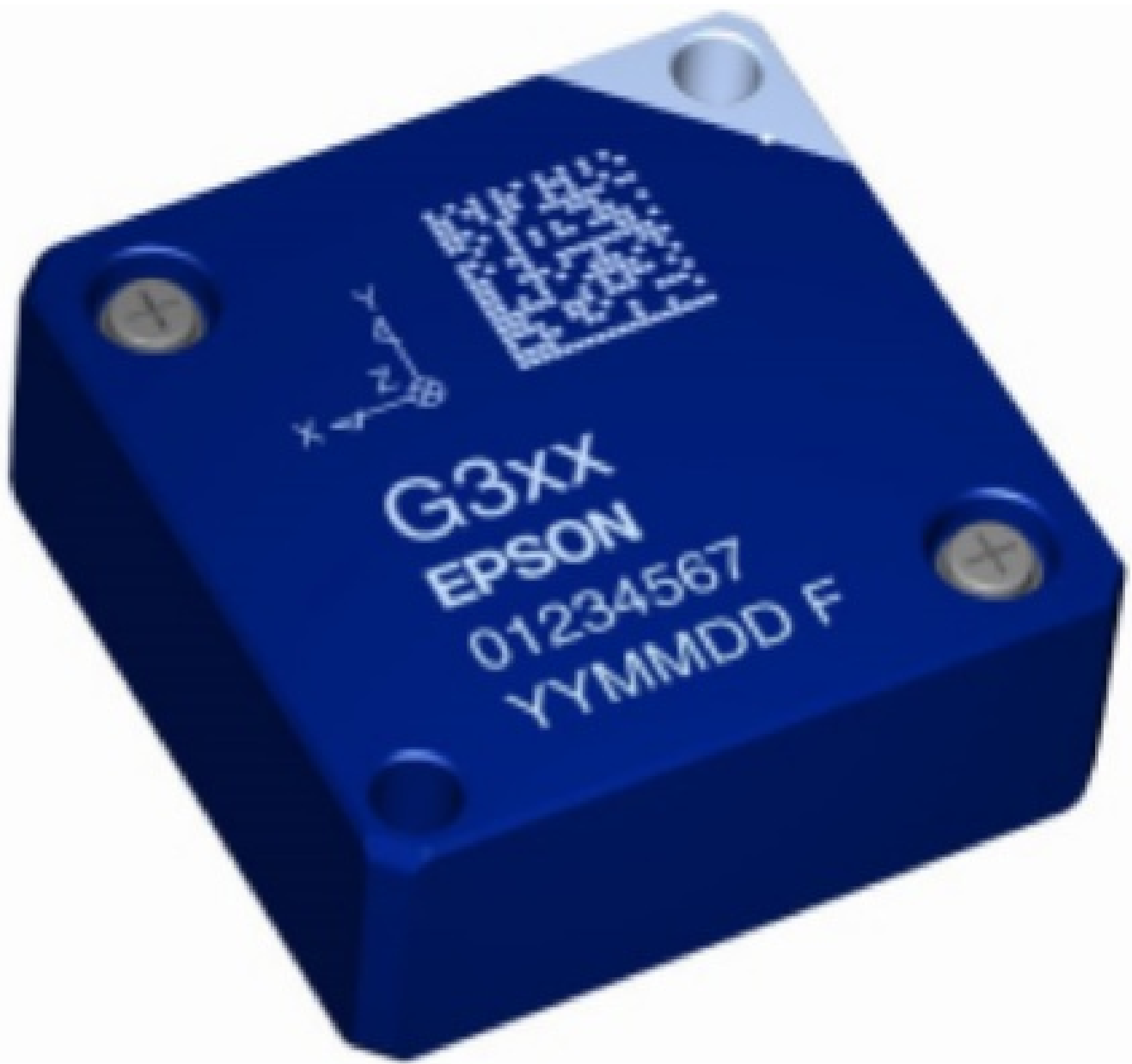


EPSON M-G3XX IMU/USB Interface Board User Guide

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EPSON M-G3XX IMU/USB Interface Board



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Overview

The IMU logger software ("Software") is an easy-to-use software tool running on the Windows PC designed to collect data measured on the Inertial Measurement Unit (IMU) together with the USB Interface Board from Seiko Epson. The Software is offered as a loan to the customers who want to use or evaluate the IMU from Seiko EPSON. The Software supports maximum of 6 IMUs of the same model type for the measurement. Please do not launch multiple instances of the Software on the same PC. For information about how to install the Software, see Chapter 2. For information about how to use the Software, see Chapter 3.

IMU list for which this software can be used

V340PDD0
G320PDG0
G364PDC0
G364PDCA
G354PDH0
G365PDC0/C1 ^{*1}
G365PDF0/F1 ^{*2}
G370PDF0/F1 ^{*3}
G370PDS0
G325PDF0/F1 ^{*4}

*1 G365PDC0/C1 is written as G365PDC in this document

*2 G365PDF0/F1 is written as G365PDF in this document

*3 G370PDF0/F1 is written as G370PDF in this document

*4 G325PDC0/C1 is written as G325PDC in this document

Preparation

Requirement

System Requirement

This sub-section describes the system requirement of the Software.

An IBM PC/AT compatible computer. The Software supports Windows 10 (64bit Edition). Other system environments are not tested by Seiko Epson. The required specifications for the IBM PC/AT compatible computer are as follows.

Supported OS		Windows 10 (64bit)
CPU	Recommended	2.0GHz Over
RAM	Recommended	2.0GB Over

Other Required Software

- The Software requires the Microsoft .Net Framework 4.8 runtime. Download and install the Microsoft .Net

Framework 4.8 runtime. Follow the Microsoft End-User License Agreement when the .Net Framework 4.8 runtime is installed and used.

- When the USB Interface board is connected to the PC, the USB driver software from FTDI is required. For information about the installation, see 2.2 Preparing to use the Software (2). Follow the terms of use provided by FTDI, when using the USB driver from FTDI.

Preparing to Use the Software

1. Fix the IMU on and connect the IMU to the USB Interface Board and then connect a USB cable between the USB Interface Board and the PC.
2. If the driver software (USB Serial Converter, USB Serial Port (COMx)) is requested when the USB Interface board is connected, install the driver using either of the following two methods.
 - Update the driver via Windows Device Manager. (Automatic Update over the Internet is recommended.)
 - Access the FTDI website (<http://www.ftdichip.com/Drivers/VCP.htm>) and download the appropriate driver for the OS you are using.
3. If the display update of the Software is sluggish, go to Device Manager > USB Serial Port (COMx) > Port Settings > Advanced, and change the setting of the Latency Time (msec) in BM Options from "16" (default) to "1". This may improve the situation.

Installing / Uninstalling the Software

Decompress the Software package under any folder and just double-click the executable file (Imulogger.exe) to start the Software. To uninstall the Software, delete the whole decompressed folder. (Registry settings are not used.)

Using the Software

This chapter describes basics of using the Software.

Starting the Software

Start the executable file of the Software (ImuLogger.exe). * When this software is started for the first time or the IMU model is changed, restart the software after setting "3.2.1 Serial port setting".

Example of Main Screen when the attitude angle output is not supported with IMU model.

IMU Logger

IMU Logger Software
Version : 3.2

EPSON

Main

Setup

Logging Status

Start Time : 0

Elapsed Time : 0

Samples : 0

Sampling Control ☒ Save Log

Start

Show Gyro Graph

Show Accel Graph

Logging Data

IMU Display Select : IMU1

Gyro

Gx DEC rad/s

Gy DEC rad/s

Gz DEC rad/s

Accel

Ax DEC m/s²

Ay DEC m/s²

Az DEC m/s²

Total
 $\sqrt{Ax^2 + Ay^2 + Az^2}$ m/s²

Temperature — (not guaranteed)

DEC deg C deg F

IMU Setting

Data Output Rate(Sps) : 1000

Filter TAP : TAP2(Moving-Ave.)

G364PDC0

Gyro Scale Factor(rad/s/LSB) : 0.00013090

Accel Scale Factor(m/s²/LSB) : 0.00122583

Gyro Range(rad/s) : 3.49065850

Accel Range(m/s²) : 29.41995000

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Exit

Example of Main Screen when the attitude angle output is supported with IMU model.

IMU Logger

EPSON IMU Logger Software Version : 3.2

Main Setup

Logging Status

Start Time : 15:15:31.8

Elapsed Time : 0.00:00:01.5

Samples : 754

Sampling Control ☒ Save Log

Start

Show Gyro Graph Show Accl Graph Show Attitude Graph

Logging Data IMU Display Select : IMU1

Gyro

Gx 1 DEC 0.0152 dps

Gy 1 DEC 0.0152 dps

Gz 0 DEC 0.0000 dps

Accl

Ax 25 DEC 10.0000 mG

Ay -35 DEC -14.0000 mG

Az -2499 DEC -999.6000 mG

Total $\sqrt{Ax^2 + Ay^2 + Az^2}$ 999.7480 mG

Temperature (not guaranteed)

2255 DEC 26.44 deg C 79.59 deg F

Attitude

Roll -121 DEC -0.8463 deg

Pitch -25643 DEC -179.3501 deg


Yaw 25735 DEC 179.9935 deg

IMU Setting

Data Output Rate(Sps) : 500

Filter TAP : TAP64(Fc100-Kaiser8)

G365PDF0



Gyro Scale Factor(dps/LSB) : 0.0151515

Accl Scale Factor(mG/LSB) : 0.4

Gyro Range(dps) : 450

Accl Range(mG) : 10000

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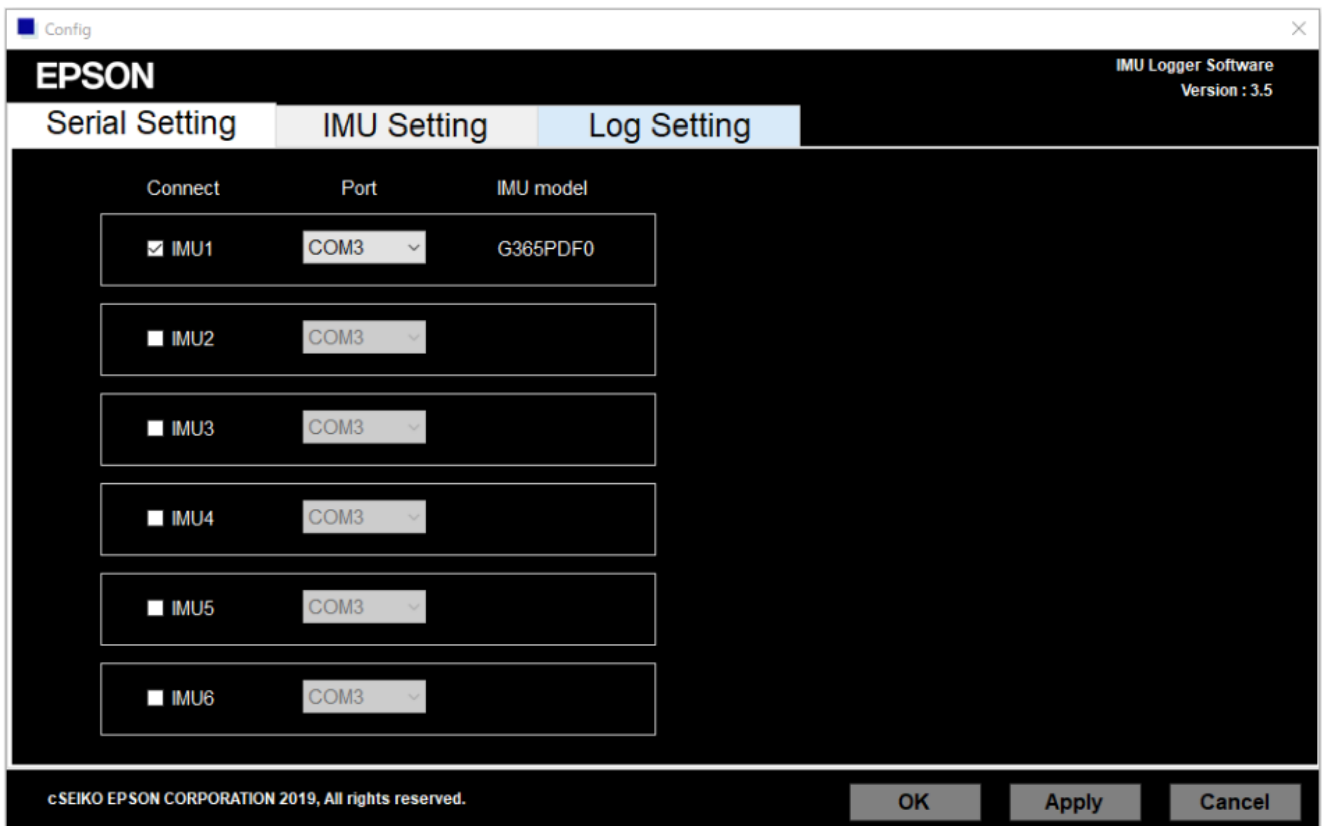
Exit

Setting

Start the executable file of the Software (ImuLogger.exe). Click the "Setup" tab in the upper part of the window and click the "Config" button to open the setup window. The setup window has three tabs: one for Serial Port settings, one for IMU settings, and one for Log settings. Click the "OK" to activate the settings and close the window.

Serial Port Settings

1. Configure the "Connect" to control the connection to each IMU. When the IMU is "checked", the connection is enabled.
2. Configure the "Port". Check the available port number for USB Serial Port (COMx) in the Device Manager. Baud rate setting is fixed at 460800 baud.
3. The model number of the connected IMU is displayed in "IMU model".
4. After changing the Serial Port settings, restart the Software. After restarting, the settings will become effective.



IMU Settings

1. In "Data Output Rate (Sps)", specify the data output rate for the IMU. Select from the following options. (Sps: Samples / sec) – V340PDD 15.625, 31.25, 62.5, 125, 250, 500, 1000 (Sps) – Other Models 15.625, 20, 25, 31.25, 40, 62.5, 80, 100, 125, 200, 250, 400, 500, 1000, 2000 (Sps)
2. In "Filter TAP Number", configure the built-in filter in the IMU. Select from the following options.

- No Filter/TAP1
- Moving Average Filter: 2, 4, 8, 16, 32, 64, 128
- Kaiser Filter (parameter=8)
Tap32, 64, 128
Fc50, 100, 200, 400Hz

* Although it is possible to specify "No Filter/TAP1", this setting is not recommended.

* Please refer to the appropriate IMU data sheet for recommended Filter TAP Number of each Data Output Rate(Sps)

* Kaiser filter is available only for G320PDG0, G364PDC0, G364PDCA, G354PDH0, G365PDC, G365PDF, G370PDF, G370PDS0, G325PDF.

* In G370 PDF1, G370PDS0, the Fc of the Kaiser filter changes depending on the Data Output Rate(Sps). The following table is displayed in "IMU Setting".

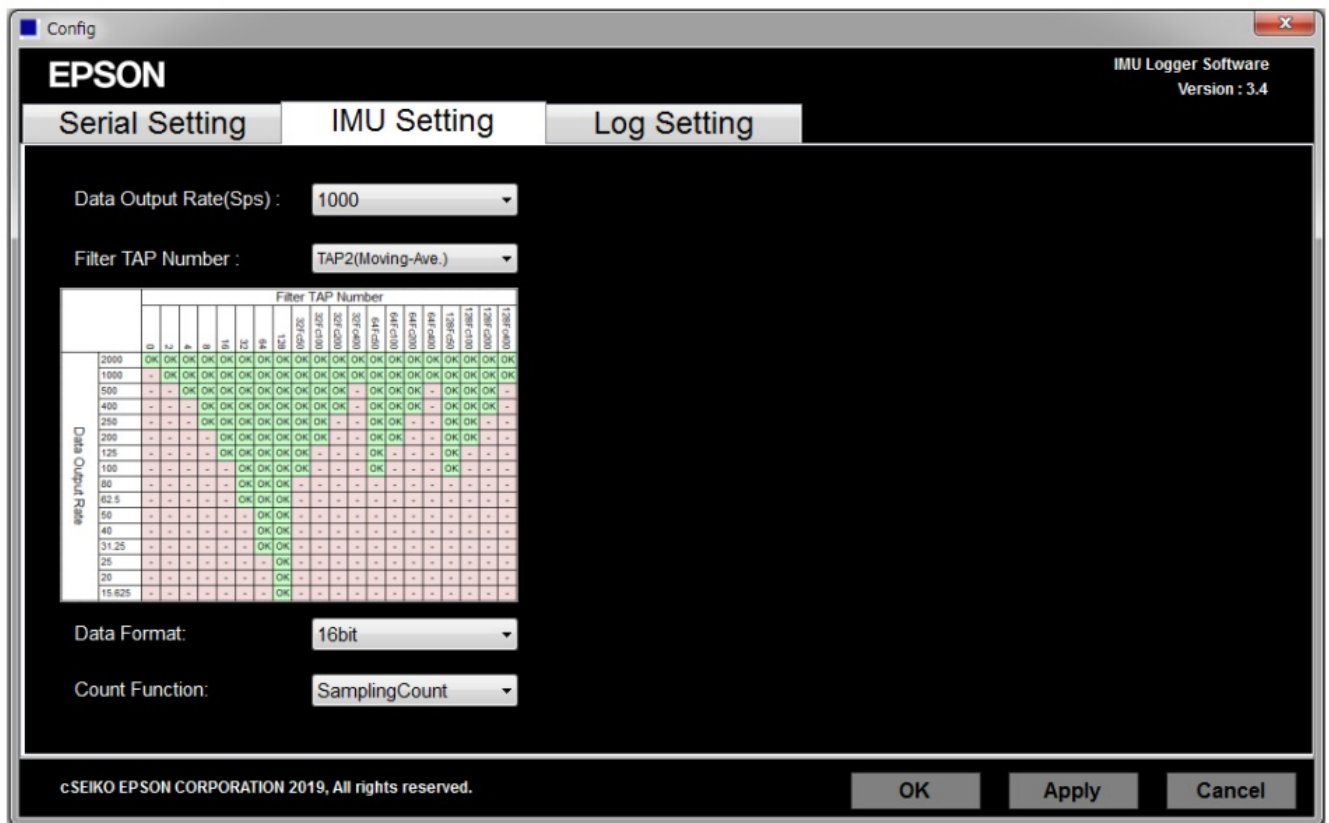
FilterSetA

		Filter TAP Number																			
		0	2	4	8	16	32	64	128	32Fc50	32Fc100	32Fc200	32Fc400	64Fc50	64Fc100	64Fc200	64Fc400	128Fc50	128Fc100	128Fc200	128Fc400
	2000	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
	400	-	-	-	OK	OK	OK	OK	OK	OK	OK	-	OK	OK	OK	-	OK	OK	OK	-	
	80	-	-	-	-	-	OK	OK	OK	-	-	-	-	-	-	-	-	-	-	-	

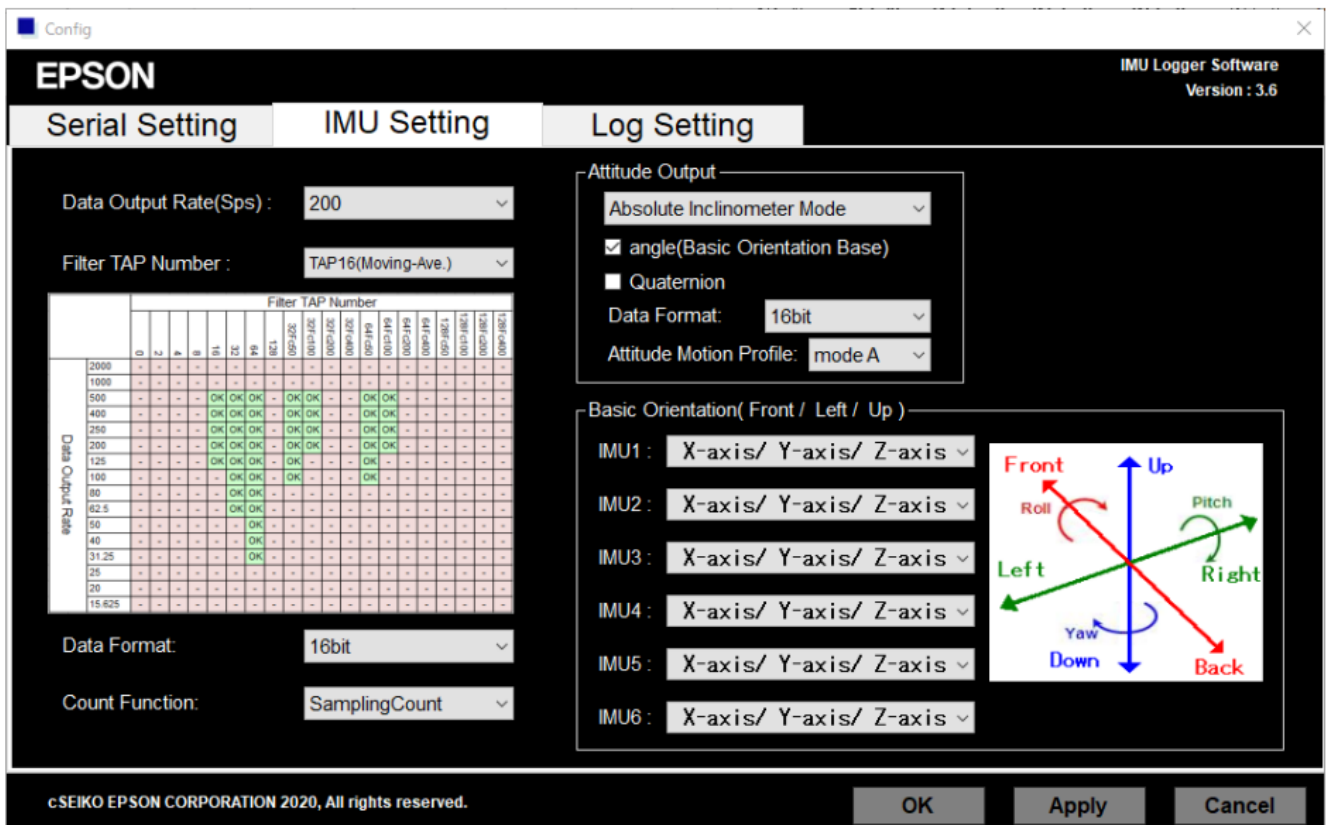
FilterSetB

		Filter TAP Number																			
		0	2	4	8	16	32	64	128	32Fc25	32Fc50	32Fc100	32Fc200	64Fc25	64Fc50	64Fc100	64Fc200	128Fc25	128Fc50	128Fc100	128Fc200
Data Output Rate	1000	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
	500	-	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
	250	-	-	OK	OK	OK	OK	OK	OK	OK	OK	-	OK	OK	OK	-	OK	OK	OK	-	-
	200	-	-	-	OK	OK	OK	OK	OK	OK	OK	-	OK	OK	OK	-	OK	OK	OK	-	-
	125	-	-	-	OK	OK	OK	OK	OK	OK	-	-	OK	OK	-	-	OK	OK	-	-	-
	100	-	-	-	-	OK	OK	OK	OK	OK	OK	-	-	OK	OK	-	-	OK	OK	-	-
	62.5	-	-	-	-	OK	OK	OK	OK	OK	-	-	-	OK	-	-	-	OK	-	-	-
	50	-	-	-	-	-	OK	OK	OK	OK	-	-	-	OK	-	-	-	OK	-	-	-
	40	-	-	-	-	-	OK	OK	OK	-	-	-	-	-	-	-	-	-	-	-	-
	31.25	-	-	-	-	-	OK	OK	OK	-	-	-	-	-	-	-	-	-	-	-	-
	25	-	-	-	-	-	-	OK	OK	-	-	-	-	-	-	-	-	-	-	-	-
	20	-	-	-	-	-	-	OK	OK	-	-	-	-	-	-	-	-	-	-	-	-
	15.625	-	-	-	-	-	-	OK	OK	-	-	-	-	-	-	-	-	-	-	-	-

- “Basic Orientation” is available only for G365PDC, G365PDF, G325PDF. When this is the case, please specify the orientation of the IMU for X, Y and Z axis.
 - In “Data Format”, specify the bit width of IMU output data. – 16bit Data – 32bit Data
 - * 32bit Data setting is only for G320PDG0, G364PDC0, G364PDCA, G354PDH0, G365PDC, G365PDF, G370PDF, G370PDS0, G325PDF.
 - * In case of 32bit Data setting, Maximum Data Output Rate (Sps) is 1,000 (Sps).
 - In “Count Function”, select SamplingCount or ResetCount.
 - The “Attitude Output” conditions are configured in “angle”. – If “angle” is checked, it becomes enabled and active – Select Output mode “Absolute Inclinator Mode” or “Euler Angle Mode” – Select “Data Format” to 16bit or 32bit for output
 - * Attitude Output is available only for G365PDC, G365PDF, G325PDF
 - If “Quaternion” is checked, it becomes enabled and active * Quaternion Output is available only for G365PDC1, G365PDF1, G325PDF1
 - In “Attitude Motion Profile”, attitude motion profile mode can be set from “mode A”, “mode B”, and “mode C”. * Attitude Motion Profile is available only for G365PDC1, G365PDF1, G325PDF1
- Screen Image for V340PDD, G320PDG0, G364PDC0, G364PDCA, G354PDH0, .



- Screen Image for G365PDC, G365PDF, G325PDF



Log Settings

1. In "Folder", specify the full path of the log folder. Click the "..." button to the right and select the log folder in the file selection dialog box.
 - * Default Log folder in the software is "C:\imu_data\"
 - * Please select the user accessible folder for the log folder.

2. In "Delimiter", specify the delimiter character.
 - Comma: Comma delimiter
 - Tab: Tab delimiter
3. In "Unit", specify the data format used when the measurement data are saved.
 - Digit: Raw data
 - Scale: Scale-adjusted data (raw data multiplied by the scale factor)

The unit of output value can be selected from the following.

Gyro the unit of output value "dps" or "rad/s"

Accl the unit of output value "mG" or "m/s2"

"Attitude the unit of output value "deg" or "rad" * only for G365PDC, G365PDF and G325PDF.

4. In "Comment", specify the comment recorded in the beginning of the log file.
5. In "CheckSum", specify the logging of communication data error checking status.
6. In "MaximumEntries", specify the maximum sample entries per CSV "split" log file.
7. In "MeasureControl", specify the automatic sampling stop condition.

Set "Enable/disable automatic sampling stop" by "Termination condition" check.

The stop condition is set by time (Time) or sampling number (Count).

* The automatic sampling stop function is automatically disabled once it is executed

The screenshot shows the 'Config' window of the 'EPSON IMU Logger Software Version : 3.2'. The 'Log Setting' tab is selected. The settings are as follows:

- Folder :** C:\imu_data\
- Delimiter :** Comma
- Unit :** Scale
 - Select Units:**
 - Gyro:** rad/s
 - Accl:** m/s2
 - Attitude:** deg
- Comment :** (Empty text box)
- CheckSum :** OFF
- MaximumEntries :** 0 samples (specify maximum entries for CSV file. Setting value 0 is unlimited.)
- MeasureControl :** ☒ Termination condition : Time 1000 seconds

At the bottom, there are 'OK', 'Apply', and 'Cancel' buttons, and a copyright notice: 'cSEIKO EPSON CORPORATION 2018, All rights reserved.'

Starting / Stopping Sampling

1. To save the measurement data to the log file, check "Save Log".
2. Click the "Start" button to start sampling.

IMU Logger

EPSON IMU Logger Software Version : 3.2

Main Setup

Logging Status

Start Time : 15:15:31.8

Elapsed Time : 0.00:00:01.5

Samples : 754

Sampling Control ☒ Save Log

Start

Show Gyro Graph

Show Accl Graph

Show Attitude Graph

Logging Data

IMU Display Select : IMU1

Gyro

Gx 1 DEC 0.0152 dps

Gy 1 DEC 0.0152 dps

Gz 0 DEC 0.0000 dps

Accl

Ax 25 DEC 10.0000 mG

Ay -35 DEC -14.0000 mG

Az -2499 DEC -999.6000 mG

Total $\sqrt{Ax^2 + Ay^2 + Az^2}$ 999.7480 mG

Temperature — (not guaranteed)

2255 DEC 26.44 deg C 79.59 deg F

Attitude

Roll -121 DEC -0.8463 deg

Pitch -25643 DEC -179.3501 deg

Yaw 25735 DEC 179.9935 deg

IMU Setting

Data Output Rate(Sps) : 500

Filter TAP : TAP64(Fc100-Kaiser8)

G365PDF0

G365 EPSON 01234567 YYMMDD F

Gyro Scale Factor(dps/LSB) : 0.0151515

Accl Scale Factor(mG/LSB) : 0.4

Gyro Range(dps) : 450

Accl Range(mG) : 10000

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Exit

- To stop sampling, click the “Stop” button.

Sampling Control ☒

Stop

Show Gyro Graph

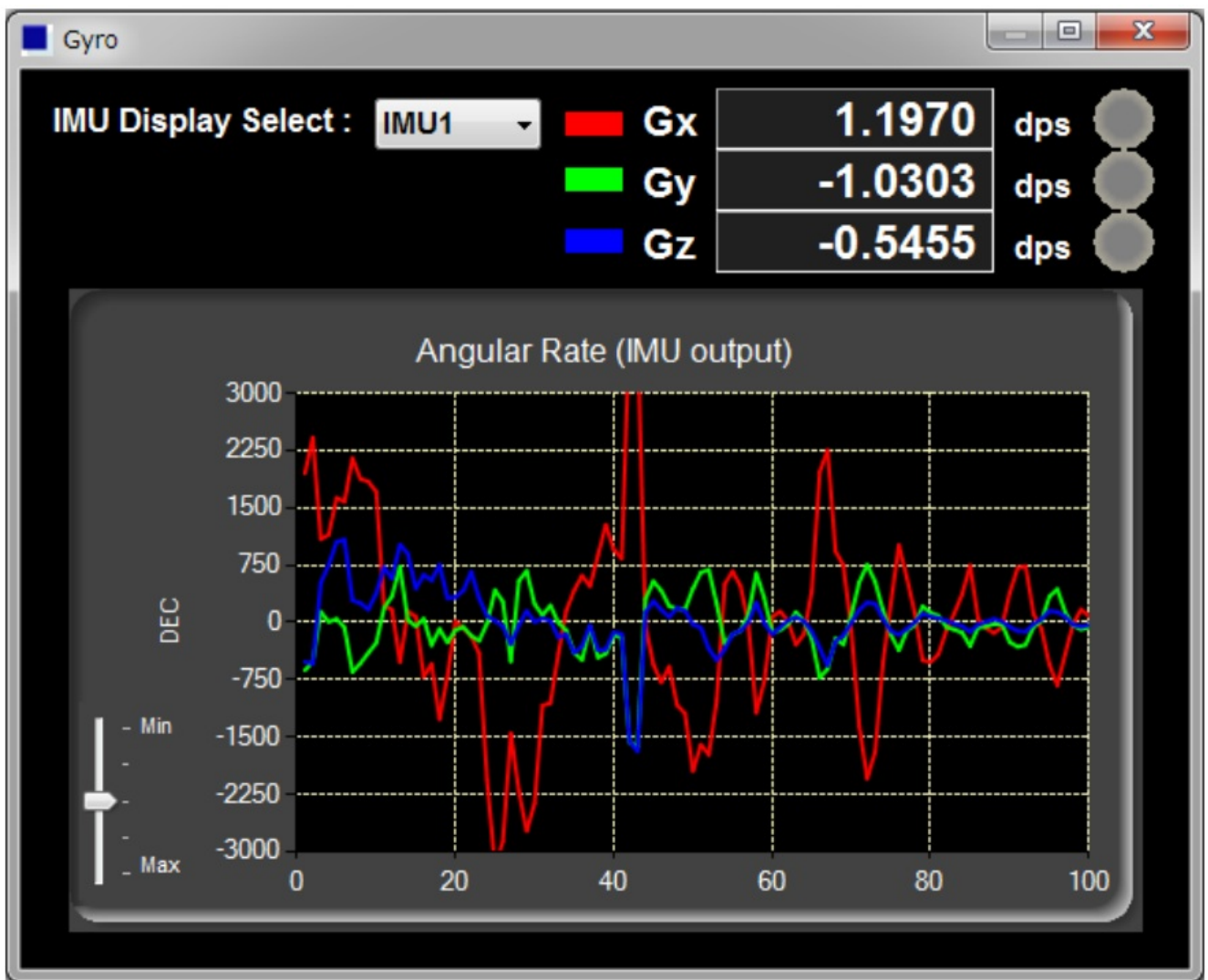
Show Accl Graph

* The automatic sampling stop function is cancelled when sampling is stopped manually.

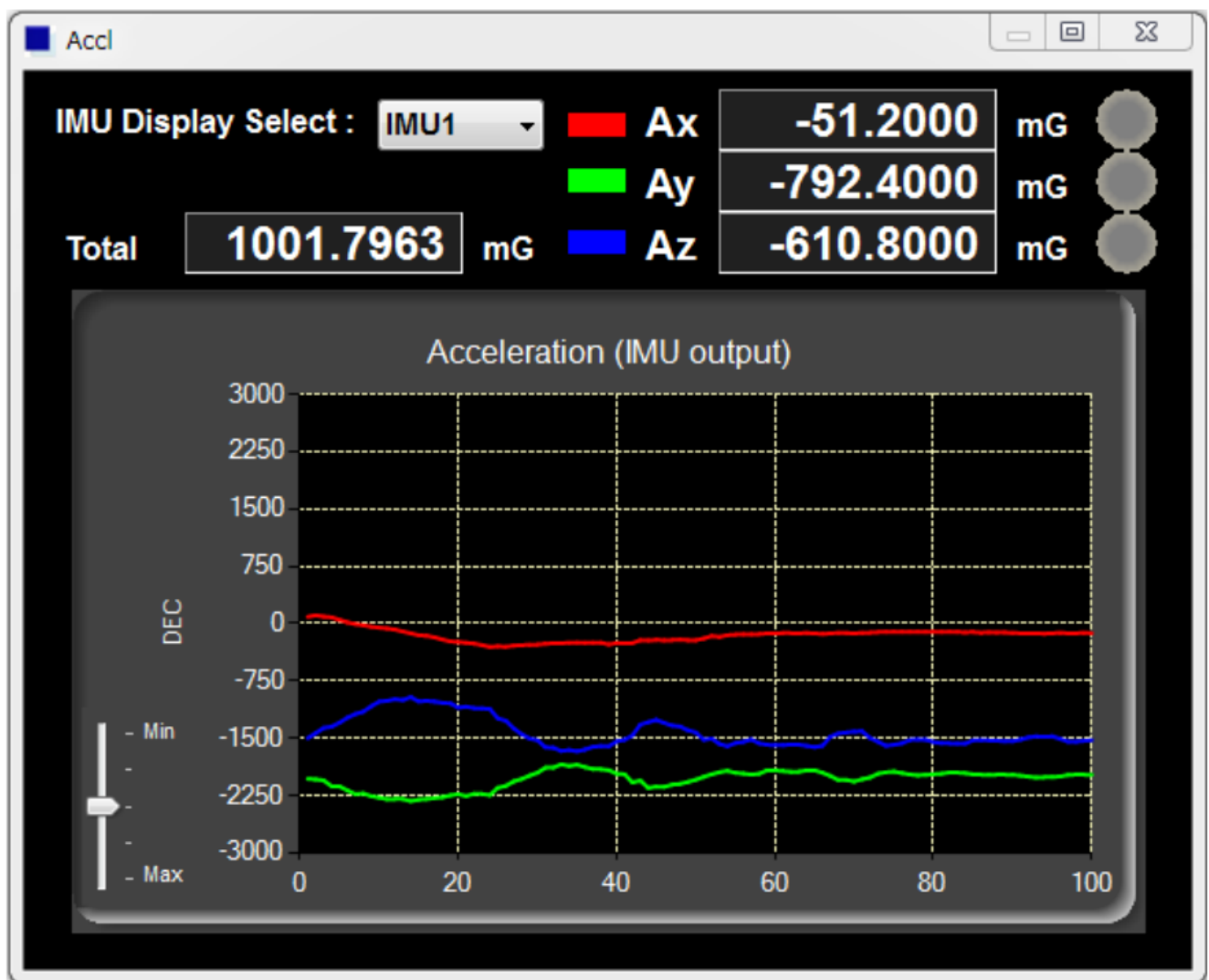
(4) The measurement data are displayed on the window. When “Show Gyro Graph” or “Show Accl Graph” buttons are clicked, the specified plot graph is displayed. On the Graph window, the measurement data are displayed as numerical values and as a line graph. In “IMU Display Select”, select the IMU to display the measurement data for. To close the Graph window, click the close button (×) at the upper right corner of the window.

Note: Displaying the Graph window requires significant processing resources from the PC. To put more priority on log output, do not show the Graph window.

- Screen Image of Gyro Graph



- Screen Image of Accl Graph.



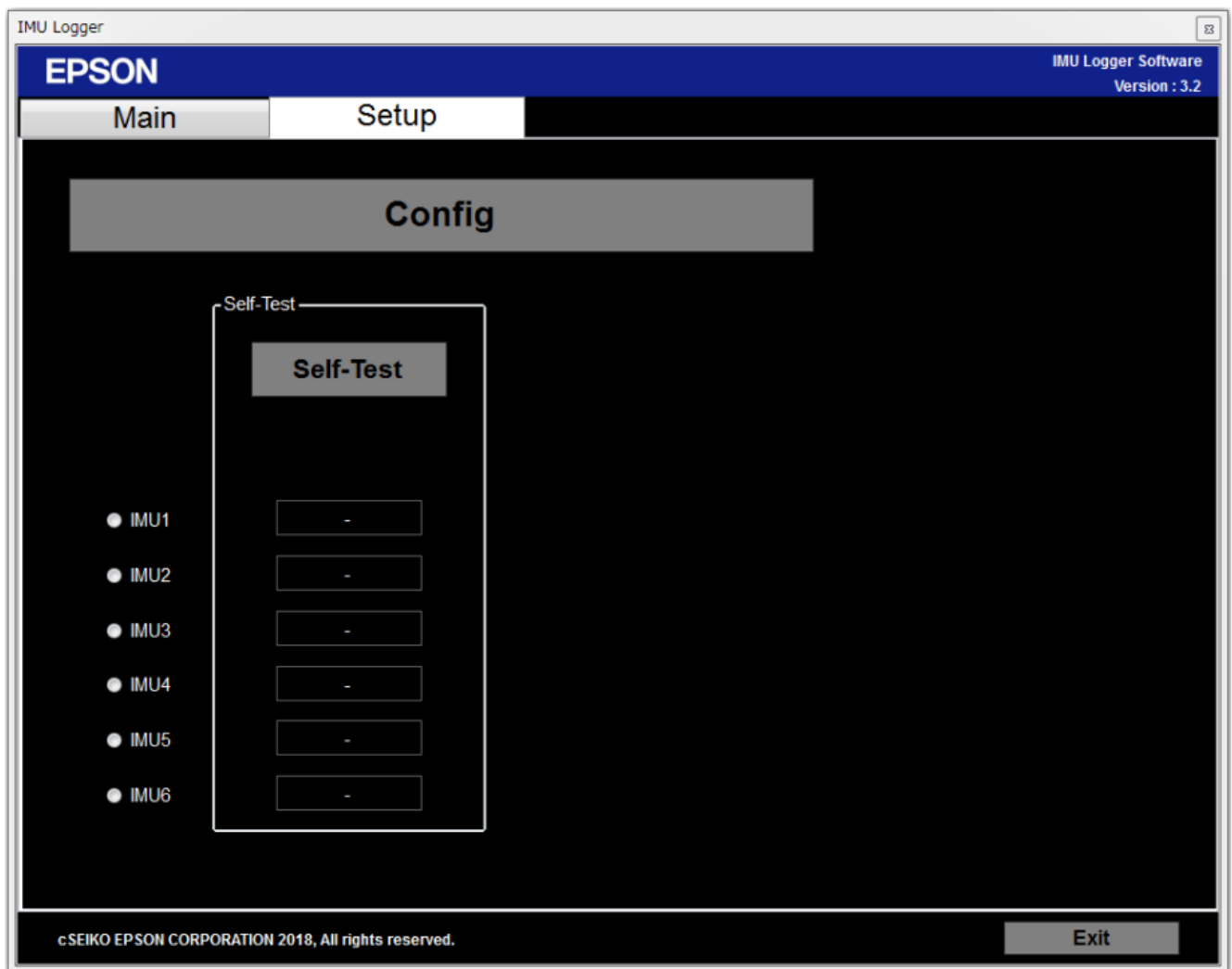
* When Overranging of a sensor axis is detected by the Software, the circle indicator located on the right side of the affected sensor axis turns RED.

* The Graph can be enlarged by using slide bar on the right side of Graph.

Self Test

To execute the self test, first click the "Setup" tab to allow access to the Self Test button. The self test is executed on all the IMUs checked "Connect" in the Serial Port settings.

- Click the "Self-Test" to execute the self-test. The result will be displayed as either "OK" or "NG".

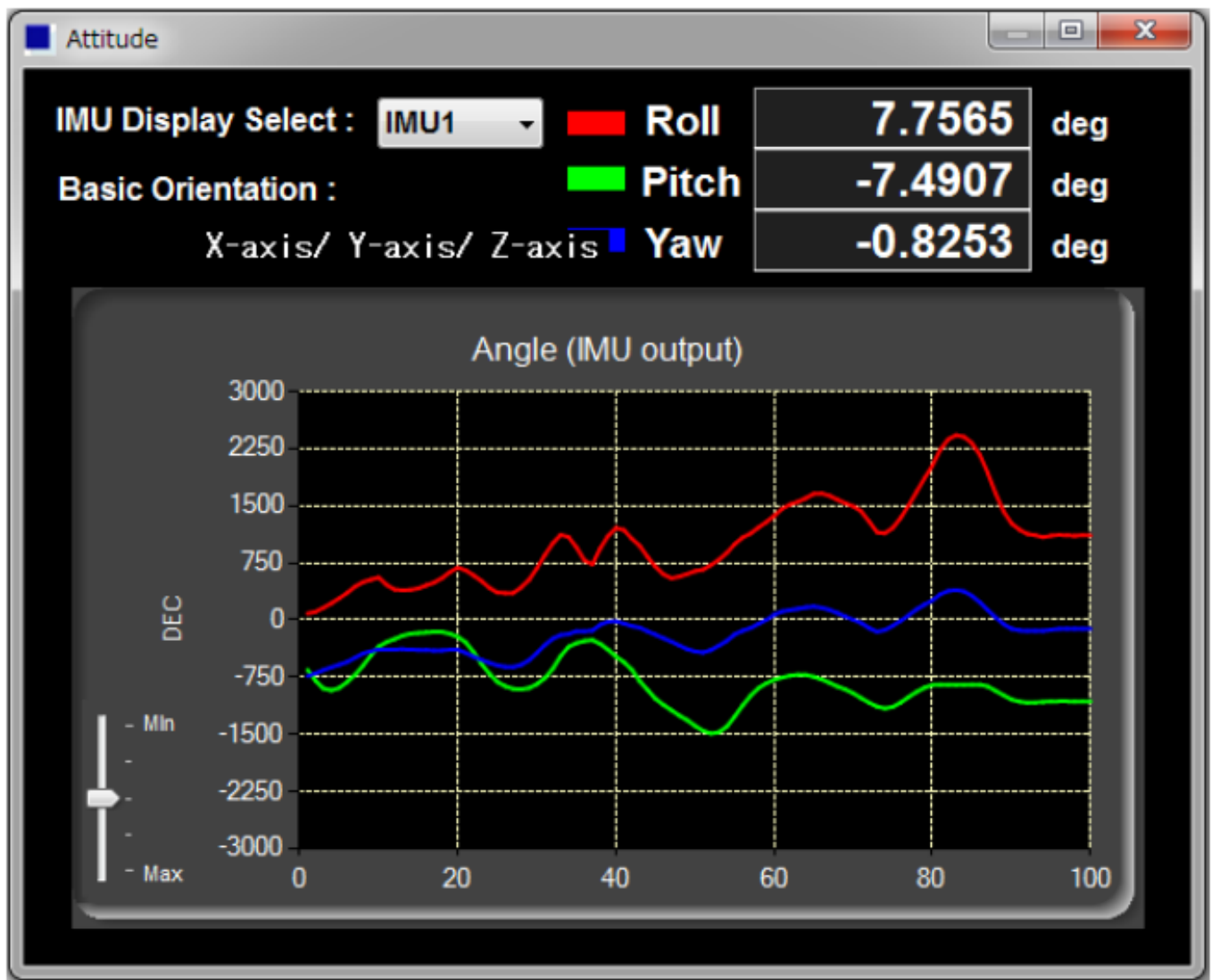


Exiting the Software

Click the “Exit” button to exit the Software.

Display and Output Data of Attitude Angle

For G365PDC, G365PDF, G325PDF, when “angle” is checked, the attitude angle acquired from IMU is displayed. When “Save Log” is checked, the measurement is preserved in the log file.



Automatic Sampling Stop

MeasureControl : ☒ Termination condition : Time 100 seconds

In the "MeasureContol" item on the Log Setting screen, sampling can be stopped automatically by "Termination condition" check.

The stop condition is set by the following items.

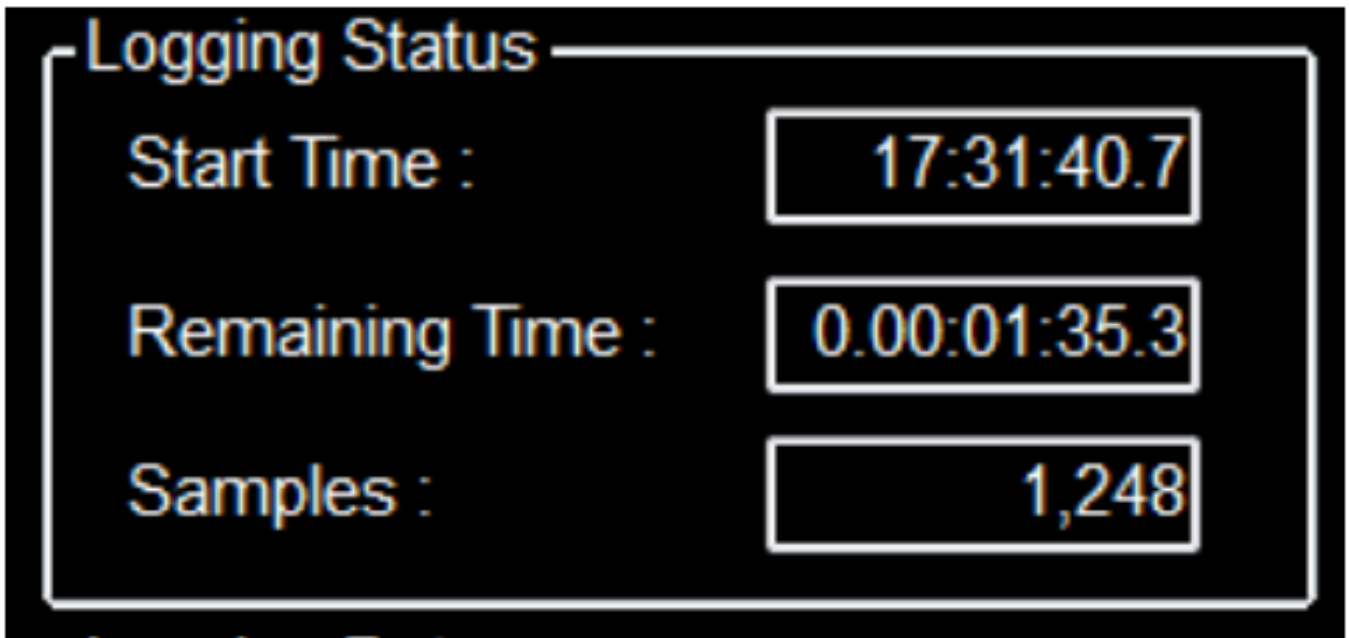
" Time " : Time specified in seconds

" Count " Count specified by sampling number

The automatic sampling stop function is effective only for the first sampling execution after enabling.

In the second and subsequent sampling, the automatic stop function is disabled and not performed.

When automatic stop is enabled, "Elapsed Time" indication of Logging Status becomes "Remaining Time" to show the remaining time until automatic stop will occur.



*The automatic stop timing of sampling will vary from the set value depending on the processing capacity of the PC.

Log File

This chapter describes the LOG files created by the Software.

A LOG file is created for each IMU. For each IMU checked in the “Connect” in the Serial Port settings, the Software outputs a LOG file. The IMU number is added to the end of the filename of each LOG file

Raw Data LOG

This section describes items recorded when the raw data format is selected as the data format used for the LOG file.

1. On the first line, the sampling start date and time (year, month, day, and time (unit: 1/100 second)) is printed (Based on the PC OS clock) and Logger version.
2. On the second line, the IMU Product model number, Firmware version, Serial number.
3. On the third line, the IMU Port number, sampling interval, Filter Type, number of TAPs are printed.
4. On the fourth line, the scale factor of angular velocity and acceleration are printed.
(Note: The scale factor unit is different from the G370, G365, and G325 data sheets.
This software is designed to multiply the digit value by the scale factor value and convert it to a scale value.)
5. On the fifth line, the comment is printed.
6. On the sixth line, the measurement data column heading are printed.
7. On the seventh line and after, the measurement data are printed. The following items are recorded as the measurement data.

- Sample No: Sample number
- time: Elapsed time
(Note: The elapsed time represents the time generated in the built-in timer inside the IMU.)
- Gx: Angular velocity (X-axis), Gy: Angular velocity (Y-axis), Gz: Angular velocity (Z-axis)
- Ax: Acceleration (X-axis), Ay: Acceleration (Y-axis), Az: Acceleration (Z axis)
- Ts: Temperature

(Note: This is a reference value used for internal temperature compensation. We provide no guarantee that the value gives an accurate representation of the internal temperature.)

- GPIO: GPIO information *only for V340PDD0.
- Count: SamplingCount or ResetCount
- CheckSum Checksum value , CheckResult OK or NG

Output data image for V340PDD0

	A	B	C	D	E	F	G	H	I	J	K
1	date:	2018/11/26	start_time:	19:26:02	0.37	LoggerVersion:	3.2				
2	PROD_ID:	V340PDD0	VERSION:	812	SERIAL_NUM:	E0123456					
3	COM Port:	8	Rate[Sps]:	125	FilterType:	Moving-Ave.	TAP:	8			
4	SF_Gyro[dps/LSB]:	0.015	SF_AccI[mG/LSB]:	0.18							
5	Comment:										
6	Sample No.	time[sec]	Gx[dec]	Gy[dec]	Gz[dec]	Ax[dec]	Ay[dec]	Az[dec]	Ts[dec]	GPIO[hex]	SamplingCount
7	1	0	93	-10	-283	515	-1298	5374	-163	200	32
8	2	0.008	89	-8	-282	491	-1286	5387	-160	200	64
9	3	0.016	93	-7	-284	510	-1303	5398	-160	200	96
10	4	0.024	95	-8	-281	503	-1301	5390	-161	200	128
11	5	0.032	88	-10	-284	511	-1290	5381	-161	200	160

Scale-Adjusted Data LOG

This section describes items recorded when the scale-adjusted data format is selected as the data format used for the LOG file.

1. On the first line, the sampling start date and time (year, month, day, and time (unit: 1/100 second)) is printed (Based on the PC OS clock) and Logger version.
2. On the second line, the IMU Product model number, Firmware version, Serial number.
3. On the third line, the IMU Port number, sampling interval, Filter Type, number of TAPs are printed.
4. On the fifth line, the comment is printed.
5. On the sixth line, the measurement data column heading are printed.
6. On the seventh line and after, the measurement data are printed. The following items are recorded as the measurement data.
 - Sample No: Sample number
 - time: Elapsed time (Note: The elapsed time represents the time created by the built-in timer inside the IMU.)
 - Gx: Angular velocity (X-axis), Gy: Angular velocity (Y-axis), Gz: Angular velocity (Z-axis)
 - Ax: Acceleration (X-axis), Ay: Acceleration (Y-axis), Az: Acceleration (Z axis)
 - ATotal: Summation of all the accelerations = $(Ax^2 + Ay^2 + Az^2)^{0.5}$
 - Ts[degC]: Temperature in Celsius, Ts[degF]: Temperature in Fahrenheit
(Note: This is a reference value used for internal temperature compensation. We provide no guarantee that the value gives an accurate representation of the internal temperature.)
 - GPIO: GPIO information *Only for V340PDD0.
 - Count: SamplingCount or ResetCount
 - CheckSum Checksum value , CheckResult OK or NG

Output data image for V340PDD0

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	date:	2019/2/7	start_time:	9:43:18	0.68	LoggerVersion:	3.3						
2	PROD_ID:	V340PDD0	VERSION:	812	SERIAL_NUM:	E0123456							
3	COM Port:	129	Rate[Sps]:	125	FilterType:	Moving-Ave.	TAP:	8					
4													
5	Comment:												
6	Sample No.	time[sec]	Gx[dps]	Gy[dps]	Gz[dps]	Ax[mG]	Ay[mG]	Az[mG]	ATotal[mG]	Ts[deg.C]	Ts[deg.F]	GPIO[hex]	SamplingCount
7	1	0	1.05	-0.33	-4.275	114.84	-19.62	995.4	1002.1948	35.3611	95.65	200	32
8	2	0.008	1.08	-0.3	-4.26	111.42	-19.26	990.18	996.6152	35.3503	95.6305	200	64
9	3	0.016	1.035	-0.315	-4.245	112.14	-19.98	987.3	993.849	35.3503	95.6305	200	96
10	4	0.024	0.87	-0.33	-4.29	111.42	-18.18	990.36	996.7737	35.3503	95.6305	200	128
11	5	0.032	1.02	-0.27	-4.29	111.42	-21.42	993.06	999.5206	35.3503	95.6305	200	160

Output data image for V364PDC0

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	date:	2019/2/7	start_time:	9:45:02	0.44	LoggerVersion:	3.3							
2	PROD_ID:	G364PDC0	VERSION:	2510	SERIAL_NUM:	E0123456								
3	COM Port:	135	Rate[Sps]:	1000	FilterType:	Moving-Ave.	TAP:	2						
4														
5	Comment:													
6	Sample No.	time[sec]	Gx[dps]	Gy[dps]	Gz[dps]	Ax[mG]	Ay[mG]	Az[mG]	ATotal[mG]	Ts[deg.C]	Ts[deg.F]	SamplingCount	Checksum	CheckResult
7	1	0	-0.0825	-0.1125	-0.09	1.25	-1.5	-1003.375	1003.3769	24.3781	75.8807	2	EB6D	OK
8	2	0.001	-0.0525	-0.12	-0.075	1.5	-2	-1001.875	1001.8781	24.3781	75.8807	4	EB7E	OK
9	3	0.002	-0.03	-0.1425	-0.0675	3.25	-0.875	-1001.125	1001.1307	24.3857	75.8943	6	EB9C	OK
10	4	0.003	-0.075	-0.12	-0.0675	5.125	1.375	-999.625	999.6391	24.3857	75.8943	8	EBC8	OK
11	5	0.004	-0.12	-0.03	-0.0375	2	0.375	-999.5	999.5021	24.3857	75.8943	10	EBB4	OK

Attitude Angle Sensor Data

This section describes the additional items recorded when outputting attitude angle information for G365PDC, G365PDF, G325PDF as the data format used for the LOG file.

- On the first line, the Basic Orientation information, the Angle Mode information and Attitude Motion Profile are added.
- On the fourth line, the Scale Factor of attitude angle output is added.
 - * when the raw data format is selected.
- On the seventh line and after, the below measurement data are added as additional columns.
 - Ang1: Angle, Ang2: Angle, Ang3: Angle
 - QTN-0, QTN-1, QTN-2, QTN-3 Quaternion
 - * The attitude angle and the measurement axes are determined by Basic Orientation information.

Output data image for G365PDF0 when the raw data format is selected.

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	date:	2020/8/17	start_time:	19:13:20	0.69	LoggerVersion:	3.6	Basic Orientation:	X-axis/ Y-axis/ Z-axis	Angle Mode:	Inclinometer	Attitude Motion Profile:	mode B
2	PROD_ID:	G365PDF0	VERSION:	2814	SERIAL_NUM:	E0123456							
3	COM Port:	3	Rate[Sps]:	200	FilterType:	Moving-Ave.	TAP:	16					
4	SF_Gyro[dps/LSB]:	0.0151515	SF_Accel[mG/LSB]:	0.4	SF_Attitude[deg/LSB]:	0.00699411							
5	Comment:												
6	Sample No.	time[sec]	Gx[dec]	Gy[dec]	Gz[dec]	Ax[dec]	Ay[dec]	Az[dec]	Ts[dec]	Ang1(X)[dec]	Ang2(Y)[dec]	-	SamplingCount
7	1	0	-2	-2	-1	65	4	-1584	605	0	0	0	10
8	2	0.005	-2	4	-2	51	-11	-2521	969	0	0	0	20
9	3	0.01	-1	4	-3	53	-13	-2520	969	0	0	0	30
10	4	0.015	-1	4	-3	53	-12	-2519	969	0	0	0	40
11	5	0.02	-1	3	-4	53	-13	-2520	969	0	0	0	50

Split Log File

MaximumEntries : samples (specify maximum entries for CSV file. Setting value 0 is unlimited.)

The sampling number to sub-divide or “split” the log file can be set by “MaximumEntries” of Log setting. Number of samples that can be set.

- 0 Do not sub-divide the log file
- 100 999999 Sampling number to sub-divide the log file

* When the setting value is “100” or less, it is automatically set to “100”.

For the split log file name, an incrementing count starting from 1 is appended after the IMU number.

Note

Depending on how other applications on the PC behave, **some of the sampling data may not be acquired properly**. If this situation happens, “NG” will be printed to fill in the missing measurement data and indicate a data error.

	A	B	C	D	E	F	G	H	I	J	K	L	M
32	214	0.213	153	-8	10	26	-31	8055	-15411	600			
33	215	0.214	161	3	7	29	-26	8047	-15411	600			
34	216	0.215	167	10	1	27	-27	8036	-15410	600			
35	217	0.216	169	10	3	28	-33	8024	-15411	600			
36	218	0.217	NG	NG	NG	NG	NG	NG	NG	NG			
37	219	0.218	NG	NG	NG	NG	NG	NG	NG	NG			
38	220	0.219	NG	NG	NG	NG	NG	NG	NG	NG			
39	221	0.22	NG	NG	NG	NG	NG	NG	NG	NG			
40	222	0.221	NG	NG	NG	NG	NG	NG	NG	NG			
41	223	0.222	NG	NG	NG	NG	NG	NG	NG	NG			
42	224	0.223	NG	NG	NG	NG	NG	NG	NG	NG			
43	225	0.224	154	5	4	34	-41	7995	-15408	600			
44	226	0.225	159	7	3	33	-48	7988	-15410	600			
45	227	0.226	163	-3	5	36	-57	7999	-15409	600			
46	228	0.227	163	-12	7	39	-65	8018	-15411	600			
47	229	0.228	161	-11	4	30	-50	8040	-15410	600			

On Main Screen, “Data Error” message will show up in “Logging Status” as shown below.

When “Data Error” is detected, the Log file is saved with the “E” just before extension in log file name.

When logging with Checksum “ON” (enabled) in the Log setting, and the checksum result is NG, “Data Error” message will show up in “Logging Status” as shown above and the Log file is saved with the “E” just before extension in log file name.

Revision History

Rev. No.	Date	Page	Contents
Rev 20140328	2014/3/28	All	Newly established
Rev 20160301	2016/3/1	Page1,2,3,4,5,6,7,8,11	G364PDC0, G364PDCA, G354PDH0, Additions
Rev 20160606	2016/6/6	Page 13,14,15	Information of log file
Rev 20160712	2016/7/12	Page 13,14,15	ResetCount , Production information(the IMU Product mode l number, Firmware version, Serial number) Additions
Rev 20170307	2017/3/7	Page 5	'NoFilter/TAP1'
Rev 20180803	2018/8/3	All	Version upgrade(Ver3.0) of IMU-Logger
Rev 20180821	2018/8/21	Page7,13,14	Add Explanation of "Checksum"
Rev 20181129	2018/11/29	All	Version upgrade(Ver3.2) of IMU-Logger
Rev 20190206	2019/2/6	Page14,15	Information of log file
Rev 20190628	2019/6/28	Page6	Change Images
Rev 20191004	2019/10//4	Page1,4,5,6,7,11,15	G352PDF0 addition, Display image change, Attitude angle Log output header change
Rev 20200821	2020/8/21	Page1,5,6,7,15	Quaternion output and Attitude motion profile are additions , Change Images, Change header of attitude angle log G370 PDC0 deletion
Rev 20201020	2020/10/20	Page5	Add Explanation of Data Output Rate and filter display in G370PDF1
Rev 20220307	2022/03/07	Page1,2,5,6,7	Supported OS, Windows 7 removed Updated to .Net Framework 4.8 G370PDS0 addition,

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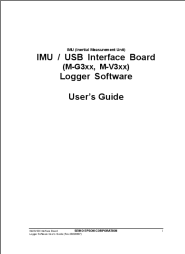
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Documents / Resources

	<p>EPSON M-G3XX IMU/USB Interface Board [pdf] User Guide M-G3XX, IMU Interface Board, USB Interface Board</p>
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References

-  [Epson – Exceed Your Vision](#)
-  [VCP Drivers - FTDI](#)