



IMU (Inertial Measurement Unit)

# **IMU / USB Interface Board (M-G3xx) Logger Software User's Guide**

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## Revision History

Rev. No.	Date	Page	Description
20140328	2014/3/28	All	Newly established
20160301	2016/3/1	Page 1, 2, 3, 4, 5, 6, 7, 8, 11	G364PDC0, G364PDCA, G354PDH0, Additions
20160606	2016/6/6	Page 13, 14, 15	Information of log file
20160712	2016/7/12	Page 13, 14, 15	ResetCount, Production information (the IMU Product model number, Firmware version, Serial number) Additions
20170307	2017/3/7	Page 5	'NoFilter/TAP1'
20180803	2018/8/3	All	Version upgrade (Ver3.0) of IMU-Logger
20180821	2018/8/21	Page 7, 13, 14	Add Explanation of "Checksum"
20181129	2018/11/29	All	Version upgrade (Ver3.2) of IMU-Logger
20190206	2019/2/6	Page 14, 15	Information of log file
20190628	2019/6/28	Page 6	Change Images
20191004	2019/10/4	Page 1, 4, 5, 6, 7, 11, 15	G352PDF0 addition, Display image change, Attitude angle Log output header change
20200821	2020/8/21	Page 1, 5, 6, 7, 15	Quaternion output and Attitude motion profile are additions, Change Images, Change header of attitude angle log G370PDC0 deletion
20201020	2020/10/20	Page 5	Add Explanation of Data Output Rate and filter display in G370PDF1
20220307	2022/03/07	Page 1, 2, 5, 6, 7	Supported OS, Windows 7 removed Updated to .Net Framework 4.8 G370PDS0 addition,
20221027	2022/10/27	Page 1, 5, 6, 7, 8, 12, 14, 16	G366PDG0 and G330PDG0 additions G325PDF deletion
20230131	2023/1/31	Page 1, 6, 8	G370PDG0 addition
20230623	2023/6/23	Cover, Page 2	Change logo, Change System Requirement
20230929	2023/9/29	All	<ul style="list-style-type: none"> <li>- Changed manual format</li> <li>- Deleted M-V3xx</li> <li>- Deleted descriptions related to V340PDD</li> <li>- Added G370PDT0</li> <li>- Added descriptions for the register dump and register initialization functions</li> <li>- Replaced the sample screens and the sample logs</li> </ul>

# 1. 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 restart the Software when replacing the IMU to be measured.

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

G320PDG0
G364PDC0
G364PDCA
G354PDH0
G365PDC0 / G365PDC1 * <sup>1</sup>
G365PDF0 / G365PDF1 * <sup>2</sup>
G370PDF0 / G370PDF1 * <sup>3</sup>
G370PDG0
G370PDS0
G370PDT0
G366PDG0
G330PDG0

\*<sup>1</sup> G365PDC0 / G365PDC1 is written as G365PDC in this document.

\*<sup>2</sup> G365PDF0 / G365PDF1 is written as G365PDF in this document.

\*<sup>3</sup> G370PDF0 / G370PDF1 is written as G370PDF in this document.

## 2. Preparation

### 2.1. Requirement

#### 2.1.1. System Requirement

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

- The Software supports Windows 10 (64-bit Edition) and Windows 11 (64-bit Edition). Other system environments are not tested by Seiko Epson.
- The required specifications for a PC are as follows.

Supported OS		Windows 10 (64-bit) Windows 11 (64-bit)
CPU	Recommended	2.0 GHz Over
RAM	Recommended	8 GB Over

#### 2.1.2. 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.

## 2.2. 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 (<https://ftdichip.com/drivers/vcp-drivers/>) 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.

## 2.3. 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.)

### 3. Using the Software

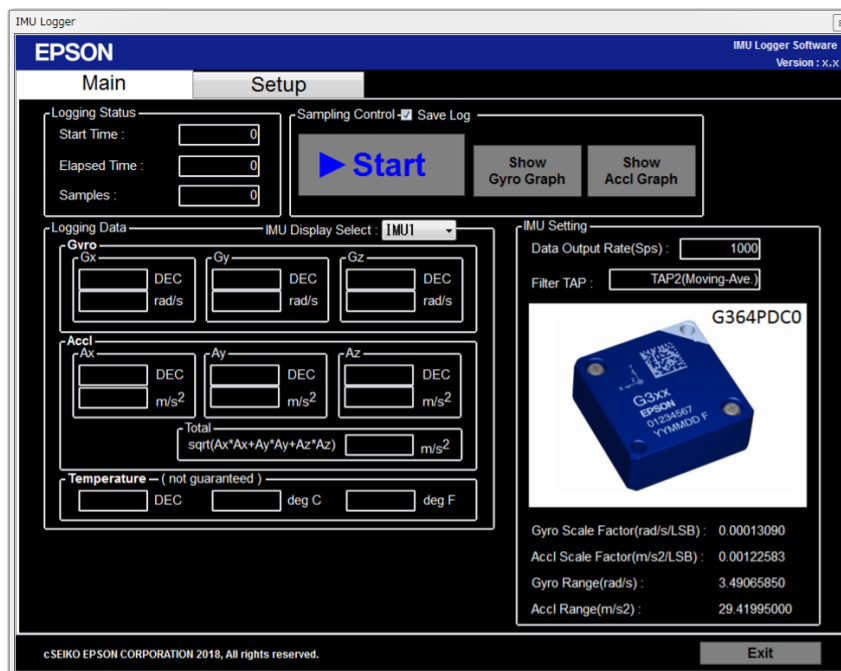
This chapter describes basics of using the Software.

#### 3.1. Starting the Software

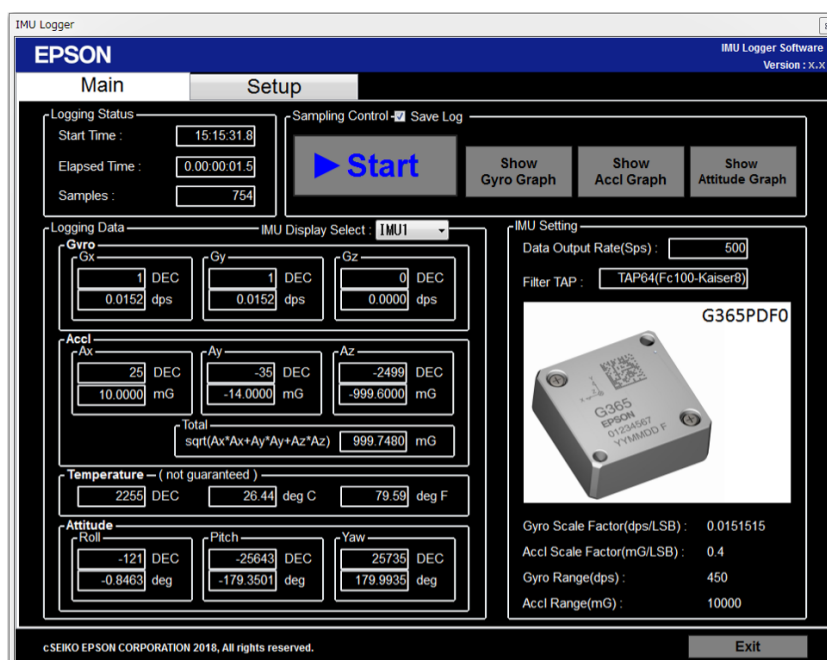
Start the executable file of the Software (ImuLogger.exe).

- \* 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



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

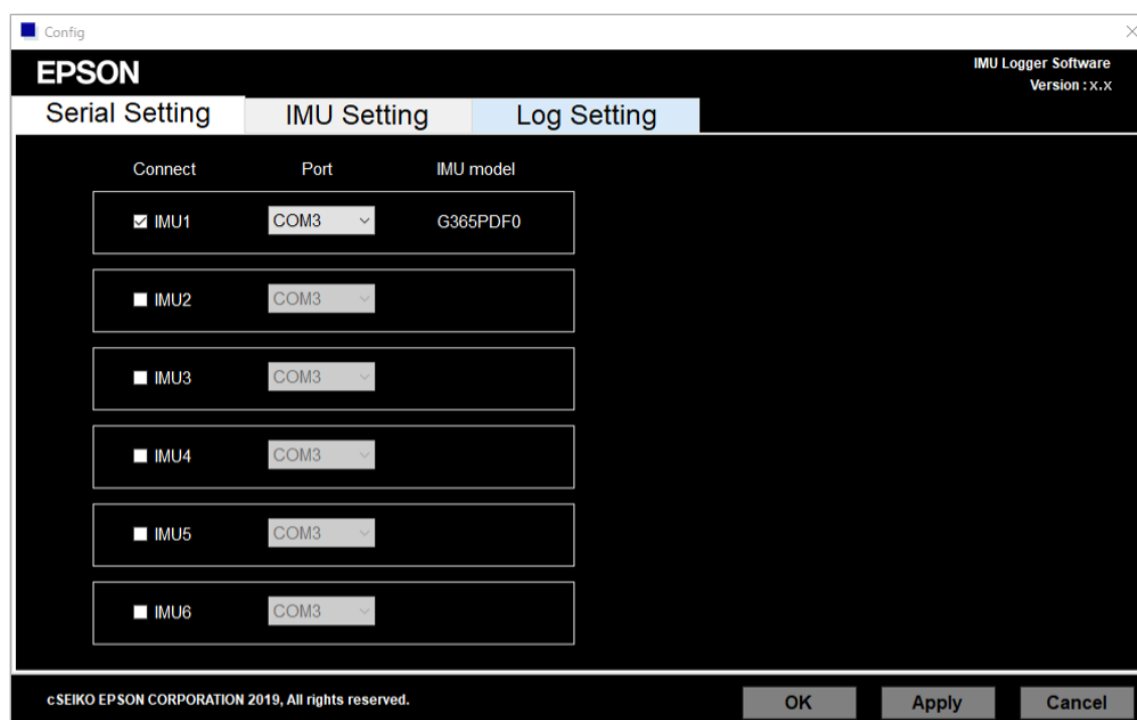


## 3.2. Setting

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.

### 3.2.1. 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 bps.
- (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.



### 3.2.2. IMU Settings

- (1) In “Data Output Rate (Sps)”, specify the data output rate for the IMU. Select from the following options.  
(Sps: Samples / sec)
  - Output rate : 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)
    - Tap : 32, 64, 128
    - Fc : 50, 100, 200, 400 Hz
  - \* 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)



\* In G370PDF1 and 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	128Fc50
	2000	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	-
	80	-	-	-	-	-	OK	OK	OK	-	-	-	-	-	-	-	-

### FilterSetB

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

- (3) "Basic Orientation" is available only for G365PDC, G365PDF, G366PDG0, and G330PDG0. When this is the case, please specify the orientation of the IMU for X, Y and Z axis.
- (4) In "Data Format", specify the bit width of IMU output data.
  - 16-bit Data
  - 32-bit Data

\* In case of 32-bit Data setting, Maximum Data Output Rate (Sps) is 1,000 (Sps).
- (5) In "Count Function", select SamplingCount or ResetCount.
- (6) In "Accelerometer Range", the acceleration output range can be set from "8G" and "16G".
 

\* "Accelerometer Range" is available only for G366PDG0, G330PDG0, G370PDG0, and G370PDT0.

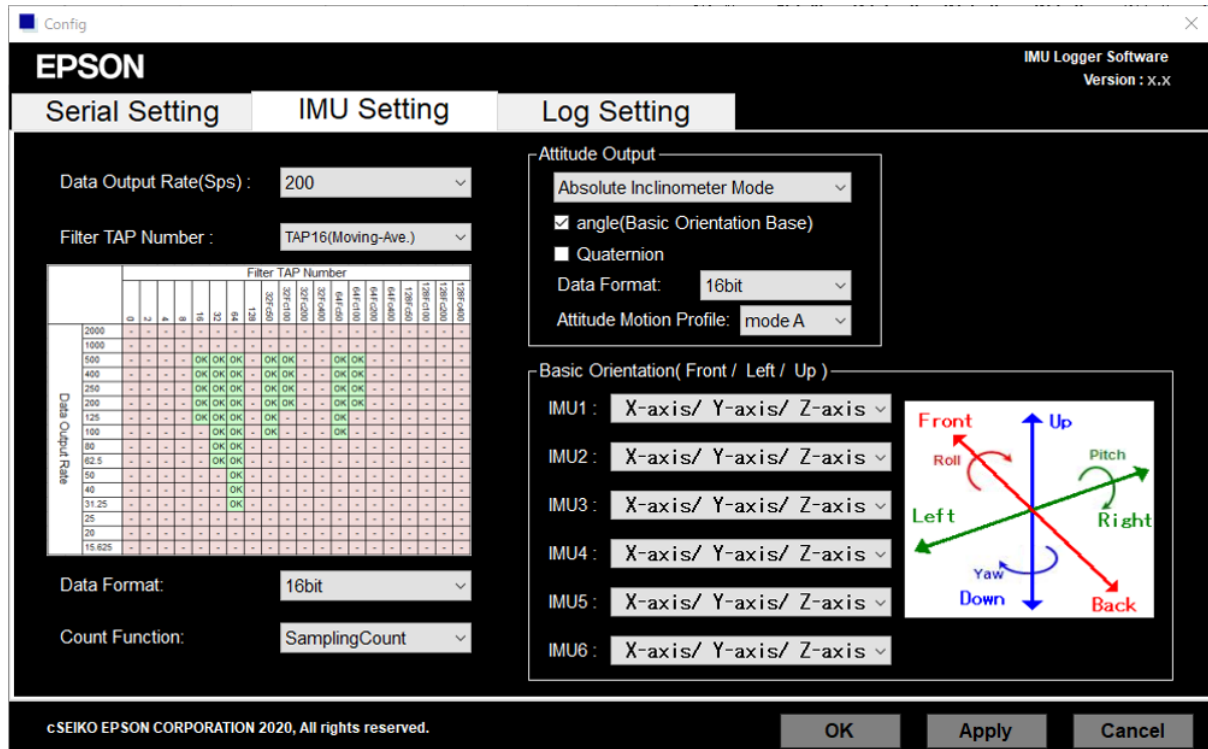
The following items are displayed only for G365PDC, G365PDF, G366PDG0, and G330PDG0.

- (7) The "Attitude Output" conditions are configured in "angle".
  - If "angle" is checked, it becomes enabled and active.
  - Select Output mode "Absolute Inclinometer Mode" or "Euler Angle Mode".
  - Select "Data Format" to 16 bits or 32 bits for output
- (8) If "Quaternion" is checked, it becomes enabled and active.
- (9) In "Attitude Motion Profile", attitude motion profile mode can be set from "mode A", "mode B", and "mode C".

- Screen Image for G320PDG0, G364PDC0, G364PDCA, and G354PDH0



- Screen Image for G365PDC and G365PDF



- Screen Image for G366PDG0 and G330PDG0

Config X

IMU Logger Software  
Version : X.X

**EPSON**

Serial Setting    IMU Setting    Log Setting

Data Output Rate(Sps) : 200

Filter TAP Number : TAP16(Moving-Ave.)

Data Output Rate	Filter TAP Number																
	0	2	4	8	16	32	64	128	256	512	1024	2048	4096	8192	16384	32768	
2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
62.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31.25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15.625	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Data Format: 32bit

Count Function: SamplingCount

Accelerometer Range: 16G

Attitude Output

Absolute Inclinometer Mode

☒ angle(Basic Orientation Base)

☐ Quaternion

Data Format: 16bit

Attitude Motion Profile: mode B

Basic Orientation( Front / Left / Up )

IMU1 : X-axis/ Y-axis/ Z-axis

IMU2 : X-axis/ Y-axis/ Z-axis

IMU3 : X-axis/ Y-axis/ Z-axis

IMU4 : X-axis/ Y-axis/ Z-axis

IMU5 : X-axis/ Y-axis/ Z-axis

IMU6 : X-axis/ Y-axis/ Z-axis

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OK    Apply    Cancel

- Screen Image for G370PDG0 and G370PDT0

Config X

IMU Logger Software  
Version : X.X

**EPSON**

Serial Setting    IMU Setting    Log Setting

Data Output Rate(Sps) : 1000

Filter TAP Number : TAP2(Moving-Ave.)

Data Output Rate	Filter TAP Number																
	0	2	4	8	16	32	64	128	256	512	1024	2048	4096	8192	16384	32768	
2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
62.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31.25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15.625	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Data Format: 16bit

Count Function: SamplingCount

Accelerometer Range: 8G

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OK    Apply    Cancel

### 3.2.3. 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/s<sup>2</sup>"

Attitude : the unit of output value "deg" or "rad" \* only for G365PDC, G365PDF, G366PDG0, and G330PDG0

- (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.

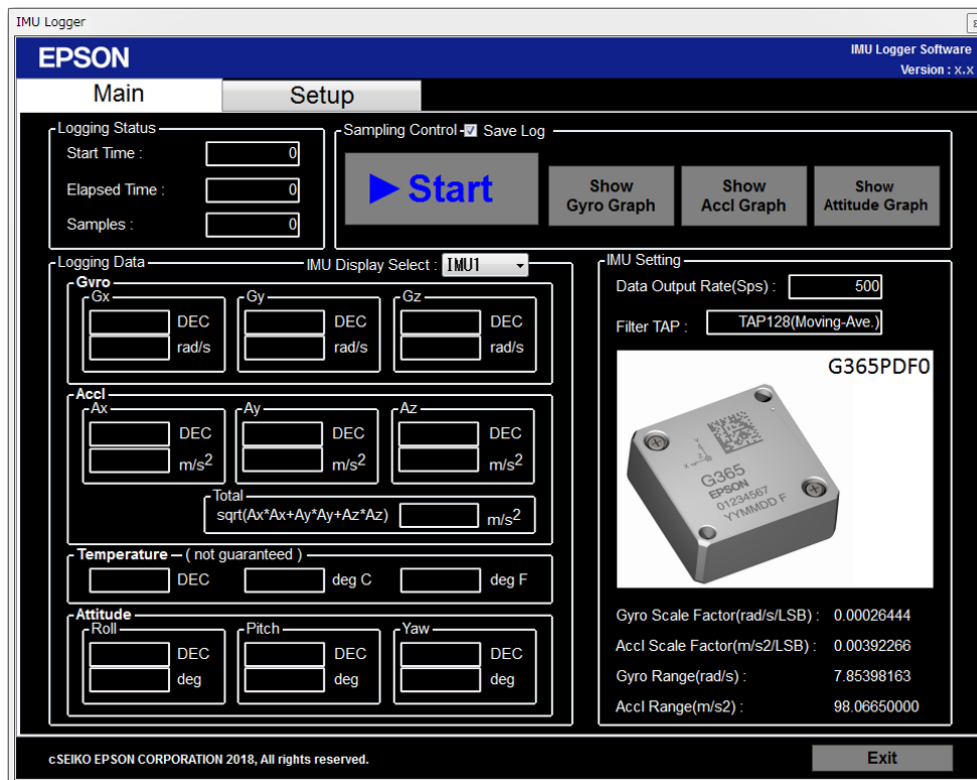
The screenshot shows the 'Config' window of the EPSON IMU Logger Software, specifically the 'Log Setting' tab. The window has a title bar with 'Config' and standard window controls. The main area is divided into three tabs: 'Serial Setting', 'IMU Setting', and 'Log Setting'. The 'Log Setting' tab is active. It contains the following fields and controls:

- Folder :** A text box containing 'C:\imu\_data\' and a button with three dots to the right for file selection.
- Delimiter :** A dropdown menu currently set to 'Comma'.
- Unit :** A dropdown menu currently set to 'Scale'.
- Select Units:** A group box containing three dropdown menus: 'Gyro:' set to 'rad/s', 'Accl:' set to 'm/s<sup>2</sup>', and 'Attitude:' set to 'deg'.
- Comment :** A text box.
- CheckSum :** A dropdown menu currently set to 'OFF'.
- MaximumEntries :** A text box containing '0' followed by the text 'samples (specify maximum entries for CSV file. Setting value 0 is unlimited.)'.
- MeasureControl :** A checkbox that is checked, followed by 'Termination condition :', a dropdown menu set to 'Time', a text box containing '1000', and the word 'seconds'.

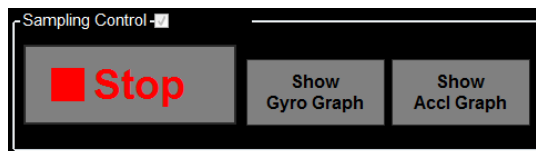
At the bottom of the window, there is a footer with the text 'cSEIKO EPSON CORPORATION 2018, All rights reserved.' and three buttons: 'OK', 'Apply', and 'Cancel'.

### 3.3. Starting / Stopping Sampling

- (1) To save the measurement data to the log file, check “Save Log”.
- (2) Click the “Start” button to start sampling.



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

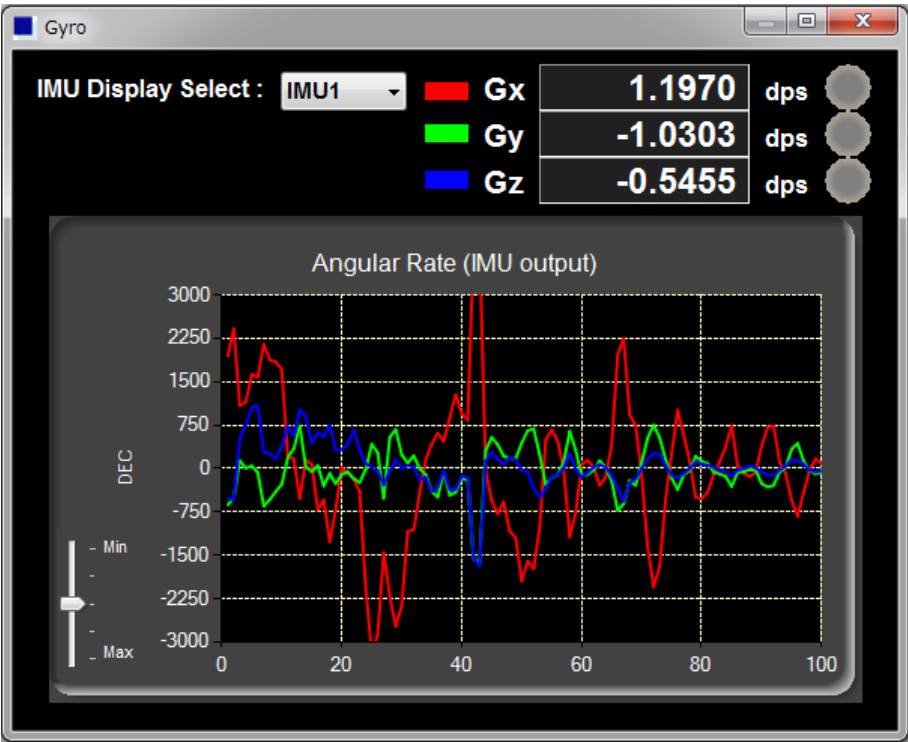


\* The automatic sampling stop function is cancelled when sampling is stopped manually.

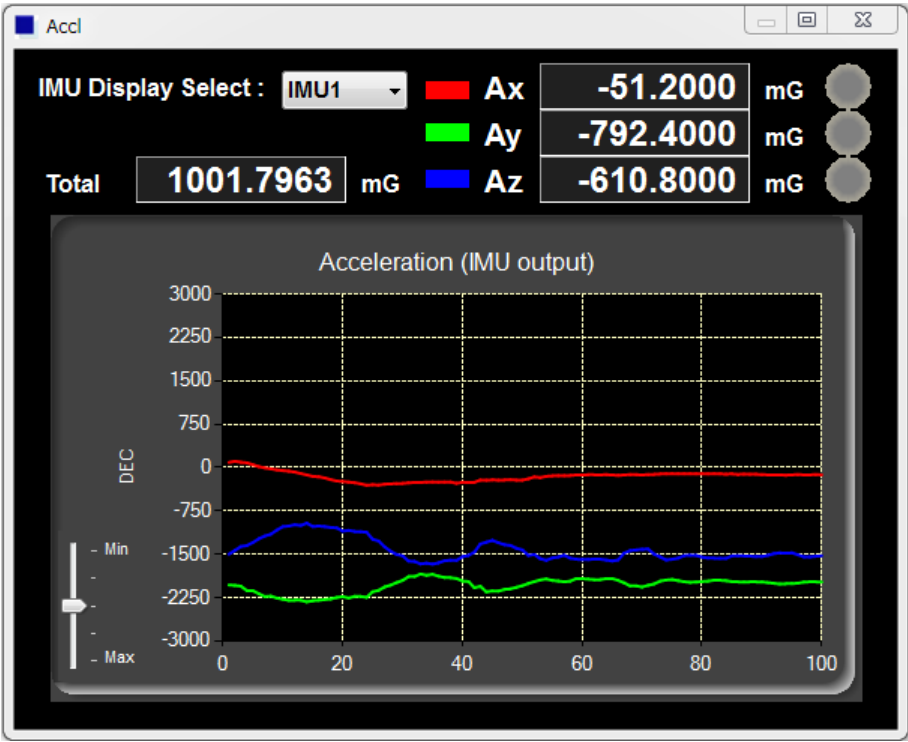
- (4) The measurement data are displayed on the window. When “Show Gyro Graph” or “Show Accel Graph” buttons are clicked, the specified plot graph is displayed. On the Graph window, the measurement data are displayed as numerical values and as a line graph. In “IMU Display Select”, select the IMU to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

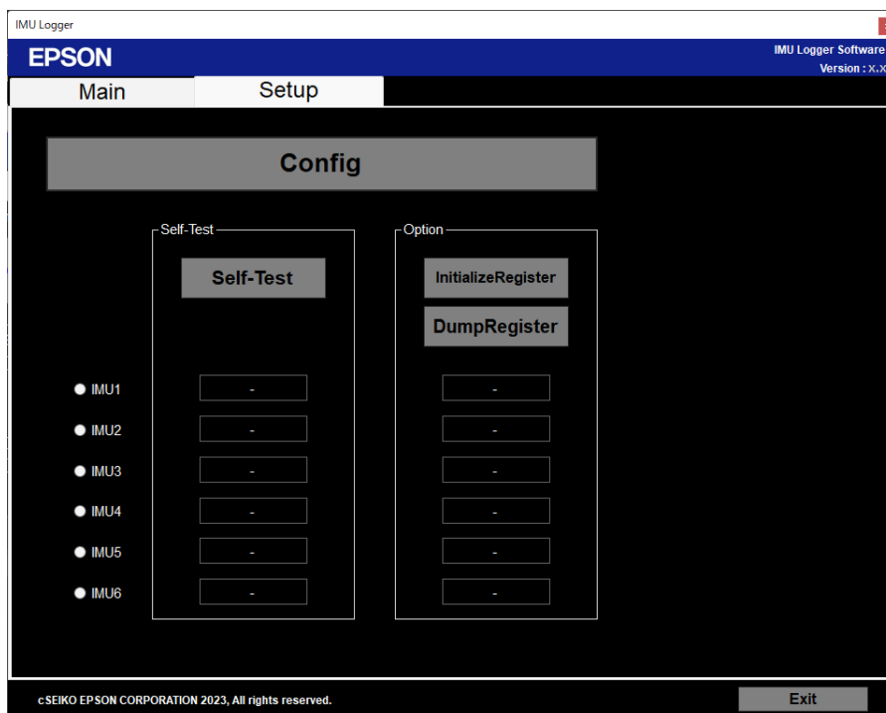
### 3.4. Self-Test, Register Dump, and Register Initialization

To execute the self-test, register dump, or register initialization, first click the “Setup” tab to allow access to the “Self-Test”, “DumpRegister”, and “InitializeRegister” buttons. The self-test, register dump, or register initialization 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”.

Click the “DumpRegister” to execute the register dump. The dumped contents will be stored in the same folder as the log file. The operation result will be displayed as either “OK” or “NG”.

Click the “InitializeRegister” to reset the IMU registers to the default values set at the factory shipment. The registers to be initialized are the internal registers and the registers in which the initial values are stored. The operation result will be displayed as either “OK” or “NG”.

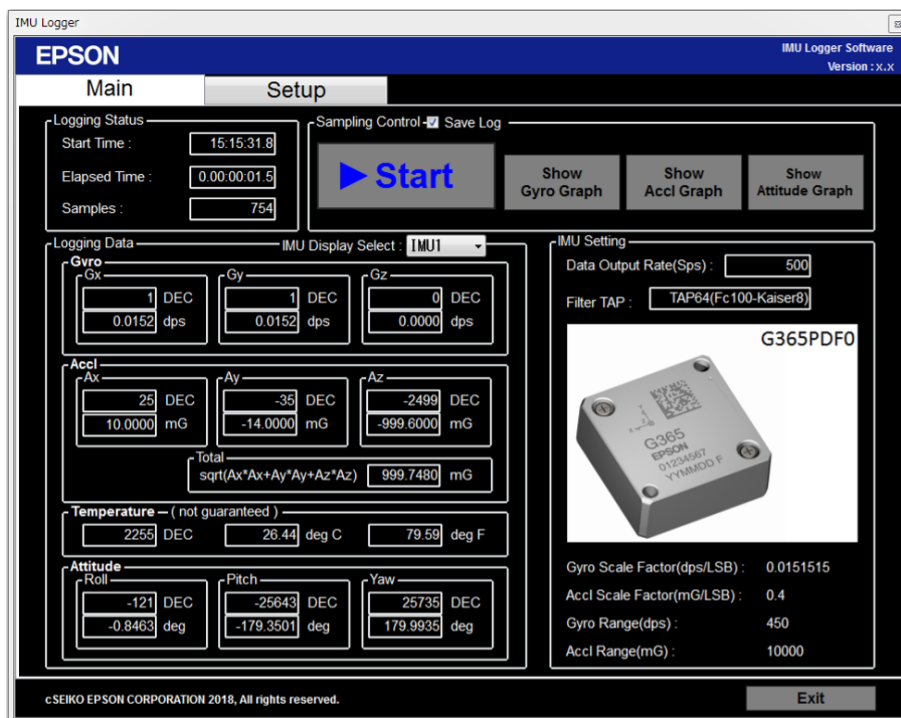


### 3.5. Exiting the Software

Click the “Exit” button to exit the Software.

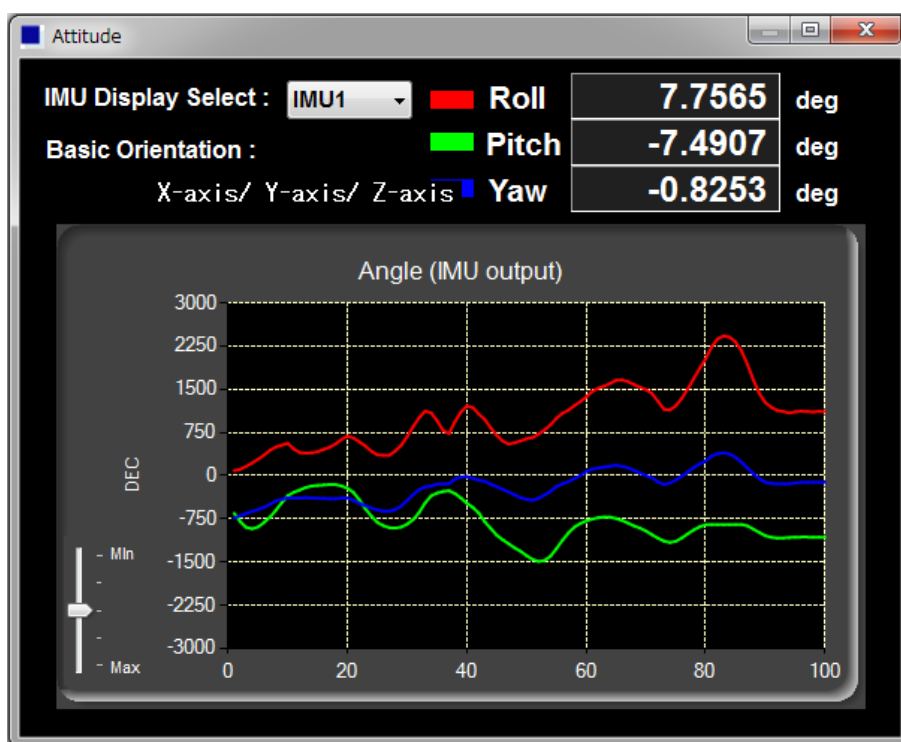
### 3.6. Display and Output Data of Attitude Angle

For G365PDC, G365PDF, G366PDG0, and G330PDG0, 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.



When “Show Attitude Graph” button is clicked, a plot graph of the attitude angle is displayed. On the Graph screen, measurements are expressed by numerical values and line graphs.

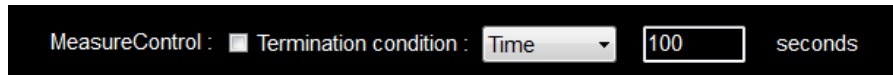
In "IMU Display Select", select the IMU to display measurement values for. Push the close button (x) at the top right of the window to close the graph screen.



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.



### 3.7. Automatic Sampling Stop



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

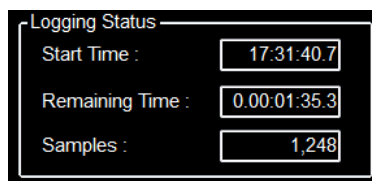
The stop condition is set by the following items.

- "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.

## 4. 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.

### 4.1. 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) based on the PC OS clock), and Logger version are printed.
- (2) On the second line, the IMU Product model number, Firmware version, and Serial number are printed.
- (3) On the third line, the IMU Port number, sampling interval, Filter Type, and 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, G366, and G330 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 headings 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.

- Count : SamplingCount or ResetCount
- CheckSum : Checksum value
- CheckResult : OK or NG

#### • Output data image for G366PDG0

	A	B	C	D	E	F	G	H	I	J
1	date:	2023/9/5	start_time:	17:16:47	0.29	LoggerVersion:	x.x			
2	PROD_ID:	G366PDG0	VERSION:	3703	SERIAL_NUM:	1				
3	COM Port:	10	Rate[Sps]:	125	FilterType:	Moving-Ave.	TAP:	16		
4	SF_Gyro[dps/LSB]:	0.0151515	SF_AccI[mG/LSB]:	0.5						
5	Comment:									
6	Sample No.	time[sec]	Gx[dec]	Gy[dec]	Gz[dec]	Ax[dec]	Ay[dec]	Az[dec]	Ts[dec]	SamplingCount
7	1	0	-2	-5	0	-10	8	-2001	-91	16
8	2	0.008	-3	-4	0	-9	10	-2001	-88	32
9	3	0.016	1	-1	0	-8	9	-2000	-87	48
10	4	0.024	-2	0	-1	-9	8	-1998	-92	64
11	5	0.032	-2	-1	-1	-8	7	-1997	-93	80

## 4.2. 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) based on the PC OS clock), and Logger version are printed.
- (2) On the second line, the IMU Product model number, Firmware version, and Serial number are printed.
- (3) On the third line, the IMU Port number, sampling interval, Filter Type, and number of TAPs are printed.
- (4) On the fifth line, the comment is printed.
- (5) On the sixth line, the measurement data column headings 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.

- Count : SamplingCount or ResetCount

- CheckSum : CheckSum value

- CheckResult : OK or NG

### • Output data image for G366PDG0

	A	B	C	D	E	F	G	H	I	J	K	L
1	date:	2023/9/5	start_time:	17:17:46	0.45	LoggerVersion:	x.x					
2	PROD_ID:	G366PDG0	VERSION:	3703	SERIAL_NUM:	1						
3	COM Port:	10	Rate[Sps]:	500	FilterType:	Moving-Ave.	TAP:	4				
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
7	1	0	-0.0455	-0.0152	-0.0303	-4	2.5	-999.5	999.5111	24.7656	76.5781	4
8	2	0.002	0.0152	-0.0455	-0.0455	-2	2.5	-999	999.0051	24.7656	76.5781	8
9	3	0.004	-0.0606	-0.0152	0.0303	-3.5	3.5	-1000.5	1000.5122	24.7656	76.5781	12
10	4	0.006	-0.0606	0	0	-3	2	-1001	1001.0065	24.7656	76.5781	16
11	5	0.008	-0.0606	0	-0.0455	-2	2.5	-1001	1001.0051	24.7656	76.5781	20

### • 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:	x.x							
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

### 4.3. Attitude Angle Sensor Data

This section describes the additional items recorded when outputting attitude angle information for G365PDC, G365PDF, G366PDG0, and G330PDG0 as the data format used for the LOG file.

- (1) On the first line, the Basic Orientation information, the Angle Mode information, and the Attitude Motion Profile are added.
- (2) On the fourth line, the Scale Factor of attitude angle output is added. \* Only when the raw data format is selected
- (3) On the seventh line and after, the measurement data shown below are added as additional columns.

- Ang1, Ang2, 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:	x.x	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_Acc[mG/LSB]:	0.4	SF_Attitude[deg/LSB]:	0.00699411							
5	Comment:												
6	Sample No.	time[sec]	Gx[deg]	Gy[deg]	Gz[deg]	Ax[deg]	Ay[deg]	Az[deg]	Ts[deg]	Ang1(X)[deg]	Ang2(Y)[deg]	-	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

### 4.4. 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” to “999999” : Sampling number to sub-divide the log file

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

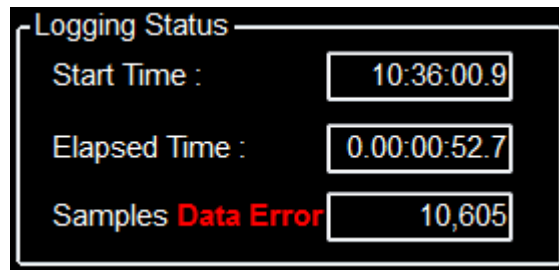
For the split log file name, an incrementing count starting from 1 is appended after the IMU number.

#### 4.5. 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.

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