User's Manual for IMU Simulator

How to install the application

    1   Click "setup.exe" in the attachment.

    2   Select the language to be used for installation.

    3   Enter the User Profile (User Name/ Company Name) and select the user to use this application.

    4   Specify the installation destination address.

    5   Installation will start.

    6   InstallShield Wizard Dialog box is displayed on the screen. Installation will be completed.

       * If version 2.0.0.2 or previous version is installed in PC, please uninstall them first and install the Version 2.0.0.10.

       【Delete】

       ・Start Menu -> IMU Simulator -> Uninstall IMU Simulator

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> **Note**
>
> ・If you use Microsoft Office IME, the application may not start and "Exception error" is displayed.
>
>   In that case, please change the software to Microsoft IME or update the program version to 2.0.0.18.
>
>   <URL: https://www.microsoft.com/en-us/download/details.aspx?id=30390>

How to start the application

    ■   Please follow the instruction below.

        ➢   Double-click the【IMU Simulator】on the desktop, or click【Start Menu】->【IMU Simulator for Motion coder GPS】->【IMU Simulator for Motion coder GPS】.

           The language selection dialog box is displayed at first. Please select Japanese or English.

How to finish the application

    ■   Please follow the instruction below.

        ➢   Click the File tab and select【Exit】or press【×】button in caption bar.

Application Setting

- Click【Tools】->【Option】in Menu Bar.
    - ◆ Serial Communication
        - ➢ Select Port No. of where IMU is connected.
    - ◆ Communication type
        - ➢ Select communication format for IMU device.
    - ◆ Application Language selection
        - ➢ Select the language to be used for this application.
    - ◆ Direction
        - ➢ Select the roll direction to be used for 2D monitor and 3D monitor.
            - ・CW: rotational direction of IMU is reversed on the monitor.
            - ・ＣCW: rotational direction of IMU is corresponded with the monitor.
    - ◆ Unit of data
        - ➢ Set Angular velocity, Acceleration, Angle Attitude, Direction velocity, Direction velocity, Direction position.
    - ◆ X-File
        - ➢ Specify the DirectX Graphics Object file to be used for 3D monitor.

1. **Operation in 2D monitor**

   Angular velocity, Acceleration and Attitude angle from IMU device are displayed on 2D monitor.

   ◆ **Start**
     ➢ Click 2D monitor in Menu Bar. Monitoring will start automatically.
     ➢ When the 2D monitor window becomes active, monitoring will also start.

   ◆ **Run**
     ➢ Click【GO】button and the monitor is displayed.

   ◆ **Stop**
     ➢ Click【Stop】button and the monitor is stopped.

   ◆ **Azimuthal Reset**
     ➢ Click【Azimuthal Reset】and the attitude angle is reset.

   ◆ **Position Reset**
     ➢ Click【Position Reset】and the Velocity data is reset.

   ◆ **Offset Cancel**
     ➢ Click【Offset Cancel】and the offset cancel is processed

   ◆ **Close 2D monitor**
     ➢ Click【×】button in caption bar and close 2D monitor.

Note

1) For the details of Offset Cancel, please refer to the specification for IMU

2) If you use Communication Format RAW200 (200Hz), [Velocity (m/sec) monitor], [Velocity X-Y], [Velocity Z] and [Position Reset] button is not working.

2. Operation in 3D monitor

Attitude Angle data (roll, pitch, yaw) from IMU device are displayed on 3D monitor.

- ◆ **Start**
  - ➢ Click 3D monitor in Menu Bar. Monitoring will start automatically.
  - ➢ When the 3D monitor window becomes active, monitoring will also start.
- ◆ **Run**
  - ➢ Click【GO】button and the monitor is displayed.
- ◆ **Stop**
  - ➢ Click【Stop】button and the monitor is stopped.
- ◆ **Azimuthal Reset**
  - ➢ Click【Azimuthal Reset】and the attitude angle is reset.
- ◆ **Position Reset**
  - ➢ Click【Position Reset】and the Velocity data is reset.
- ◆ **Offset Cancel**
  - ➢ Click【Offset Cancel】and the offset cancel is processed.
- ◆ **Close 3D monitor**
  - ➢ Click【×】button in caption bar and close 3D monitor.

Note

1) For the details of offset cancel, please refer to the specification for IMU.

2) If you use Communication Format RAW200 (200Hz), [Position Reset] button is not displayed.

3. **Operation in Velocity Monitor**

Velocity (X, Y, Z) is displayed as bar graph and velocity data is logged for 13 minutes max.

Graphic design of Horizontal posture and Vertical posture are displayed on the screen.

◆ **Start**

➢ Click【Velocity Monitor】in Menu Bar.

◆ **Run**

➢ Click【GO】button and the velocity monitoring will start.

◆ **Stop**

➢ Click【Stop】button and the velocity monitoring will stop.

◆ **Reset**

➢ Click【Clear】button and velocity data is reset.

◆ **Unit of Velocity**

➢ Select the unit of velocity in combo box in Menu bar. You can select 0-500[mm/sec] or 300-800[mm/sec].

◆ **Close Velocity monitor**

➢ Click【×】button in caption bar and close Velocity Monitor.

4. Operation in Graph monitor

The real time data of Angular velocity, Acceleration and Attitude angle from IMU device are displayed on chart.

Graph is displayed in 20ms cycle. Also, this operation has more functions as follows.

◆ Data logging

  ➢ The data is logged for 6 hours max.

    Note: The cycle of logged data is changed depending on Communication format.

    ・BIN50 format (50Hz): 20ms cycle data

    ・BIN100 format (100Hz): 10ms cycle data

    ・RAW200format (200Hz): 5ms cycle data

Note: the content of logging data is changed depending on Communication format.

Format＼Item	BIN50format	BIN100format	RAW200 format
Angular velocity, x	○	○	○
Angular velocity, y	○	○	○
Angular velocity, z	○	○	○
Acceleration, x	○	○	○
Acceleration, y	○	○	○
Acceleration, z	○	○	○
Roll	○	○	○
Pitch	○	○	○
Yaw	○	○	○
Velocity, x	○	○	×
Velocity, y	○	○	×
Velocity, z	○	○	×
Position, x	○	○	×
Position, y	○	○	×
Position, z	○	○	×

◆ EXCEL data export

  ➢ Export the logged data in EXCEL format and the datasheet is displayed automatically

◆ Hard copy

  ➢ Copy the chart

◆ Individual chart display

  ➢ Select the chart which you want to display. It will be displayed individually.

    In the initial setting, Angular velocity, Acceleration, Angle attitude are displayed.

- ◆ **Start**
  - ➢ Click【Chart】button in Menu Bar.
- ◆ **Run**
  - ➢ Click【GO】button and the monitor is displayed.
- ◆ **Stop**
  - ➢ Click【Stop】button and the monitor is stopped.
- ◆ **Logging**
  - ➢ Click【Chart】button in Menu Bar and start logging on chart.
  - ➢ Axis scale of time -> Display Scale: Set the time to be displayed on the screen. From 1 sec to 10 sec are applicable.
  - ➢ Axis scale of time -> LOG time: Set the time to log. From 1 sec to 21600 sec are applicable.
  - ➢ Click【LOG Start】button in Menu Bar and start logging.
  - ➢ Logging is finished according to LOG time. Dialogue box is displayed on the screen.
    If you want to finish logging before LOG time, click【LOG Stop】in Menu Bar.
- ◆ **EXCEL data export**
  - ➢ After data logging, click【File】-> 【EXCEL Export】button in Menu Bar.
  - ➢ EXCEL starts automatically and chart data is exported**.**
- ◆ **Hard copy**
  - ➢ Click【Print Screen】in Menu Bar and this application is copied.
  - ➢ By using another application such as Paint, please paste & save the data.
- ◆ **Individual chart display**
  - ➢ Fill in the checkbox of Acceleration, Angular velocity, Angular attitude which are to be displayed on the screen. If you uncheck the checkbox, it will be out of screen.
    Note: at least 1 item is displayed on the chart. You cannot uncheck all the items.
- ◆ **Close the chart**
  - ➢ Click【×】button in caption bar and close the chart.

Others

◆ Language

In this application, you can select Japanese or English in the following procedure.

➢ Click【Tools】->【Options】 button.

➢ In Options dialogue box, there is [Application language selection] where you can change the language.

➢ Click【Save】button. The application restarts automatically in selected language.

■ Microsoft .NET Framework Version 2.0 is required for this application.

If needed, please download it from Microsoft website and execute setup.

Note: If you use Windows Vista or later OS, the setup is not needed.

<URL: https://www.microsoft.com/en-us/download/details.aspx?id=6523>

■ Microsoft Microsoft DirectX Runtime is required for 3D monitor.

If needed, please download it from Microsoft website.

<URL: https://www.microsoft.com/en-us/download/details.aspx?id=35>