ELECTRONICS & DEFENSE

STIM320
STIM380H

Evaluation kit
User Manual

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  - Detailed IMU diagnostics
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  - Custom scale and zoom functions
  - CRC check
- Logging panel
  - Support for any measurement duration, only limited by hard drive, available memory and processor capacity of PC
  - Various stop criteria for measurements available ('Manually', 'No. of samples' or 'Time elapsed')
- Measurements of up to 4 IMUs simultaneously supported (requires additional interfaces and/or cables)

***STIM320/STIM380H EVK** PCIe*

STIM320/STIM380H EVK USB

1.1 General description

The evaluation kit provides measurement and configuration access to STIM320/STIM380H IMU. Configuration, graphical result presentation and saving data to file functions are supported. The single voltage supply required for the IMU operation is provided from an USB port.

Important notice!
The USB kit supports certain distinct bit rates only. The following bit rates have been tested and verified:

Approved bit rates w/USB kit
3 000 000 bps
2 000 000 bps
1 500 000bps
1 411 765 bps
Most settings below 1 300 000 bps

Table 2 Valid bit rates

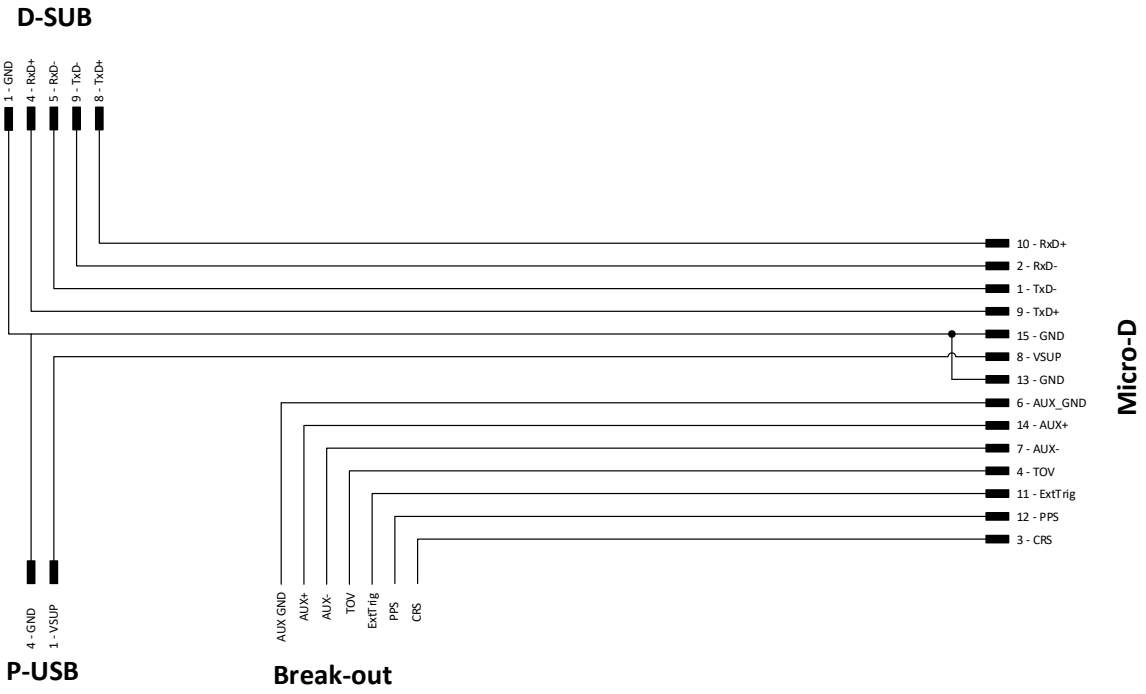


Figure 1: Wiring diagram, PCIe kit

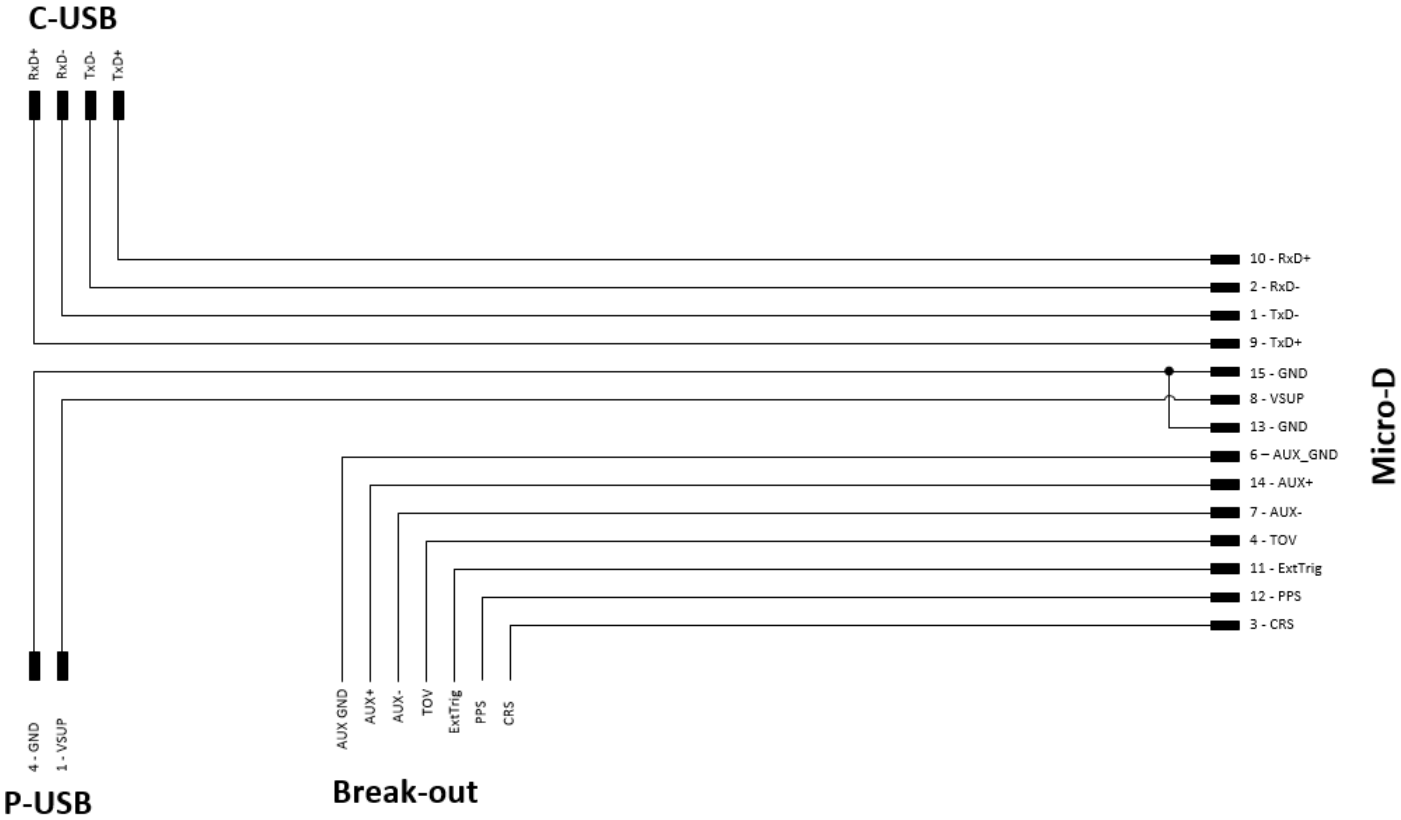


Figure 2: Wiring diagram, USB kit

1.2 Configurable and readable parameters

Configurable parameters in Service Mode and Utility Mode:

- Output format (angular rate, increment angle etc.)
- Bias Trim Offset parameters
- Datagram format
- Sampling rate
- Bandwidth / Low pass filter frequency
- RS-422 transmission bit rate
- Number of stop bits in datagram
- Parity
- Line/ Datagram termination

Readable parameters:

- Part number
- Serial number
- Firmware revision
- Hardware revision
- IMU diagnostics

Detailed diagnostic information including RAM and flash checks, stack handling checks, status of internal voltage supply references, and various parameter reports for each measurement axis is available in SERVICE mode.

Note: Time of Validity (TOV) and external trigger functionalities of STIM320/STIM380H are not supported by the EVK PC-software.

2 Kit contents

- PCI/PCIe kit:
  - PCIe to RS422 interface card
  - STIM320/STIM380H communication and power cable
- USB kit:
  - USB to RS422 interface cable with USB power supply connector
- Memory stick with:
  - PC software
  - User manual (this) for evaluation kit
- Tool for fixing connector of communication and power cable to the IMU

Note that the evaluation kit does not include a STIM320/STIM380H IMU. This must be ordered separately.

3 System requirements

- Windows XP SP2 (or later), Windows Vista, Windows 7 (32/ 64bit) , Windows 10 (32/ 64bit)
- PCI/PCIe kit:
  - 1 free USB port and 1 free PCIe slot
- USB kit:
  - 2 free USB ports
- Quad core processor recommended (when simultaneously logging data from two or more IMUs)

4 Getting started

Depending on the version of evaluation kit, preparing your system involves the following steps:

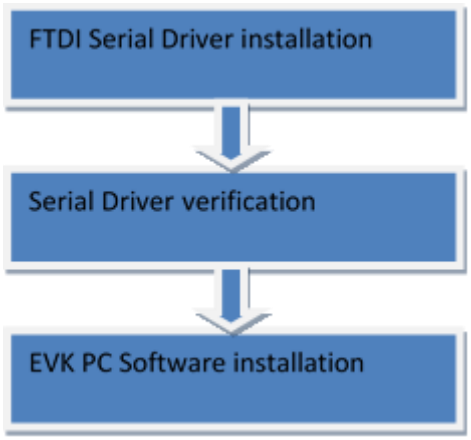


Figure 3: Installation USB

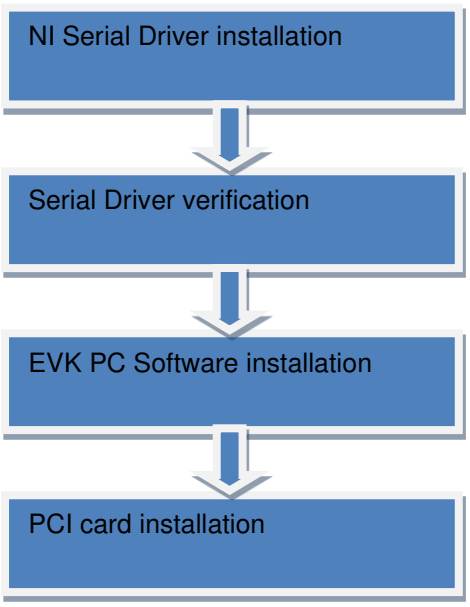


Figure 4: Installation, PCIe

4.1 PCIe installation

4.1.1 Installation of PCIe to RS422 serial driver

Install the serial driver from the memory stick included in the kit. This procedure is self-instructive. Follow the on-screen messages without doing any configuration changes.

Figure 5 and *Figure **6*** show two of the messages that appear during serial driver installation.

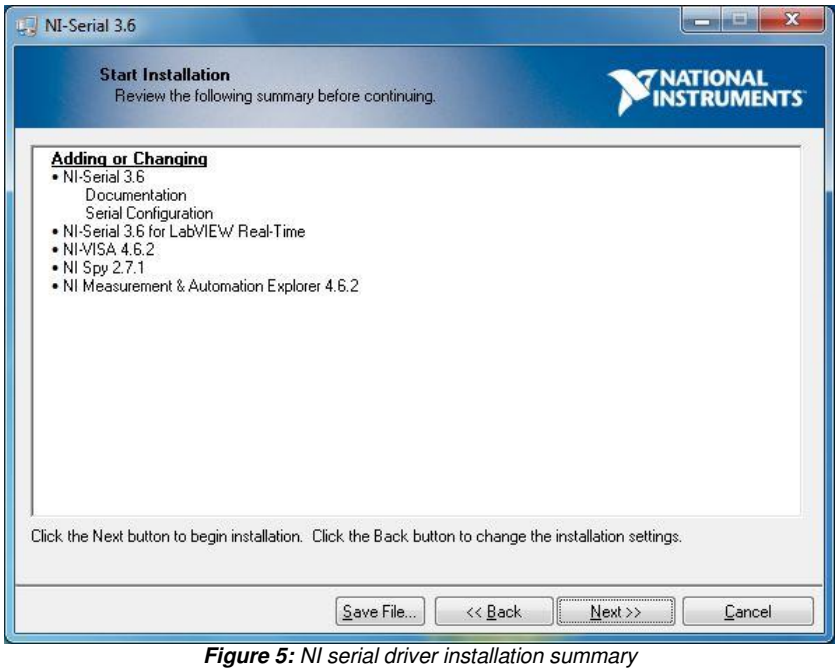


Figure 5: *NI serial driver installation summary*

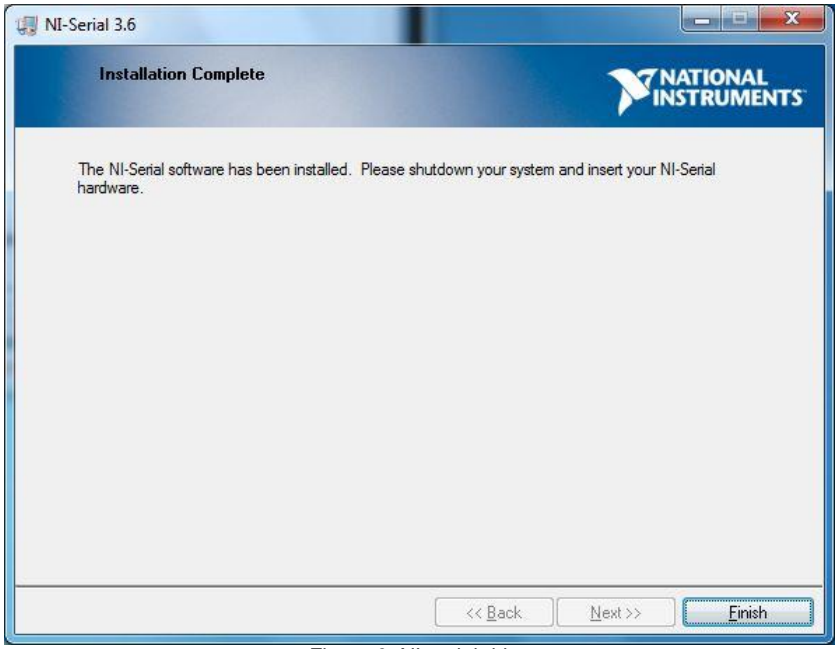
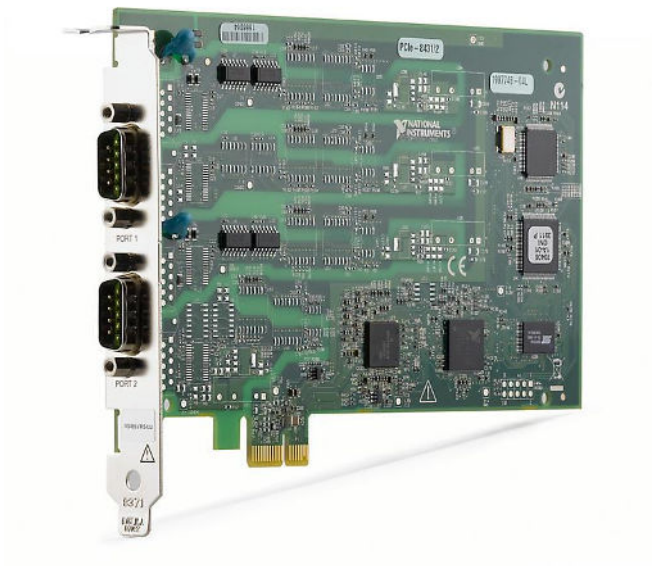


Figure 6: NI serial driver

4.1.2 Installation of PCIe card



Disconnect power from your computer prior to installation.

Following your computer manufacturer's directions, insert the card into a free PCIe slot.

4.1.3 Verification of serial driver set-up

Launch **Device Manager:** *Start -> Control Panel -> Hardware and Sound -> Devices and Printers -> Device Manager*.

Verify that the serial driver installation has completed successfully. An example is shown in *Figure **7***.

Make a note of the assigned COM port value(s) information. This will be needed later for connecting to the STIM320/STIM380H from the PC software.

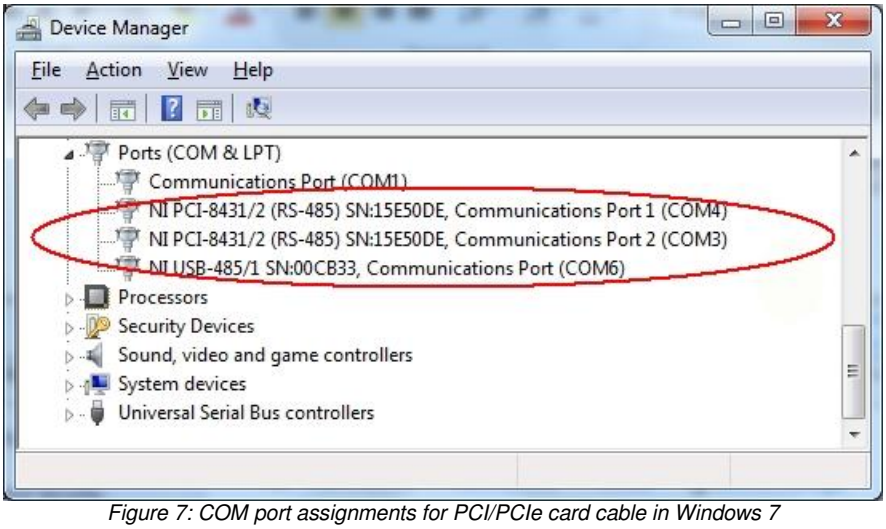


Figure 7: COM port assignments for PCI/PCIe card cable in Windows 7

4.2 USB installation

4.2.1 Installation of FTDI serial driver

To install the drivers for the FTDI serial driver under Windows, follow the instructions below:

- Connect the USB-RS422 plug to a spare USB port on your PC.
- If there is an available Internet connection, some Windows versions will silently connect to the Windows Update website and install a suitable driver
- In the event that no automatic installation takes place, please refer to the set-up guide from FTDI: http://www.ftdichip.com/Support/Documents/InstallGuides.htm

4.2.2 Connecting the USB EVK to your PC

Figure 8 shows how to connect the EVK to a PC

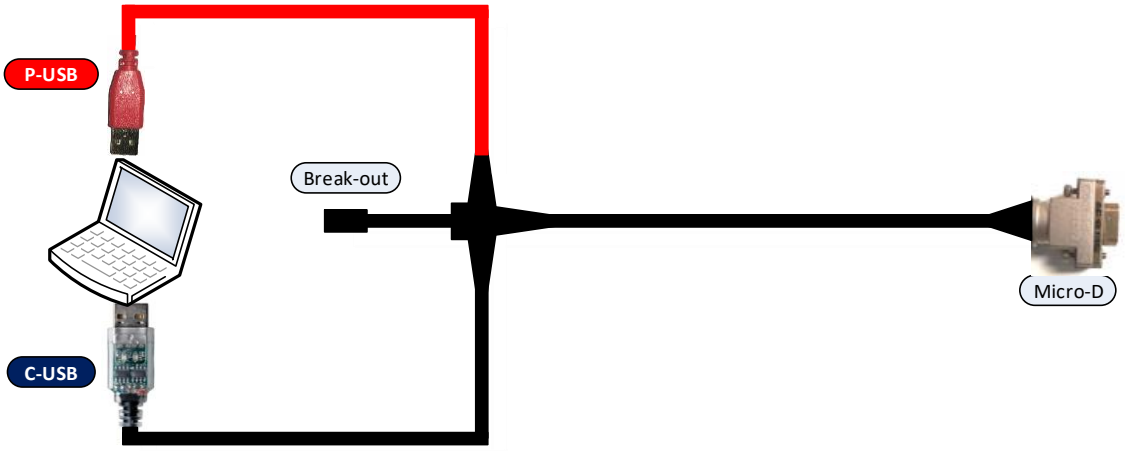


Figure 8: Connecting the EVK to a computer.

4.2.3 Verification and configuration of serial driver

Launch *Device Manager*. See *Control Panel -> Hardware and Sound -> Devices and Printers*.

Verify that the driver installation has completed successfully:

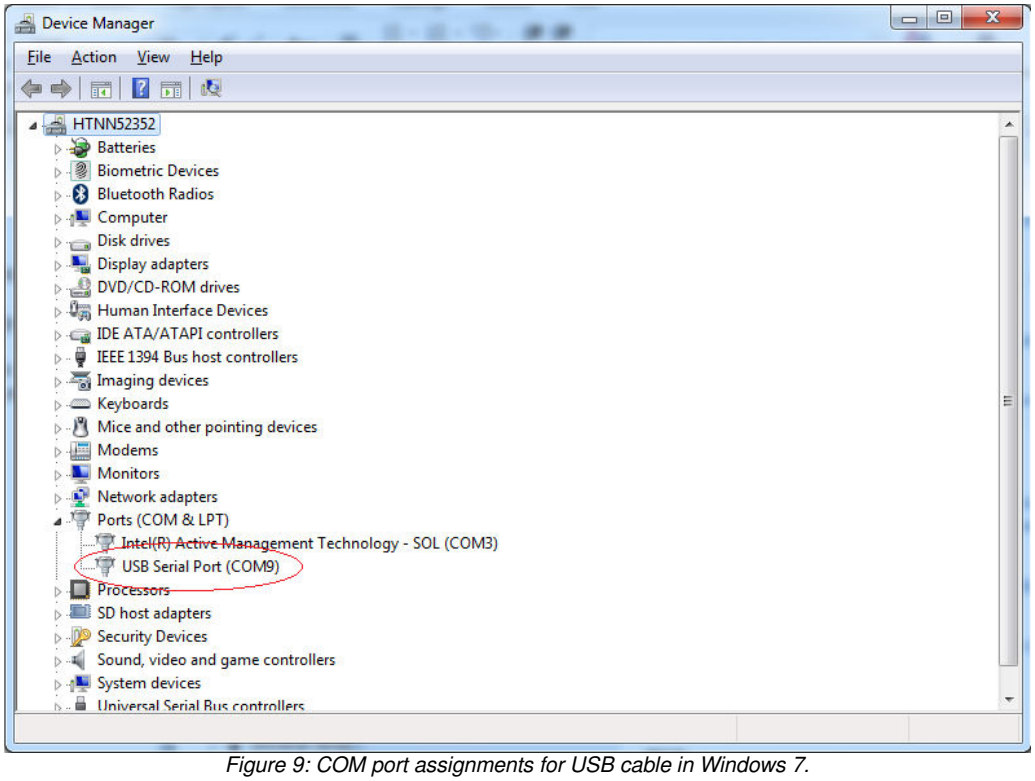


Figure 9: COM port assignments for USB cable in Windows 7.

Make a note of the assigned COM port value(s) information. This will be needed later for connecting to the STIM from the PC software.

Right-click "USB Serial Port (COM<n>)" and select "Properties"

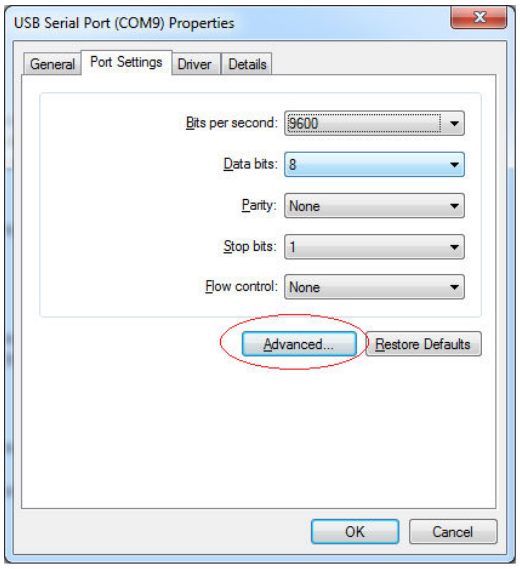


Figure 10: COM port properties

Select "Advanced" from the "Port Setting" tab.

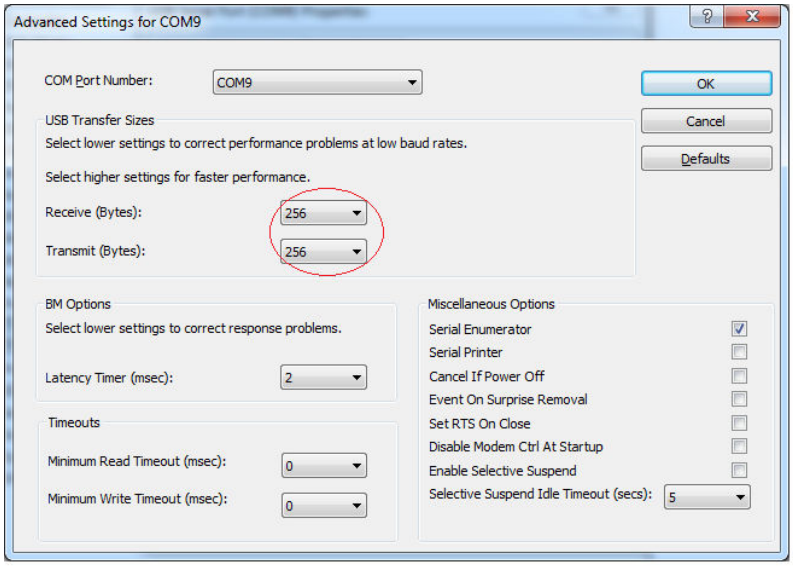


Figure 11: Settings for COM port

Set the "Receive (Bytes)" and Transmit (Bytes) settings to 256.
Press OK twice.

The computer may have to be restarted for the changes to take effect.

4.3 Installation of PC software

Install the PC software by running "setup.exe" found on the included memory-stick. Follow the on-screen instructions to complete the installation. The PC software can also be downloaded from the STIM product support site. Check this site regularly for updates.

5 Connecting the STIM320/STIM380H to your PC

Figure 12 (PCIe) and *Figure **13*** shows how to connect the STIM320/STIM380H to a PC

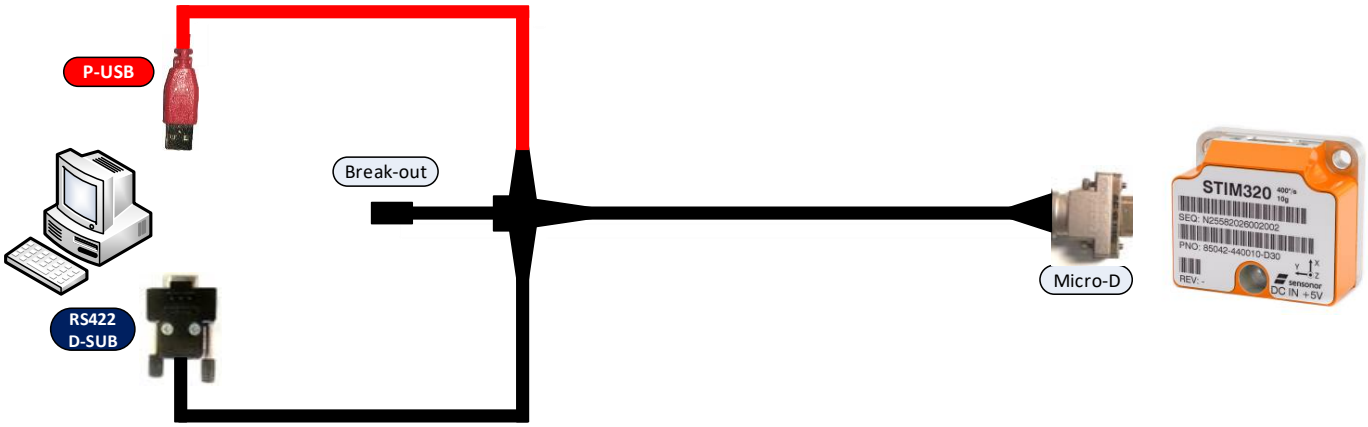


Figure 12: Connecting the STIM320/STIM380H to a computer via PCIe

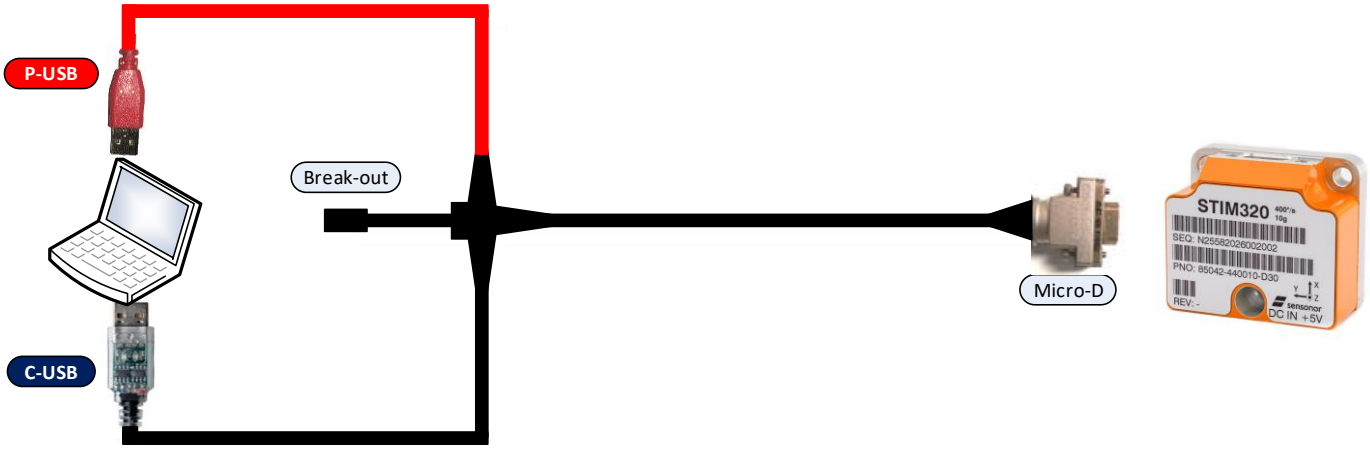


Figure 13: Connecting the STIM320/STIM380H to a computer via USB

6 Using PC software

1. Navigate to the 'STIM evaluation tools' folder from Windows start menu. Click on the shortcut named "STIM320 STIM380H EVK" to start the PC software. For full functionality, the computer user should have Local Administrator rights.

2. A pop-up window will ask for a parameter (.INI) file. Select the INI-file (available in the installation folder by default) and press "Load"

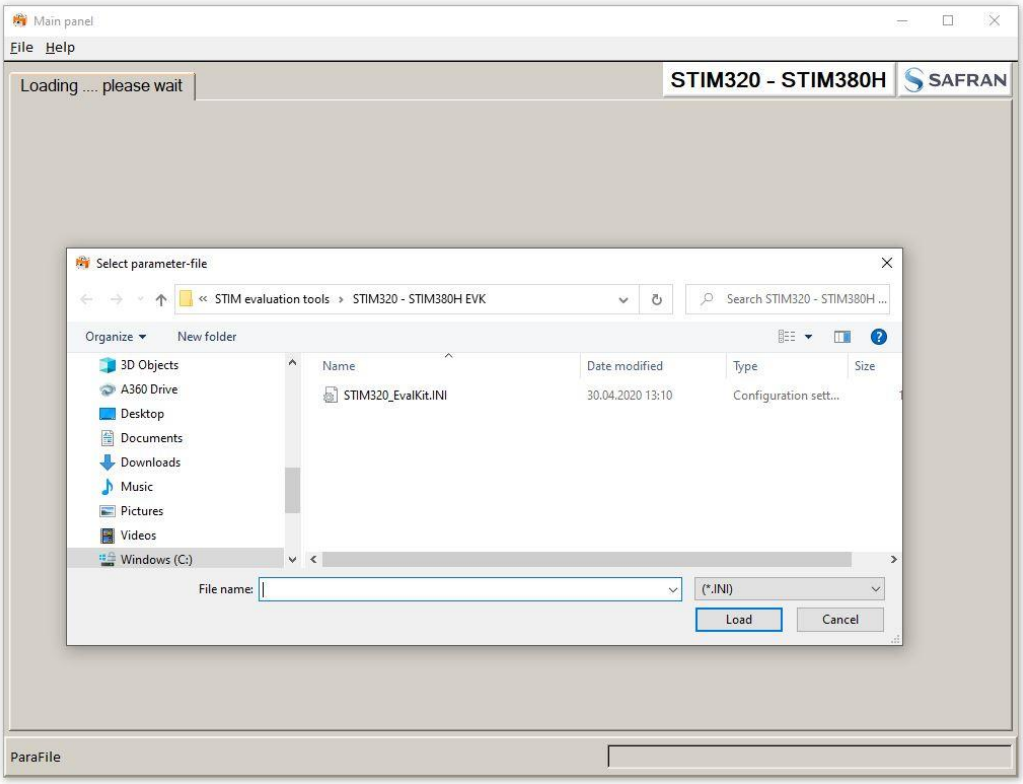


Figure 14: INI-file selection

3. A pop-up window containing the End User License Agreement appears. Click the “Accept” button to accept the agreement and enable the EVK software to have full functionality.

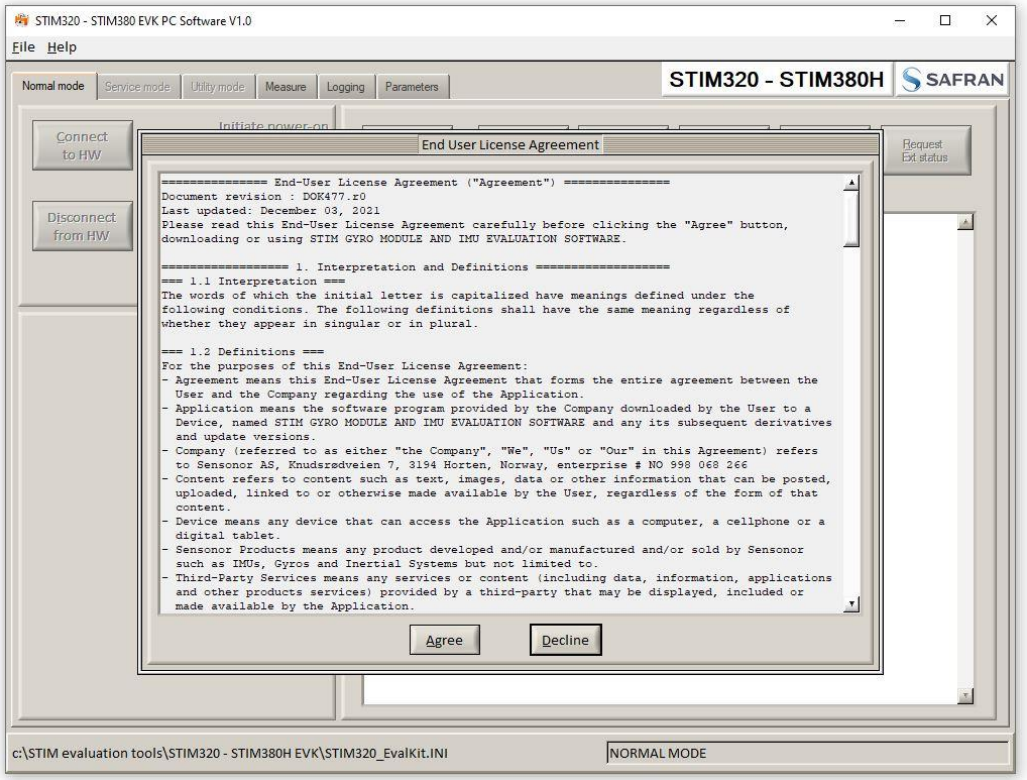


Figure 15: EULA confirmation window

4. pop-up box for software registration appears. Fill in the open fields and press "Submit". The default email client opens. Press "Send" in order to complete this step (user information is sent for support issues). This step will only have to be completed once.

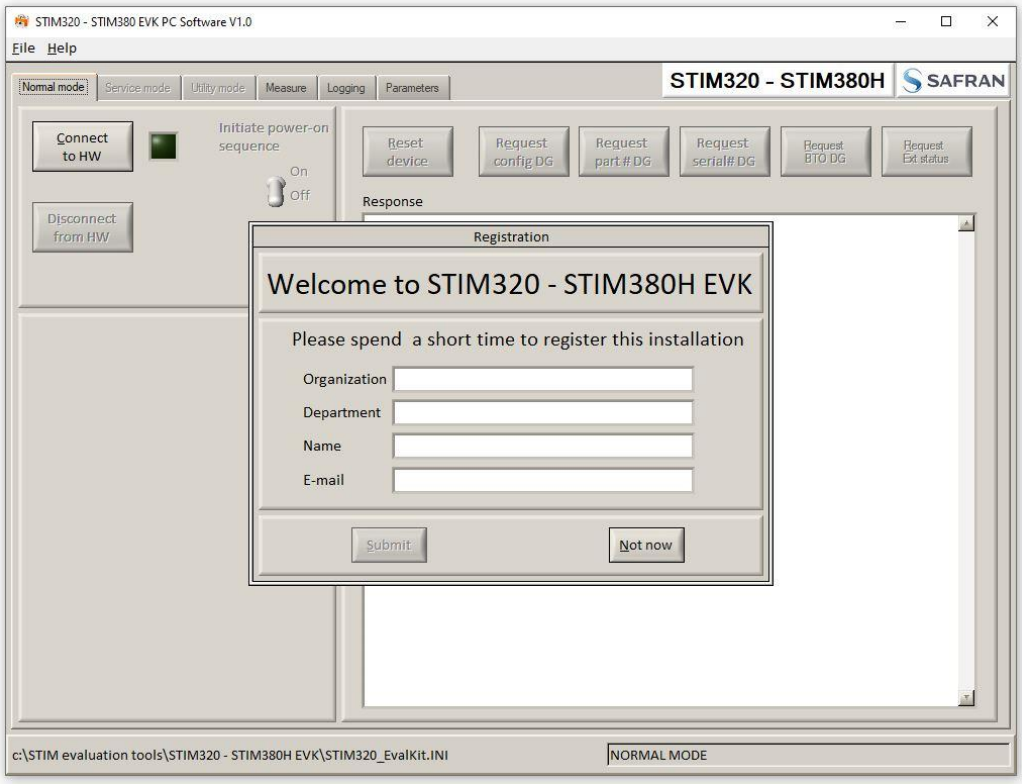


Figure 16: Welcome message and software registration

5. The Normal mode panel is shown

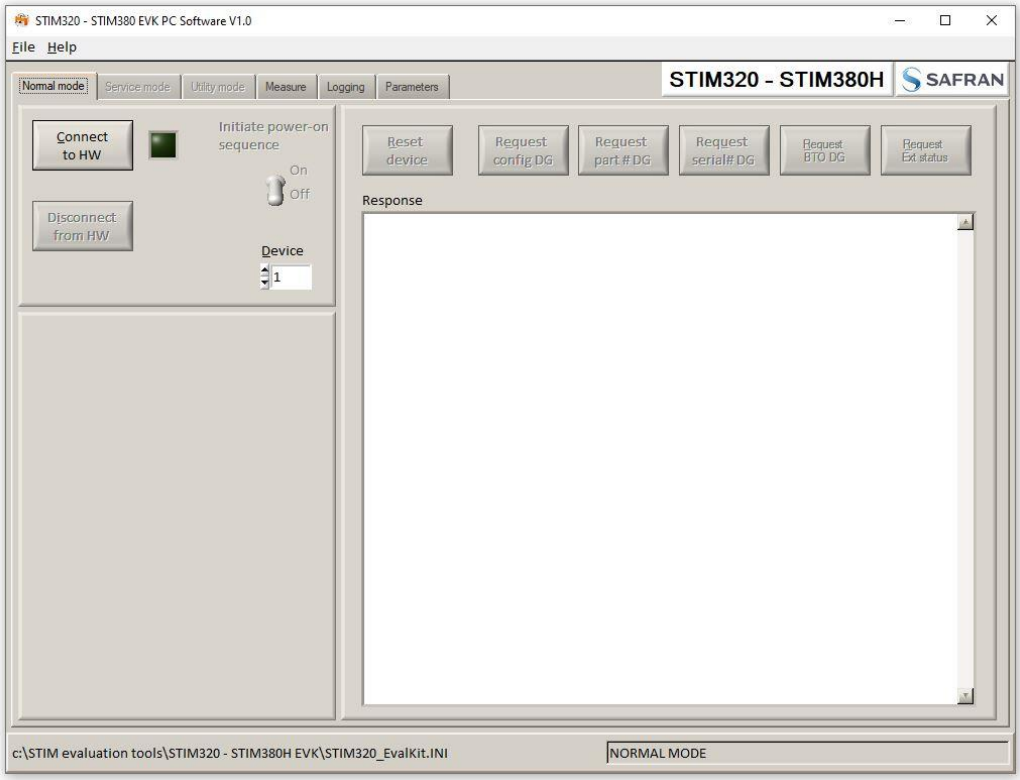


Figure 17: Normal mode panel after selecting INI-file

6. Verify the correct COM port settings in the Parameters view. If port # setting needs to be changed, do this by double clicking on the value and enter correct value. The default password to edit is ‘stim’.

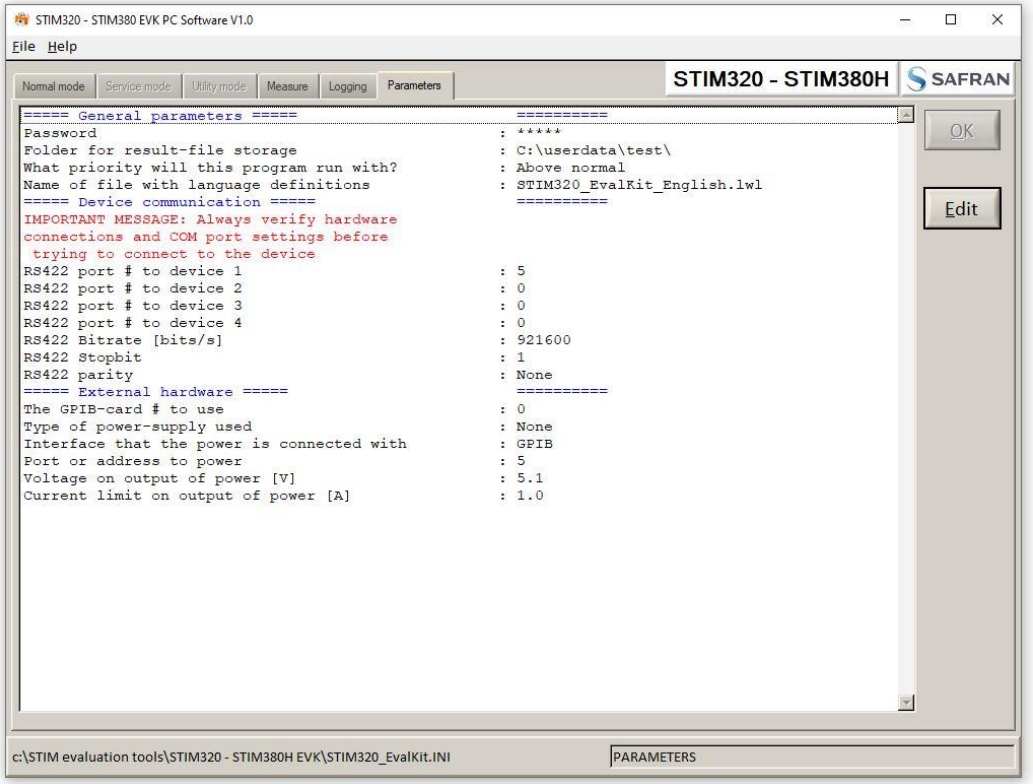


Figure 18: Edit the INI-file in order to verify correct COM port settings

7. From the Normal mode panel, connect to and open the COM port by pressing the ‘Connect to HW’ button. A green LED light indicates that the COM port is active. If LED is red, the COM port (specified in the Parameters tan) could not be accessed and/or configured correctly

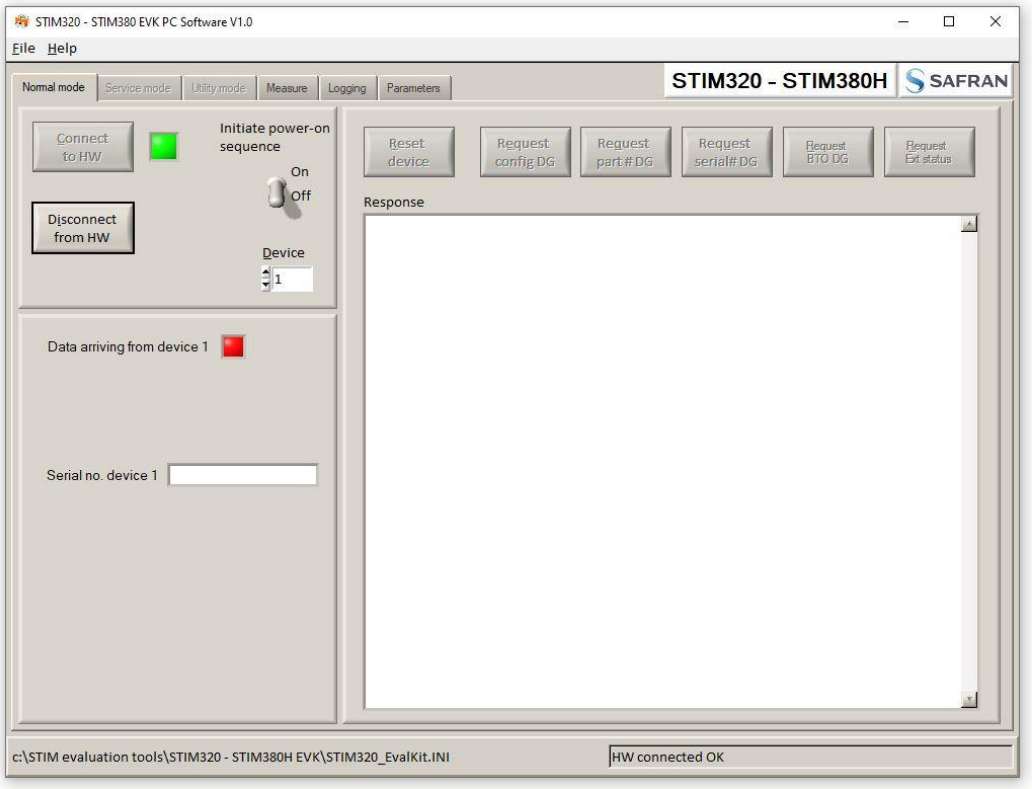


Figure 19: Normal mode panel after first hardware connection

8. Click on the 'Initiate power-on sequence' control switch so it switches position to 'On'. Do not insert the power supply cable at this point. The pop-up message asking for confirmation of bitrate appears. Press OK.

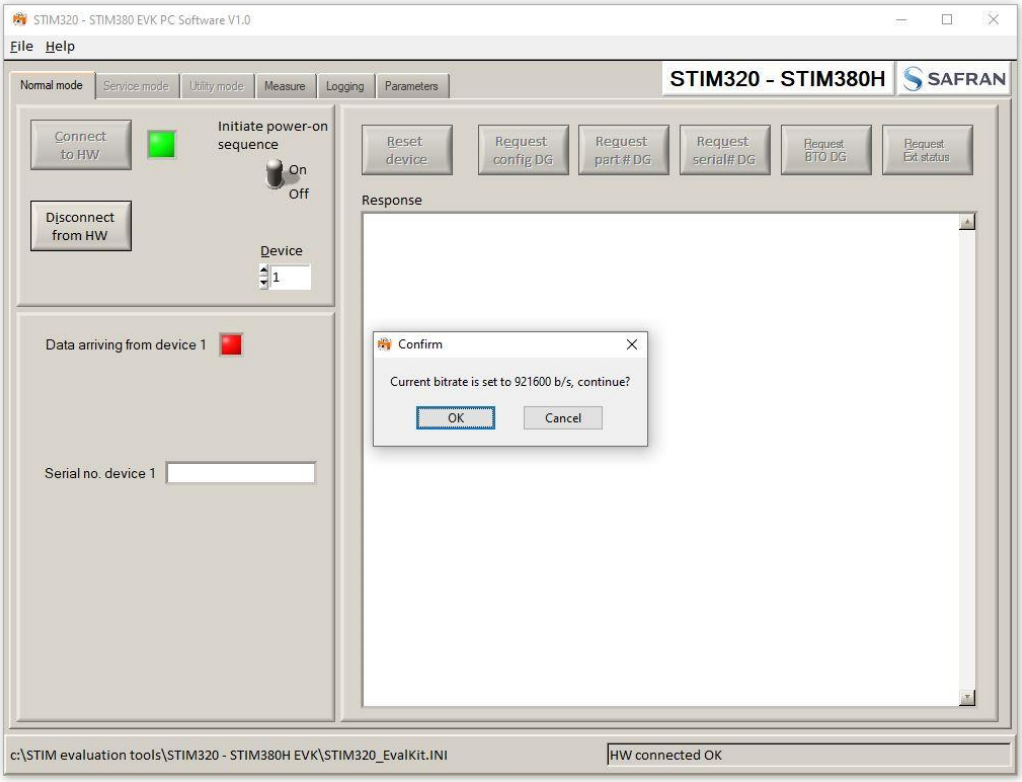


Figure 20: Confirmation of bitrate

9. A pop-up message telling "Connect power cable to voltage supply and then press OK to continue" appears. First insert the red USB connector into a free USB port of the PC/ laptop and then confirm the supply voltage is applied by pressing ‘OK’

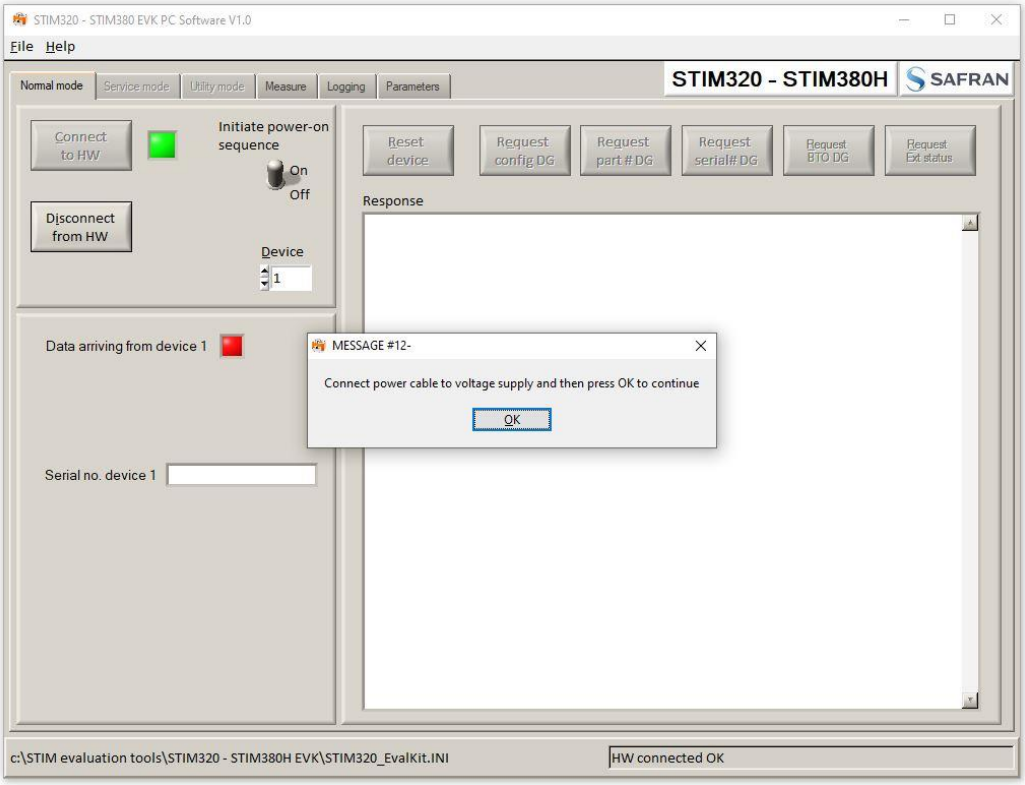


Figure 21: Confirm power supply is switched on

10. A green LED (Data arriving from device n) indicates that data is received from the IMU(s). Verify the communication to module by clicking on the 'Request serial# DG' button. An example of such a result is shown in Figure 17. The system is now ready for use.

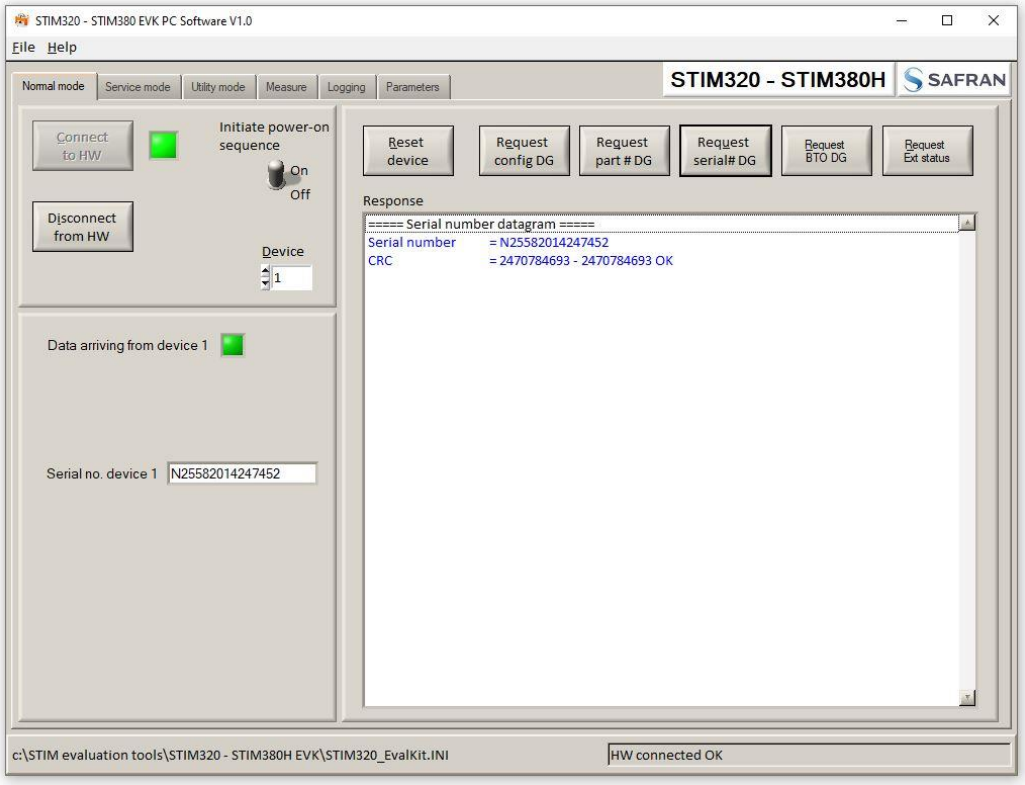


Figure 22: Example of 'Request serial# DG' response

7 Introduction to PC software

7.1 Panels overview

In addition to the Normal mode and Parameters panel, other panels are also available:

7.1.1 Service mode panel

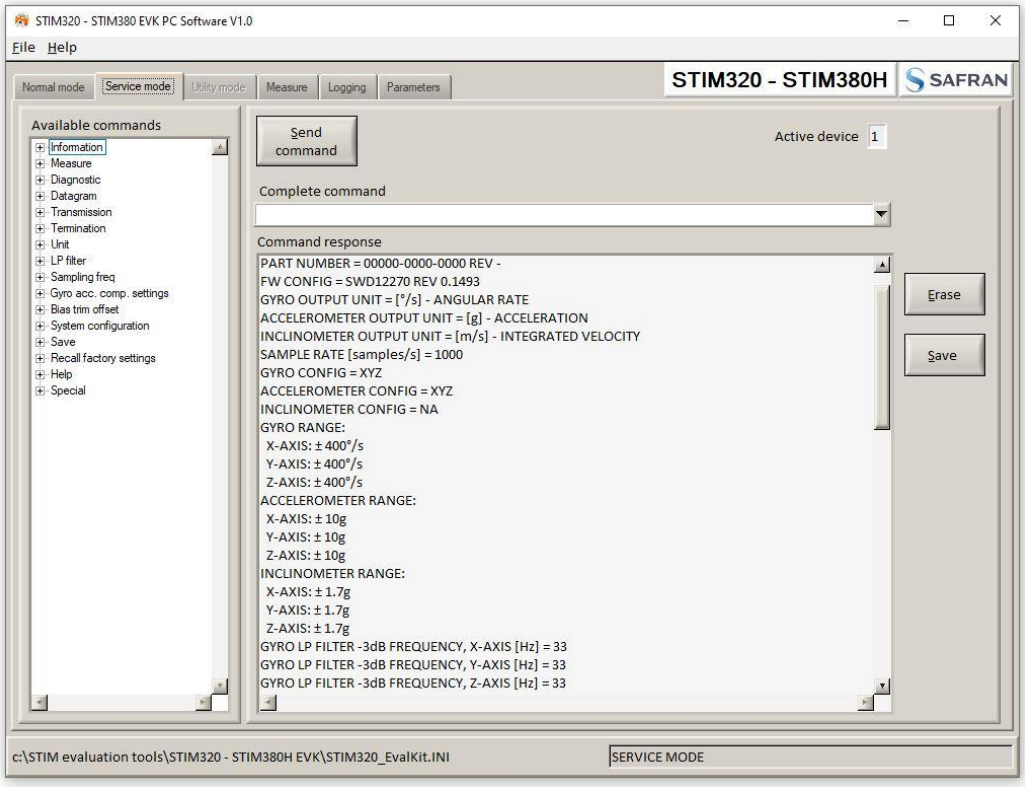


Figure 23: Service mode panel

7.1.2 Utility mode panel

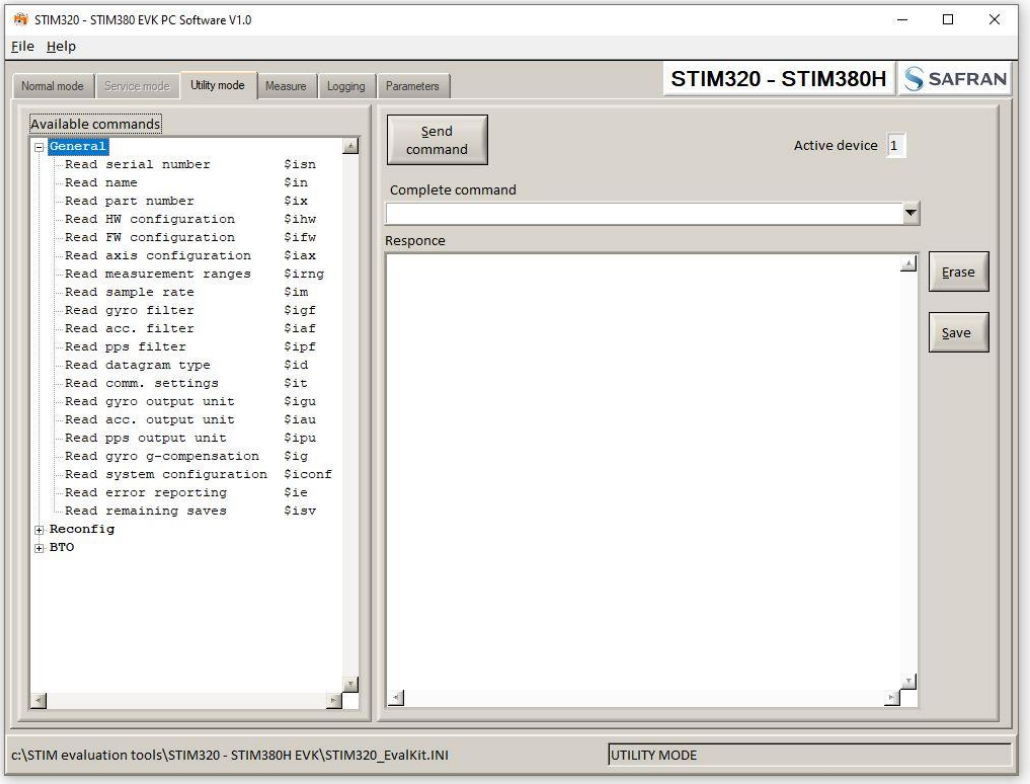


Figure 24: Utility mode panel

7.1.3 Measure panel

Figure 25: Measure panel

7.1.4 Logging panel

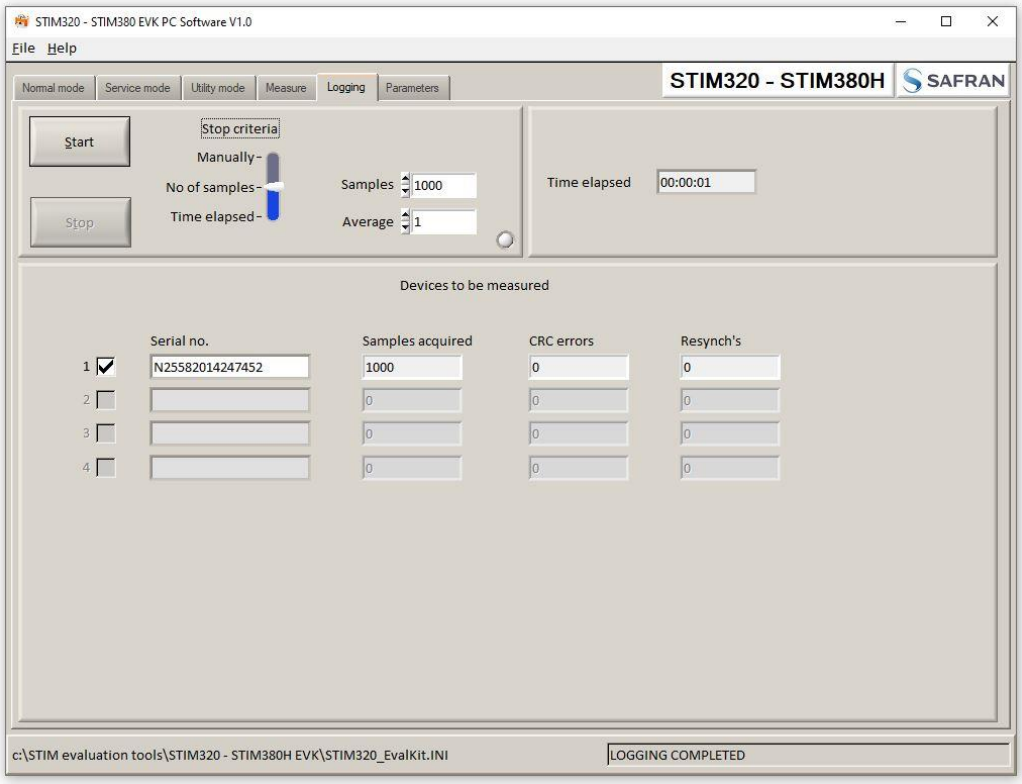


Figure 26: Logging panel (for saving data to file)

7.2 Main panel menu

Menu	Description
'File' → 'New parameter file'	Creates a new INI-file with default settings. Note that the new INI-file must be edited to match the hardware and IMU configuration settings.
'File' → 'Open parameter file'	For loading an existing INI-file
'File' → 'Save parameter file as'	To save current parameter settings with a new file name
'File' → 'Print parameters'	For printing the current 'Parameters' content on the default printer
'File' → 'Edit parameters'	Edit the 'Parameters' content
'File' → 'Exit'	Exit program
'Help' → 'Check for updates'	Opens the application support site in a web browser. New and updated Drivers, PC software and user manuals can be downloaded
'Help' → 'About'	Information about the program (Program name, publisher and software revision number)
'Help' → 'License agreement	Displays the EULA

Table 3: Menu contents

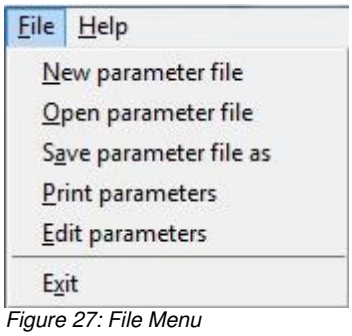


Figure 27: File Menu

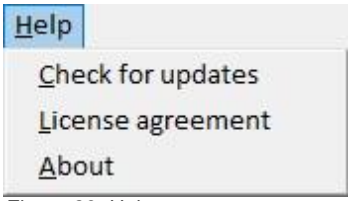


Figure 28: Help menu

7.3 Normal mode panel descriptions

Panel content	Functionality and description
Connect to HW	Connects to interface hardware. Opens COM port according to settings specified in active parameter file
LED	Indicator for hardware connection. A GREEN light indicates the COM port is opened
Disconnect from HW	Disconnects from interface hardware. Closes the COM port
Apply voltage switch (On/Off)	Toggles supply voltage if connected to an external power supply. Controls certain functions of the PC software.
Device box	Device number (and corresponding COM port) according to active parameter file. Selects which IMU is activated for datagram requests in Normal mode, Service mode operations and measurements in Measure panel. Does not apply for Logging panel.
Reset device button	Resets the IMU. Sends reset command ('R')
Request config DG button	Sends command ('C') to receive configuration datagram
Request identity DG button	Sends command ('N') to receive part number datagram
Request serial# DG button	Sends command ('I') to receive serial number datagram
Request Ext status button	Sends command ('E') to receive extended error information datagram
Response window	Displays response to special datagram requests ('C', 'N' and 'I' datagrams)

Table 4: Normal mode panel descriptions

7.4 Service mode panel descriptions

Service mode is used for IMU configuration.

Service mode is entered by clicking on the Service mode tab next to the Normal mode tab after the IMU has been powered up. Service mode usage, functionalities and descriptions are listed in *Table 5*. Exit from Service mode to Normal mode by selecting one of the other panel tabs (Normal, Logging, Service or Parameter panel tab).

Note: Changes made for the IMU in Service mode are only stored permanently in flash memory when the save command ('s') subsequently is sent to the IMU.

Panel content	Functionality and description
Available commands window	Shows a list of available commands. See product datasheet for details
Complete command window	Contains the complete command to be sent. The command is auto-completed by the software during usage of the listings in the Available commands window. Left click inside the Complete command window brings up a list of previously sent commands. Right click enables manual command entry
Send command button	Sends command to the IMU
Active device indicator	Indicates active IMU. Corresponding COM port is specified in the active parameter file
Command response window	Shows the responses to commands from the IMU. See product datasheet for details
Erase button	Clears the content of the command response window
Save button	Saves the content of the command response window to a text file with a date and time tag

Table 5: Service mode panel descriptions

7.5 Utility mode panel descriptions

Utility mode is used for configuration and communication with the STIM320/STIM380H through a machine-to-machine interface.

Utility mode is entered by clicking on the Utility mode tab after the IMU has been powered up. Utility mode usage, functionalities and descriptions are listed in *Table **6***. Exit from Utility mode by selecting any available panel tab.

Note: Changes made to the IMU in Utility mode are permanently only when the settings are saved to flash memory.

Panel content	Functionality and description
Available commands window	Shows a list of available commands. See product datasheet for details
Complete command window	Contains the complete command to be sent. The command is auto-completed by the software during usage of the listings in the Available commands window. Left click inside the Complete command window brings up a list of previously sent commands. Right click enables manual command entry
Send command button	Sends command to the IMU
Command response window	Shows the responses to commands from the IMU. See product datasheet for details
Erase button	Clears the content of the command response window
Save button	Saves the content of the command response window to a text file with a date and time tag

Table 6: Utility mode panel descriptions

7.6 Measure panel descriptions

Panel content	Functionality and description
Measure button	Starts a measurement series
Samples box	Defines the number of samples to be collected (max 50 MS)
Save to file button	Saves data from a completed measurement series to a result file. The file path defined in the active parameter file is proposed
X-, Y- and Z-axis check boxes	Selects which axis data to present in the graph area (up to 3 axes can be plotted simultaneously)

Relative and absolute toggle switch	When set to 'Absolute', all results are plotted as received. When set to 'Relative' the curves are translated so that the first measurement is shown in the plot as zero.
Active device indicator	Indicates active IMU. Corresponding COM port is specified in the active parameter file
CRC and DG-ID LEDS	Status on all CRC checks and DG-IDs. GREEN = OK, RED = FAIL
Data box	Selects which datagram content to be shown. Several options are available, depending on the active datagram type. Left click inside box to display available selections. The plot updates immediately if a measurement series has been done.
Scale box	Enables user to change Y-axis scaling (Full range, User defined, or Auto). Left click inside box to display available selections
Sample rate box	Displays the sample rate used in measurement
Unit box	Displays the output unit for all measurements (Angular Rate, Incremental Angle, etc.)
DG type box	Displays the type of datagram received
Save to disk icon	Saves the plot to a .JPG file
Print icon	Prints a picture of the plot to the default printer
1:1 icon	Resets zoom level to 1:1 (if ZOOM is active. See below)
Zoom icon	Enables a custom zoom of the presented results in the strip chart (graph area) according to placement of the cursors
Cursors (On/Off) switch	Enables usage of cursors (default is Off)
Cursor 1	Shows the location of cursor no 1
Cursor 2	Shows the location of cursor no 2
Delta	Shows the delta between the two cursor locations (X and Y values)
Progress bar	A blue continuous line above plot area shows the measurement series progress
Lower bar on panel	Shows the INI-file in use and the active mode (INTERACTIVE MEASUREMENTS)

Table 7: Measure panel description

Saved data:
An example of a result file is shown in *Figure **29***, for a standard datagram measurement series of IMU # 1. A description of each of the columns of the data log file is found in the table that follows.

N25582118273887_20211217_141948_1.txt - Notepad

File Edit Format View Help

```
==============================================
Serial no       N25582118273887
Sample rate     1000
Gyro unit       0
Gyro BW X       33
Gyro BW Y       33
Gyro BW Z       33
Gyro range X    0
Gyro range Y    0
Gyro range Z    0
Averages        1
==============================================
```

DG_#	GYRO_X	GYRO_Y	GYRO_Z	GyroSts	Counter	Latency	RxCRC	CalCRC	DG_ID	Device_ID			
1	-0.0276489	-0.0139771	0.0252075		0		0	117	500	2794491697	2794491697	213	2
2	-0.0280151	-0.0112915	0.0231323		0		0	119	500	1084588729	1084588729	213	2
3	-0.0288086	-0.0087891	0.0188599		0		0	121	500	2368679544	2368679544	213	2
4	-0.0299072	-0.0073853	0.0122070		0		0	123	500	2309399620	2309399620	213	2
5	-0.0308228	-0.0064697	0.0049438		0		0	125	500	175518745	175518745	213	2
6	-0.0316772	-0.0059814	-0.0014038		0		0	127	500	1841377271	1841377271	213	2
7	-0.0317383	-0.0057983	-0.0065918		0		0	129	500	3900225079	3900225079	213	2
8	-0.0307007	-0.0059814	-0.0100098		0		0	131	500	1027781297	1027781297	213	2
9	-0.0293579	-0.0057983	-0.0112305		0		0	133	500	957878464	957878464	213	2
10	-0.0284424	-0.0054321	-0.0129395		0		0	135	500	4070629902	4070629902	213	2
11	-0.0274658	-0.0058594	-0.0130615		0		0	137	500	968519156	968519156	213	2
12	-0.0264282	-0.0059814	-0.0110474		0		0	139	500	3665712327	3665712327	213	2
13	-0.0260010	-0.0056763	-0.0083618		0		0	141	500	2811358454	2811358454	213	2
14	-0.0276489	-0.0060425	-0.0061035		0		0	143	500	1368144494	1368144494	213	2
15	-0.0314941	-0.0066528	-0.0052490		0		0	145	499	2730757076	2730757076	213	2
16	-0.0361328	-0.0068970	-0.0062256		0		0	147	500	2101461295	2101461295	213	2
17	-0.0406494	-0.0076294	-0.0099487		0		0	149	499	2514968430	2514968430	213	2
18	-0.0445557	-0.0093994	-0.0141602		0		0	151	500	3836829137	3836829137	213	2
19	-0.0480347	-0.0115356	-0.0202637		0		0	153	499	181230090	181230090	213	2
20	-0.0508423	-0.0140991	-0.0285645		0		0	155	500	3590030129	3590030129	213	2
21	-0.0528564	-0.0166016	-0.0377808		0		0	157	499	3704369909	3704369909	213	2
22	-0.0521240	-0.0175171	-0.0475464		0		0	159	500	3567647535	3567647535	213	2
23	-0.0487671	-0.0178223	-0.0577393		0		0	161	499	394001628	394001628	213	2
24	-0.0451660	-0.0175171	-0.0673828		0		0	163	500	2352841712	2352841712	213	2
25	-0.0413818	-0.0161743	-0.0747070		0		0	165	499	3541926785	3541926785	213	2
26	-0.0374756	-0.0137939	-0.0803833		0		0	167	500	1204092159	1204092159	213	2
27	-0.0332031	-0.0110474	-0.0836182		0		0	169	499	4022435442	4022435442	213	2
28	-0.0294189	-0.0083008	-0.0844116		0		0	171	500	2228580671	2228580671	213	2
29	-0.0260010	-0.0065918	-0.0839233		0		0	173	499	1791856098	1791856098	213	2
30	-0.0241089	-0.0067749	-0.0819092		0		0	175	500	3038852687	3038852687	213	2
31	-0.0233154	-0.0085449	-0.0771484		0		0	177	500	4244002256	4244002256	213	2
32	-0.0221558	-0.0122070	-0.0706787		0		0	179	500	1434643488	1434643488	213	2
33	-0.0206909	-0.0167236	-0.0644531		0		0	181	500	3382349220	3382349220	213	2
34	-0.0194092	-0.0211182	-0.0589600		0		0	183	500	1904104271	1904104271	213	2
35	-0.0194702	-0.0247192	-0.0545044		0		0	185	500	3825140376	3825140376	213	2
36	-0.0198364	-0.0280151	-0.0512085		0		0	187	500	4109761426	4109761426	213	2
37	-0.0200195	-0.0301514	-0.0482788		0		0	189	500	3184408615	3184408615	213	2
38	-0.0206299	-0.0303955	-0.0463257		0		0	191	500	1871787402	1871787402	213	2
39	-0.0222778	-0.0284424	-0.0468140		0		0	193	500	3583527343	3583527343	213	2
40	-0.0259399	-0.0238647	-0.0501099		0		0	195	500	46906421	46906421	213	2
41	-0.0316772	-0.0184937	-0.0552979		0		0	197	500	1904633966	1904633966	213	2
42	-0.0381470	-0.0131226	-0.0620728		0		0	199	499	35756995	35756995	213	2
43	-0.0441895	-0.0081177	-0.0704346		0		0	201	500	2969892746	2969892746	213	2
44	-0.0493774	-0.0024414	-0.0803833		0		0	203	500	1239119086	1239119086	213	2
45	-0.0542603	0.0033569	-0.0916748		0		0	205	500	3511756738	3511756738	213	2
46	-0.0568848	0.0081787	-0.1043091		0		0	207	500	4134717009	4134717009	213	2
47	-0.0563965	0.0115967	-0.1168213		0		0	209	500	3678126905	3678126905	213	2

Figure 29: Result file example, Rate only datagram

DG-type	Col. #	Heading	Comments
Standard	1	DG_#	Index of datagram
	2	GYRO_X	Gyro signal X-axis
	3	GYRO_Y	Gyro signal Y-axis
	4	GYRO_Z	Gyro signal Z-axis
	5	GYRO_STS	Status-byte for gyro
	6	GYRO_TMP_X	Temperature, X-axis gyro
	7	GYRO_TMP_Y	Temperature, Y-axis gyro
	8	GYRO_TMP_Z	Temperature, Z-axis gyro
	9	GYRO_TMP_STS	Gyro temperature status
	10	ACC_X	Accelerometer signal X-axis
	11	ACC_Y	Accelerometer signal Y-axis
	12	ACC_Z	Accelerometer signal Z-axis
	13	ACC_STS	Status-byte for accelerometer
	14	ACC_TMP_X	Temperature, X-axis accelerometer
	15	ACC_TMP_Y	Temperature, Y-axis accelerometer
	16	ACC_TMP_Z	Temperature, Z-axis accelerometer
	17	ACC_TMP_STS	Accelerometer temperature status
	18	PPS	“Time since detection” or “PPS filtered”. See product datasheet for details
	19	PPS_STS	PPS status
	20	Counter	Sample counter. See product datasheet for details
	21	Latency	Sample latency. See product datasheet for details
	22	RxCRC	Received CRC
	23	CalCRC	Calculated CRC
	24	DG_ID	Datagram identifier
	25	Device_ID	Programmed ID of IMU

Table 8: Result file content, full datagram

7.7 Logging panel descriptions

Panel content	Functionality and description
Start button	Starts data logging
Stop button	Stops data logging
Stop criteria slide	User can select between “Manually”, “No of samples” and “Time elapsed” for stopping a measurement series
Samples box	Used for defining number of samples when logging a finite number of samples
Average	Used for downsampling of data. Average value of selected number of values is logged to file
Time elapsed	Shows the time elapsed since start of test
Samples acquired	Shows number of samples acquired
CRC_errors	Shows number of CRC errors (normally 0, otherwise the user should consider to reject results data in any analysis)
Resynch’s	Increments from 0 to a number if any re-synchronisations are needed in order to re-establish data collections from module

Table 9: Logging panel descriptions

Log to file capability:

- Quad core processor is recommended when measuring on two or more IMUs simultaneously
- The size of the log file is only limited by the available space on the storage media in use
- The path for result file storage is defined in the active parameter file
- The program should be run with administrator rights to ensure the creation and storage of the result file

7.8 Parameters panel descriptions

Panel content	Functionality and description
===== General parameters =====	
Password	Current valid password to be able to edit the parameters list. The default password is “stim”
Folder for result-file storage	Path to storage (e.g. “c:\userdata\test\")
What priority will this program run with	Instructs the program priority for the PC operation system
What format to use for result files	ASCII text by default. Can be changed to 8 byte binary
Name of file with language definitions	Application can be configured with language other than English
===== Device communication ===== IMPORTANT MESSAGE: Always verify hardware connections and COM port settings before trying to connect to the device	
RS422 port # to device 1	Defining which COM port # to assigned to IMU # 1
RS422 port # to device 2	Defining which COM port # to assigned to IMU # 2
RS422 port # to device 3	Defining which COM port # to assigned to IMU # 3
RS422 port # to device 4	Defining which COM port # to assigned to IMU # 4
RS422 Bitrate [bit/s]	RS422 bit rate selection
RS422 Stopbit	1 or 2. Default is “1”
RS422 parity	None, odd or even. Default is “None”
===== External Hardware =====	
The GPIB-card # to use	Interface for external power supply (optional). If card(s) are in use; the first card will be assigned to #0, second to #1, etc. Default value is “0”
Type of power supply used	External power supply (optional). Default "None" (not in use). Agilent E3631A, E3633A and E3644A are supported
Interface that the power is connected with	Interface type for external power supply (optional). Default "None" (not in use). RS232 (for Agilent E3631A only) and GPIB supported

Port or address to power	GPIB port for external power supply (optional). Default "0" (not in use). Selectable up to 31
Voltage on output of power supply [V]	Voltage output on external power supply (optional). Default value is 5.1 V. Value should be within the supply voltage range of the IMU. See product datasheet for details
Current limit on output of power [A]	Current limitation on external power supply (optional). Default value is 1.0 A

Table 10: Parameters panel descriptions

7.8.1 Binary file description

The binary file's first 2101 bytes is the header. The header is defined as:

- The first byte is stating the number of 'columns' in the file (n columns)
- The next 100 bytes is defining the data-type for each 'column' (only the first n values are set). Currently these numbers are all 0x05, meaning 8-byte floating point (double)
- The remaining header bytes are 100 20-byte strings with the header name for each 'column' (only the first n values are set)

After the header follows the data measurement result values, stored as 8-byte floating point values (double) in groups of n results.

7.9 Messages from the program

Messages that the program can display are listed in *Table 11*:

#	Message	Description
1	This application is already running! Stop loading of 2.instance...	The program is already started, a second instance will not be allowed
2	Wrong password entered!	The password entered does not match the required one for this INI-file
3	No response to message was received	Did not receive the expected response to the sent service-mode command
4	There is no measurement data available for storage	To be able to save measurement data, there must be data available
5	Unable to open the selected file	Saving of measurement data failed, unable to open or create the selected file
6	Unable to allocate the required memory	Failed to acquire the requested number of datagrams from the IMU due to error when trying to allocate memory for temporary storage
7	No product identification datagram received	Even after retries the, expected datagram is not received as response to command sent
8	No configuration datagram received	Even after retries the, expected datagram is not received as response to command sent
9	No serial number datagram received	Even after reties the, expected datagram is not received as response to command sent
10	No datagrams received	Failed to acquire the requested number of datagrams from the IMU, no recognizable datagrams received
11	Turn off device supply voltage	Instruction to user when running without controlled power-supply
12	Turn on device supply voltage	Instruction to user when running without controlled power-supply
13	Error encountered when trying to control voltage	Power on sequence failed. Note that for the software to be able to read the special datagrams on power-on, the power supply must be applied exactly when instructed as described in previous chapters
14	Unexpected DG-ID received !	When waiting for datagrams, unexpected datagrams are received
15	Unable to read config DG to determine output unit !	Unable to read configuration datagram to determine the output unit

16	Unable to synch with DG-stream !	Failed to acquire the requested number of datagrams from the IMU, unable to get in synch with datagram stream
17	Error encountered when trying to print, check configuration !	Failed to print the graph, check that a printer is configured
18	Unable to create result-folder specified by parameter !	The specified pathname cannot be created, either due to access-rights or errors in the path specification
19	Unable to enter service-mode !	Unable to enter service-mode, does not receive expected response to command.
20	Unable to save parameters to active INI-file !	Error encountered when trying to save parameters onto INI-file
21	Edit-mode of parameters is active, unable to exit !	The edit-mode of parameters are active, unable to exit the program until edit mode is ended
22	You are about to change the RS422 bit rate. If are you using the USB kit hardware provided, please notice that you will not be able to communicate with the device if you change to something else than supported 460800 b/s! For the PCI card there are no worries - it supports all available bit rates	A warning to the user about limitations for certain RS422 hardware
23	Unable to create/save to selected file, check access rights to folder	Unable to open or create the specified file in the selected folder, try another filename and/or location. The reason may be lacking access rights to the folder, or illegal filename format
24	Unsupported datagram received	When trying to read datagrams into memory a datagram type not supported by the EVK is detected

Table 11: Possible messages given by the program

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