User's Manual for IMU Simulator for Motioncoder GPS

How to install the application

1 Click "setup.exe" in the attachment.

2 Specify the installation destination address.

3 Select whether to create a shortcut on the desktop.

4 Installation will start.

5 Dialog box is displayed on the screen. Installation will be completed.

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 1.0.0.9.

<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 for Motion coder GPS】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 to IMU device.

      In this application, only BIN 50 format (50Hz) is applicable.
  - 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.
  - Time
    - Set the Coordinated Universal Time (UTC) of the GPS time displayed on the 2D monitor.

      Initial setting: UTC+9(JST)

- Unit of data
  - Set Angular velocity, Acceleration, Angle Attitude, Direction velocity, Direction velocity, Direction position.

    In this application, only Angular velocity, Acceleration and Angle Attitude can be selected.
- X-File
  - Specify the DirectX Graphics Object file to be used for 3D monitor.
- KML File
  - Specify the folder to save Keyhole Markup Language file.

    Initial setting: <C:¥Users¥[User Name]¥Documents¥IMU Simulator GPS>
- Google Earth
  - Enter the full path of address where Google Earth (googleearth.exe) is installed.

    Initial setting: <C:¥Program Files¥Google¥Google Earth¥client¥googleearth.exe>

1. Operation in 2D monitor

Angular velocity, Acceleration and Attitude angle and GPS data 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.
- **Offset Cancel**
  - Click【Offset Cancel】and the offset cancel is processed.
- **Google map**

  The application is automatically connected to Google map if the device is online.
  - 【Research】: Longitude and Latitude from GPS are loaded in real-time and the current location is displayed automatically.
  - 【Stop】: Researching stops.
  - 【Location】: Longitude and Latitude from GPS are displayed.
- **Close 2D monitor**
  - Click【×】button in caption bar and close 2D monitor.

Note

・For the details of Offset Cancel, please refer to the specification for IMU.

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.
- **Offset Cancel**
  - Click【Offset Cancel】and the offset Cancel is processed.
- **Close 3D monitor**
  - Click【×】button in caption bar and close 3D monitor.

Note

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

3. Operation in Graph monitor

- The real time data of Angular velocity, Acceleration and Attitude angle from IMU device are displayed on chart. Also, this operation has more functions as follows.
  - Data logging
    - In BIN50format (50Hz), 20ms cycle data is logged for 6 hours (max).

      [Content]

      ・Counter

      ・Status

      ・Angular velocity for 3 axis (X, Y, Z)

      ・Acceleration for 3 axis (X, Y, Z)

      ・Angle attitude（Roll, Pitch, Yaw）

      ・GPS（Time, Latitude, Longitude, Altitude, Azimuth, Speed, Number of satellite, Accuracy）
  - EXCEL data export
    - Export the logged data in EXCEL format and the datasheet is displayed automatically.
  - Google Earth data link
    - KML file (Keyhole Markup Language) is created from logged data and linked to Google Earth.
    - GPS Route is displayed.
  - 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, GPS Altitude and GPS Speed 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, GPS Altitude and GPS Speed 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.
- **Google Earth data link**
  - Click【Chart】button in Menu Bar and start Chart.
  - Click【KML Export】button.
  - KML file (Keyhole Markup Language) is created. Please refer to Application Setting in page 1 in this manual for the saving address.
  - Click【Google Earth】button.
  - Google Earth will start and GPS Route is displayed.
- **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>