 39 47 63 55 31	18 64 64 8 8 8 8 8 8 8 8 8 8 8 8 8	0.051-6553.52 110 110 110 110 110 110 110 11	ampere unitless unitless unitless unitless unitless unitless unitless unitless		edit	delete delete delete delete delete delete delete delete

1. In this top box, all data to create a new signal may be input and then press the **Create signal** button to add it as an entry to the list (appending or a new list).

- 2. Pressing the Edit button will allow an existing signal to be edited.
- 3. Pressing the **delete** button will allow an existing signal to be deleted.

3.6. DBC Data Feature Tab

This feature tab is used to view / create the raw DBC data file contents and can be loaded / saved.

Incoming CAN Data	CAN Logfile Recorder	Send CAN Messages	Reverse Engineering	Incoming DBC Signals	DBC Data	
VERSION ""						
NS_: NS_DESC CM_ BA_DEF_ BA_ VAL_ CAT_DEF_ CAT_ FILTER BA_DEF_T EV_DATA SGTYPE_ SGTYPE_ BA_DEF_ BA_DEF_ BA_SGTY SIG_TYPE VAL_TAB SIG_GRO	- DEF_ DATA_ VAL_ SGTYPE_ PE_ E.REF_ LE_ UP_					

3.7. Enhancing Logdata with Human Readable Signal Data

Choose CAN hardware COM24 (CAN-Device-10017B Auto search and connect at Always record CAN data	Choose CAN Cha Both Channels start-up	nnel	Disconnect (Ctr Gearch module (C	l+T) Itrl+M)	CAN speed (kb 500 New list entry p ID	bit/s) 500 ber incoming	CAN Hex CAN V Hex	I ID display format adecimal I Data display forma adecimal	t v	Projec	t Name on Date	Information Text	
Incoming CAN Data CAN Logfi	Amount of u Amount of c	nique ID's: 11 ollected data: 4692 CAN Messages Rev	verse Engineering	Incoming DI	BC Signals DBC	Data	(199 19		DBC DBC		- 1		
Time	∆t Start [µs]	∆t Message [µs]	ID	Channel	ASCII Text	Data B1	Data B2	Data B3	Data B4	Data B5	Data B6	Data B7	Data E
16.11.2023 23:09:56.236	18751741	4979	0x1FE	Enhance th	e log data?			×	0x0	0x0	0×0	0x0	0x0
16.11.2023 23:09:56.241	18756755	5014	0x1FE						0x0	0x0	0×0	0x0	0x0
16.11.2023 23:09:56.246	18761769	5014	0x1FE	ι 👝 ι	oaded DBC data	was found. Do	you wish to enha	nce the log	0x0	0x0	0x0	0x0	0x0
16.11.2023 23:09:56.251	18766748	4979	0x1FE	💔 e	export with DBC	data?	-	-	0x0	0x0	0x0	0x0	0x0
16.11.2023 23:09:56.256	18771762	5014	0x1FE	•	Note: This proces	ss may take some	e time! 🙆)	0x0	0×0	0×0	0x0	0x0
16.11.2023 23:09:56.261	18776739	4977	0x1FE				e	/	0x0	0x0	0x0	0x0	0x0
16.11.2023 23:09:56.266	18781755	5016	0x1FE	1			Yes	No	0x0	0x0	0×0	0x0	0x0
16.11.2023 23:09:56.271	18786732	4977	0x1FE	L					0x0	0x0	0x0	0x0	0x0
16.11.2023 23:09:56.276	18791746	5014	0x1FE	CH_B	A	0xC0	0x0	0×0	0x0	0×0	0×0	0x0	0x0
16.11.2023 23:09:56.281	18796761	5015	0x1FE	CH_B	A	0xC5	0x0	0x0	0x0	0x0	0×0	0x0	0x0
													• •

- 1. If a DBC file is loaded and the user presses the STOP button, a context box will ask if the user desires to enhance the log files. This will take some time to post-process and add all of the DBC human readable signal data to the logfile and will be available in the exports.
- 2. If the user chooses to enhance the log data, a pop-up window will inform the user of the short progress bar to enhance the logs and then the box will close when it is completed (see image below)
- 3. Upon the completion of the log enhancement process, any saving of the data or the export (CSV or Excel) will include an enhanced data logging file that includes the Designation as well as the list of all human readable signals for each Arbitration ID for each data change.

Incoming CAN Data	CAN Logfile Recorder	Send CAN Messages	Reverse Engineering	Incoming DBC Signals	DBC Data
-------------------	----------------------	-------------------	---------------------	----------------------	----------

Channel	Count	ASCII Text	Data B1	Data B2	Data B3	Data B4	Data B5	Data B6	Data B7	Data B8	Change Count	Interval [µs]	Designation
CH_A	724	³u 1 í	0xB3	0x0	0v75	0×0	0v31	0v0	0vCD	0x0	723	99974	
CH_B	14469	ó	0xF3	0×0						0x0	14468	5000	
CH_A	363	@ n Đ	0x40	0×0						0×0	362	199917	
CH_B	363	- 3	0x0	0x2D	E E	nhancing the lo	g export with I	DBC signals, pla	ease wait	0x1C	362	199909	
CH_A	363	ê [E Ú	0×0	0xEA	CANAnalyse					0xDA	362	199343	
CH_B	363	Çdðl	0x0	0xC7						0x49	362	199912	
CH_B	363	x Y D Á	0x78	0×0						0×0	362	199423	
CH_A	289	ÑĖ7	0xD1	0×0	0xC8	0x0	0x37	0x0	0x1E	0x0	288	249264	
CH_B	229	2 ⁻ 168(Ý	0x91	0x32	0xAF	0x1B	0xF5	0x38	0x28	0xDD	228	449664	Vehicle_Message
CH_A	143	0	0x0	0x0	0×0	0×0	0×0	0x0	0x0	0x9C	142	501381	
CH_A	12	SEROSYS	0x53	0x45	0x52	0x4F	0x53	0x59	0x53	0×0	0	6842319	

Example from an Excel export:

Overview C	AN L	ogfile re	ecor	der v	iew										
SLSS CANAnalyser - Excel e	xport creation	time: Thursday, No	vember 16	, 2023 23:28	:28.0575956										
Time	∆t Start [µs]	∆t Message [µs]	ID	Channel	Raw Data	ASCII Text	Data B1	Data B2	Data B3	Data B4	Data B5	Data B6	Data B7	Data B8	Designation
· · · · · · · · · · · · · · · · · · ·		· ·			· · · · · · · · · · · · · · · · · · ·										
16.11.2023 23:27:11.580	7999496	796	0x2A2	СН_В	39 154 95 105 234 9 162 172	_iê ¢¬	0x27	0x9A	0x5F	0x69	0xEA	0x9	0xA2	0xAC	Vehicle_Messages * KPH: 394.630 * RPM: 6,743.750 * BAT_VOLTS: 14.040 * TRANS: Neutral
16.11.2023 23:27:11.880	8299398	802	0x2A2	СН_В	51 163 113 111 234 144 76 16	3£qoêLI	0x33	0xA3	0x71	0x6F	0xEA	0x90	0x4C	0x10	Vehicle_Messages * KPH: 417.790 * RPM: 7,132.250 * BAT_VOLTS: 14.040 * TRANS: Park

4. Other Menu Items

4.1. Accessing the SLSS CANData Viewer

This menu option feature is used to be able to load in a previously saved data session and view the data inside the software





Alternatively, the 3 file extensions (.scdf, .scdv & .rcdf) may be double-clicked and opened directly from a Windows Explorer folder. Doing this will directly open an instance of the Data Viewer program.

File extensions

scdf - SLSS CAN Data file - Saved current data from the Incoming CAN Data tab (snapshot of the current messages - 1 per ID)

scdv - SLSS CANData Viewer file - Saved table content of the SLSS CANData Viewer (can be saved as a sub-set to remove filtered items)

rcdf - SLSS recorded CAN Data file - Saved current data from the CAN Logfile Recorder tab (full log export data)

4.2. SLSS CANData Viewer Main Program

All of SLSS CANAnalyser saved file formats are supported.

🌊 SLSS CANData	a Viewer												×
Main Offline i	Playback Search		-	0	2	(3)		Sala	2235 T	C24		UI	
Loaded file type Recorded log da Search entire tab	ita file	Loaded file N/A			g data sub-page	Choose CAN C Both Channels	hannel CA 	N ID display format exadecimal N Data display form exadecimal	hat 4	Filter selection 1 ID • 0x1AA • 0x1AB		Filter selection 2 Designation Vehicle_Messages	~
Recorded CAN Da	ta DBC Signal Ov	erview DBC Data	mount of unique mount of collect	ue ID's: 12 cted data: 592270		Ei F	8		DBC	 0x12AAEAAB 0x1FF 			
Time	∆t_Start_[µs]	∆t_Message_[µs]	ID	Channel	ASCII_Text	Data_B1	Data_B2	Data_B3	Data_B4	Data_B5	Data_B6	Data_B7	Data_
13.03.2024 00:4	0	0	0x1AA	CH_A	t∥`Ô	0x74	0x00	0x8B	0x00	0×60	0x00	0xD2	0x00
13.03.2024 00:4	759	759	0x1AB	CH_A	⊺à¶Ñ	0x00	0xA8	0×00	0xE0	0×00	0xB6	0×00	0xD1
13.03.2024 00:4	1495	736	0x010	CH_A	í ÷ l ç	0xED	0x00	0xF7	0x00	0x15	0×00	0xE7	0x00
13.03.2024 00:4	12795	11300	0x010	CH_A	12 c	0x8F	0x00	0x32	0x00	0x7F	0x00	0x63	0x00
13.03.2024 00:4	13593	798	0x12AAEAAB	CH_A	Ñ.Ná	0xD1	0x00	0x2E	0x00	0xD1	0×00	0xE1	0x00
13.03.2024 00:4	14299	706	0x1FF	CH_A	Ú	0x00	0x00	0x00	0x00	0x00	0x00	0×00	0xDA
13.03.2024 00:4	112928	98629	0x010	CH_A	ï [LF] 4 0	0xEF	0x00	0x0A	0x00	0x34	0x00	0x94	0x00
13.03.2024 00:4	113675	747	0x1AA	CH_A	0 W 0	0x88	0x00	0xA6	0x00	0x57	0x00	0x86	0x00
13.03.2024 00:4	114410	735	0x1AB	CH_A	i\$1Ė	0x00	0x69	0x00	0x24	0x00	0x98	0×00	0xC8
13.03.2024 00:4	213044	98634	0x010	CH_A	8 " A I	0x38	0x00	0x22	0x00	0xC5	0x00	0x92	0x00
13.03.2024 00:4	263201	50157	0x12AAEAAB	CH_A	á 5 Ê Ñ	0xE1	0x00	0x35	0x00	0xCA	0×00	0xD1	0x00
13.03.2024 00:4	313176	49975	0x010	CH_A	= 0,0	0x3D	0x00	0x8B	0x00	0x2C	0×00	0x9E	0x00
13.03.2024 00:4	313905	729	0x1AA	CH_A	31°ü	0x33	0x00	0x15	0x00	0x2A	0x00	0xFC	0x00
13.03.2024 00:4	314650	745	0x1AB	CH_A	IXh Ü	0x00	0x87	0x00	0x58	0x00	0x68	0x00	0xDC

- 1. Information displayed based on the file loaded. It states the type of file and the file name that was loaded
- 2. In the case of loading a file that has more than 200,000 rows, to conserve PC memory resources, the data will be broken into sub-pages of up to 200,000 lines per sub-page. This drop-down allows the user to select a different sub-page of data to access
- 3. This allows the view of only CH_A or CH_B or both channels from the loaded data
- 4. These drop-downs are used to change the format of either the ID or Byte data (HEX, DEC, BINARY)
- 5. Filter 1 and Filter 2 may be set to provide 2 layers of filtering of ID or bytes or designation to find the data that is desired
- 6. This is a data search field. Any text entered here will highlight a cell in blue color for matching criteria. Beside it is an icon to enable or disable case matching. The green arrows beside that will move to the next or previous matched cell
- 7. These are the data control buttons. From left to right is Play, Pause, Step backwards, Stop, Step forwards. Note, to play back the data, press the play button. The play button must be enabled for the graphical viewer to show the graph
- 8. These are the feature control buttons. From left to right is the Load data button (loads scdf, scdv, rcdf files), the save button to save a copy of your current filtered data, the graphical analyzer button (operates identical to this button in the main software), the playback CAN button (future application to play back recorded data back onto the live bus), Export data button (choose from Excel or CSV), load DBC file button and then the last button will go through the loaded data rows and enhance it with the loaded DBC file data.
- 9. There are 3 tabs in the main viewing window. These operate identically to the way these 3 tabs operate in the main SLSS CANAnalyser software. The Recorded CAN Data tab shows the logged data rows (that can be played back). The DBC Signal Overview tab shows you all the decoded human readable DBC signal data that can also be played back to see dynamic data as it changes. The DBC Data tab allows the direct viewing of the DBC file itself.



The drop-down menus to change selections will be greyed-out (unavailable) if the Data Viewer is in PLAY or PAUSE mode. Press STOP to make adjustments and then resume playing back.

4.3. Playback Graphical Analyser from the Data Viewer

The selected ID will be displayed in the graphic viewer. Note that this operates identically to how the primary graphical analyzer works from the main software. Refer to the other chapter for the details instructions.



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For this graphical analyser to play back the data, the PLAY button must be pressed in the SLSS CANData Viewer or else the graph will not display.

4.4. TCP/IP Communication Interface for Third-party applications

Using the TCP Interface, data can be passed to a third party application via TCP/IP network connection allowing CANAnalyser to be used as a server that can support multiple connected clients.

This makes it possible to create your own proprietary interface in scripting languages widely used in development, such as Python, Groovy or Lua, and to interface with the SLSS CANAnalyser software to control various functions and analyze the CAN data using a custom remote interface.

Here is a list of currently supported functions via TCP/IP interface to the SLSS CANAnalyser software:

- 1 Send CAN message to bus channel A
- 2 Send CAN message to bus channel B
- 3 Send CAN message to both bus channels
- 4 Mute the transmission of received CAN messages
- 5 Start / stop logfile recording and save the logfile to a specific folder
- 6 Start the hardware module search
- 7 Connect to a specific CAN module by a known COM port
- ${\bf 8}$ Change CAN speed for bus A or bus B
- 9 Toggle bus interaction mode for both transceivers between normal and listen-only
- 10 Change the selected CAN channel
- 11 Change arbitration ID notation between HEX, DEC and BINARY
- 12 Change CAN data notation between HEX, DEC and BINARY
- 13 Load a stored project file by the given file path
- 14 Restart the software with or without active TCP/IP interface
- 15 Close the software via TCP/IP command
- 16 Get connection status information from the SLSS CANAnalyser
- 17 Get run state information from the SLSS CANAnalyser

TCP Interface	About	
Maximun	n client connections	•
Selected 1	ICP port	۲
disabled	•	

TCP/IP can support multiple connections so the user may specify the maximum number of connections are allowed to be accepted to the software. If the number is increased, the server opens the given number of network ports, starting from the port that gets defined. It is possible to open and stay connected simultaneously on different ports.

The user must then specify the TCP port to be forwarded on the router to open up for the IP address.

This interface may be enabled or disabled.



If the hardware dongle is disconnected during a TCP request, the CANAnalyser software will report a connection error

4.5. Hardware Dongle Firmware Updater

This menu option feature is used to update the firmware on your hardware dongle if required. To check to see if there is a required firmware update, follow this process.



Please press the "Disconnect" button before loading the SLSS HardwareSuite

Main Settings File Hand	ling Additional Windows	TCP Interface About
Choose CAN hardware	Choose CAN Channel	
COM21 (CAN-Device-10016B \smallsetminus	Both Channels 🗸 🔍	Disconnect (Ctrl+T)
 Auto search and connect at sta Always record CAN data 	art-up	Search module (Ctrl+M)

Select "SLSS HardwareSuite" from the "About" menu.



SeRoSys Hardware Overview	Linghungs Lindate Information
🗈 Desk CAN Pro (COM46)	Hardware Opdate Information
 Hardware serial no: 10018D230915 	Indate for Pocket CAN and Deek CAN Statter devices
 Installed firmware version: 1040 	- Latest available software version: 1037
 Available firmware version: 1040 	- Build date of latest version: 11/2023 - Included software version: 1037
Firmware status: No update required	
🚥 Desk CAN Starter (COM54)	Indate for Desk CAN and Desk CAN Pro devices
 Hardware serial no: 10015B230915 	- Latest available software version: 1040
 Installed firmware version: 1037 	- Build date of latest version: 04/2024
 Available firmware version: 1037 	
	SLSS CAN Education Program: The SLSS CAN Education Program gives teachers, pupils and students the opportunity to use the SLSS CANAnalyser with free hardware, such as Arduino, ESP8266 and ESP32. For more information visit us at SeRoSys-Tech.com.
	 Update Instructions 1) Plug in the device and wait until the device search is completed. 2) Make sure that no other program has established a connection to the device. 3) Select the device to be updated from the hardware list and click on it. 4) In the opened context menu, select the menu item "Update hardware". 5) The update process is carried out automatically.
	Attention: The connection to the device must not be interrupted during the update process. An interruption can lead to the update being aborted and the device failing completely!
	Emergency recovery: If unexpected errors occur during the update process and the device is no longer recognized after the update, there is the option of an emergency recovery. For security reasons, this can only be done by generating an activation token and requires contactions the SeRoSus exponent.

INFO: Searching for connected hardware, please wait...

INFO: 1 connected device was found...

INFO: Hardware changes detected - updating hardware list, please wait...

INFO: 2 connected devices were found...

When the HardwareSuite loads, after a few seconds, the Hardware Overview will show you the dongle that is plugged in and it will show you the firmware status. If the firmware status is green then no update is required and the HardwareSuite may be exited. If the firware status is yellow, that means there is an update required. Click on the yellow firmware status and follow the instructions.



Please read all the Hardware Update Information on the right side of the screen and follow the directions carefully. If there is a hardware technical issue or the dongle is disconnected during the update process and becomes unresponsive then contact SeRoSys technical support for assistance.