

# Trigno Discover

## User's Guide

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# 1 Important Information

## 1.1 Intended Use

The Trigno Discover App is a software application to be used with the Trigno Wireless Biofeedback System. The function of the Trigno Discover App is to provide visual biofeedback from the Trigno System and save collected data to a local file system. This app is designed to work exclusively with the Trigno Wireless Biofeedback System for biofeedback and research applications and is not intended to be used in diagnostic or safety-critical applications.

The Trigno® Wireless Biofeedback System is a battery-powered biofeedback device that enables researchers and clinicians to acquire EMG and related signals from subjects for biofeedback and research purposes. Interpretation of the EMG and supporting signals by a qualified individual is required.

### Rx ONLY



Please refer to the Trigno Wireless Biofeedback System User Guide for additional important information.

## 1.2 Technical Service and Support

For information and assistance, please visit:

[www.delsys.com](http://www.delsys.com)

Contact us:

E-mail: [support@delsys.com](mailto:support@delsys.com)

Telephone: (508) 545 8200

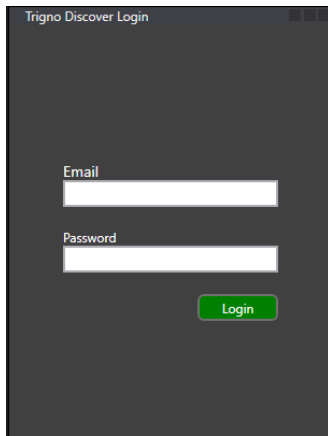
## 1.3 Device Requirements

- Windows 10 PC
- Recommend PC Specifications
  - USB 2.0 port
  - 3.0 GHz processor clock speed, quad core
  - 16 GB system memory
  - 500 GB hard disk storage
  - 1680 x 1050 resolution
- Trigno Base Station
- At least 1 Trigno Sensor

## 2 Application Overview

The Trigno Discover App is a PC application created by Delsys to allow data acquisition, real-time biofeedback, and operation of the Trigno™ Wireless Biofeedback System. The Trigno Discover App is designed to provide a user-friendly biofeedback and data storage experience by communicating with sensors directly using the Trigno RF communication protocol.

## 3 Login Screen



Upon initializing the Trigno Discover app on a PC, it will request the user to login to verify their license. If you did not receive the appropriate licensing information, or have any questions about the login process, please contact [support@delsys.com](mailto:support@delsys.com) or at (508) 545 8200.

## 4 Home Screen

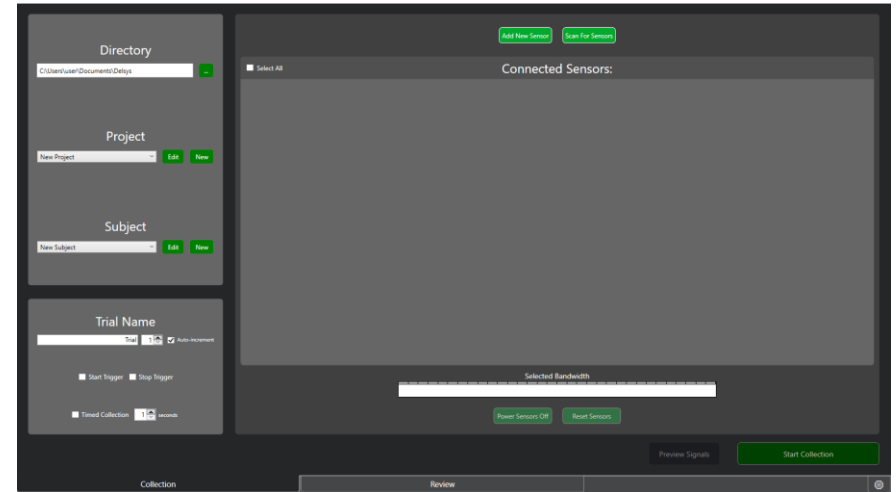


Figure 1: Trigno Discover home screen

Upon opening, the Trigno Discover App immediately scans for and connects to available Trigno sensors using a connected base station.

#### 4.1 Workspace Panel

The root directory for data collection files will default to the PC directory “C:\Users\[user]\Documents\Delsys\TrignoDiscover”.

If the Documents\Delsys\TrignoDiscover directory does not exist, the application will create a new folder at that location. Users can change this root directory by clicking on the “...” button next to the current directory text box.

“Projects” are folders that are inside of the root directory’s Trigno Discover folder. By default, the application will create a New Project folder. Edit the project name by selecting it from the dropdown then clicking on Edit. Make changes to the project name and click save. Add a new project by clicking on new, typing the project name, and clicking save. A folder will be created.

Subjects are folders located inside of the project folder. By default, the application will create a New Subject folder inside of the project directory. Edit any subject ID from that project by selecting it from the dropdown then clicking on Edit. Make changes to the subject ID and click save. Add a new subject by clicking on new, typing the subject ID, and clicking save. A folder will be created.

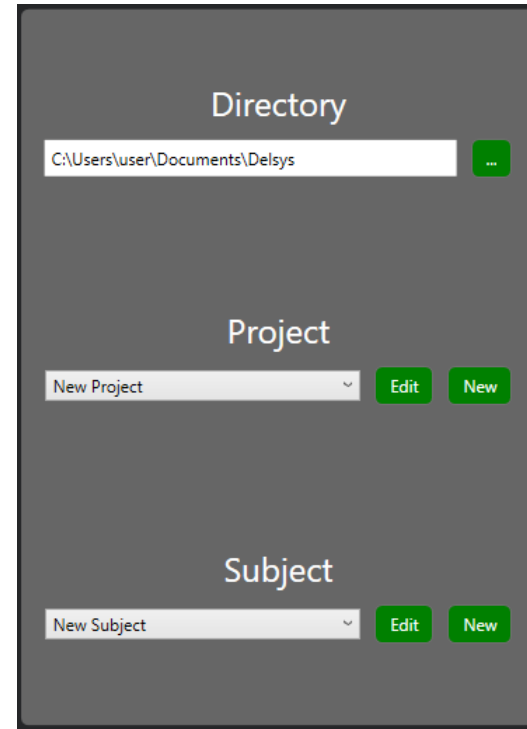


Figure 2: Home screen workspace panel

## 4.2 Sensor Configuration (Trigno Control Utility) Panel

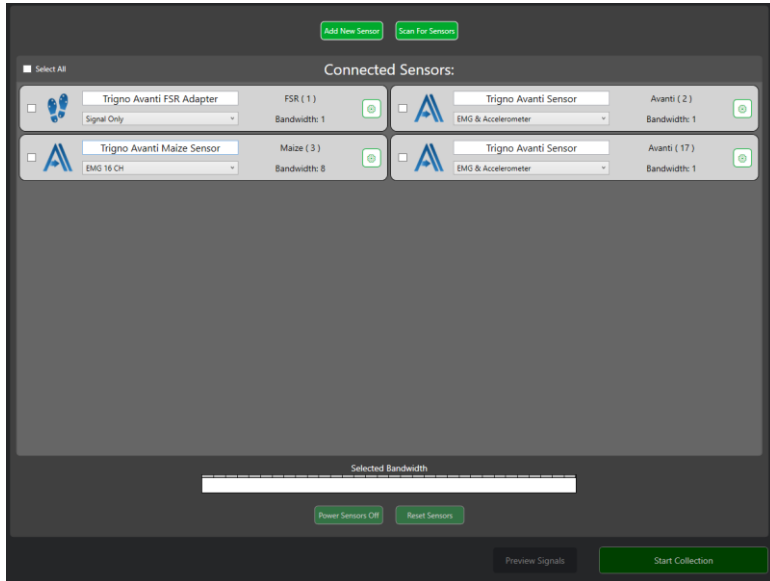


Figure 3: TCU Pane – used for adding, scanning, selecting and configuring sensors

The Trigno Control Utility (TCU) is a control module used to organize and configure Trigno sensors. Pair 1-32 sensors, select the ones being used for data collection, and click “Start Collection” to begin.

## 4.3 Add New Sensor

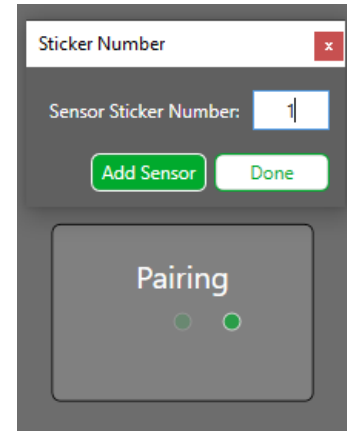


Figure 4: Add new sensor

Click the “Add New Sensor” button and a pop-up will appear. Enter the sensor sticker number (or any number between 1-99) and click “Add Sensor”. Remove the sensor from the charge station and place it against the magnet to turn it on. Once the sensor is flashing amber/cyan hold the sensor up to the magnet again until it blinks green. The sensor will blink green/orange when it is connected. Trigno Discover will add the sensor to the connected sensor list. Pair another sensor or click “Done” to finish adding sensors.

## 4.4 Scan For Sensors

Click the “Scan For Sensors” button to begin a scan. Sensors that have been previously paired will appear in the connected sensors list as long as they are powered on. If a scanning error occurs, re-pairing all active sensors may be necessary.

### 4.5 Select a Sensor

Click on the sensor checkbox to select/deselect it. The sensor pane will highlight green and the sensor will be added to the “Selected Bandwidth” bar at the bottom of the application window. Click the “Select All” button to select all sensors. **Only selected sensors will be displayed and recorded for data collection.**

### 4.6 Sensor Configuration

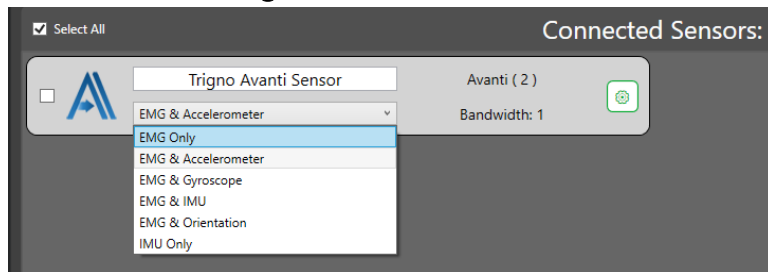


Figure 5: Quick sensor mode selection

Choose a preset sensor mode by clicking on the mode dropdown and selecting an option. The selected mode will determine what channels are displayed and recorded during data collection.

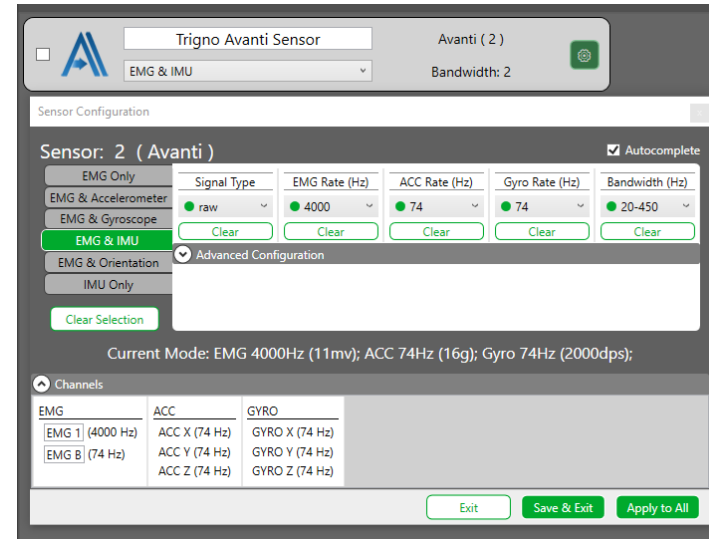


Figure 6: Advanced configuration mode parameters

Click on the gear icon to bring up the sensor configuration popup window. Use the preset tabs on the left to toggle the different modes and their parameters. Click the “Clear Selection” button to clear all of the selected settings. Use parameter dropdowns to choose a value. The autocomplete toggle in the top right can be used to populate parameters based on previous parameter choices. For example, if a 4000 Hz EMG Rate is selected, the highest ACC or GYRO rate is 74 so it will auto populate those values if Autocomplete is selected.

Customize individual channel names by clicking the “Channels” dropdown and typing in the name in the channels text box.

Click “Save & Exit” to apply the current settings. Click “Apply to All” to set the same settings on all sensors of the same type. The “Apply to All” button does not work across different sensor types.

#### 4.7 Trial Information Panel

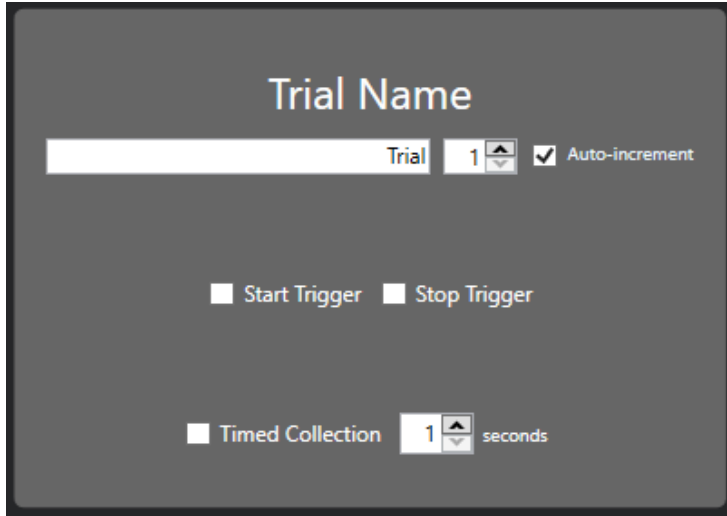


Figure 7: Trial information

During a data collection, the trial name will be saved in the format [name]\_[trial#].shpf and [name]\_[trial#].csv. These two files will be located inside of the current date folder. Files are added to existing date folders; otherwise a new date folder is created automatically. If the “Auto-increment” checkbox is enabled the trial number will increase by one each time a collection is run. If Auto-Increment is not selected, it is the responsibility of the user to ensure unique trial names and numbers to prevent data being overwritten.

If a trigger module is connected, it is possible to exercise base station trigger functionality by enabling the “Start/Stop Trigger” checkboxes.

Enable the “Timed Collection” checkbox to collect data for a specific amount of time (in seconds). Adjust the time by using the up/down arrows or entering a number. A timed collection can be stopped before the time has elapsed by clicking the “Stop” button or if a stop trigger event occurs.

## 5 Signal Preview

Signal preview is intended for viewing real-time signals without saving the data. Select sensors in the TCU and click the “Signal Preview” button. Return to the home screen by clicking the “Back” button. Collect data to be saved with the current sensor configuration by clicking the “Start” button.



## 6 Data Collection

Select sensors from the home screen and press “Start Collection”. If a start trigger is enabled, data will not appear until the trigger event occurs. Otherwise, data will automatically begin streaming and displaying on the plots.



Figure 8: 16-channel data collection plotting in real-time

### 6.1 X-Axis Plot Controls

Trigno Discover offers a variety of plotting tools to help visualize data. The x-axis window can be increased or decreased by using the x-axis slider on the top tool-bar or hovering over a plot and using the mouse wheel. When streaming data in real-time, the plots will be in live trace mode where the live trace moves from left to right.

Acquired data are stored in memory during the collection, allowing the user to pan backwards to previously recorded data by clicking on any plot and dragging to the right. The plot window will not change while reviewing the data, but data continues to be stored. Click on the “Go to Live Trace” button on the top tool-bar to return to the real-time signals.

### 6.2 Y-Axis Plot Controls

Each plot has its own y-axis that can be scaled (zoom in/out) or panned (move up or down) individually or globally. To scale an individual y-axis, hover over the y-axis and click and drag up or down to zoom in or out. To link plots toggle on the “Link Axis” checkbox in the top tool-bar. To set the plots to a continuous auto-scale, toggle on the “Auto Scale” checkbox. To pan in the y-axis, click and drag up or down inside of the plot.

### 6.3 Metrics

To display channel metrics, select the “Metrics” dropdown on the top tool-bar and show X1/X2 cursors. Two vertical line annotations will appear on each plot. Click and drag the lines to move them along the x-axis. Metric panes will appear to the left side of each plot, and will calculate the AC-RMS, RMS, and peak-to-peak values of the signals between the two cursors. To hide the metrics pane, click on the “Metrics” dropdown and select “Toggle Metric Visibility.”

## 7 Review Data

Upon completion of collection, data are immediately presented for review. Alternatively, previously recorded files can be loaded for review via the “Review” tab on the home screen.



Figure 9: 16 channel data collection in Review mode

### 7.1 Review Plots

The Review Plot mode is very similar to the real-time plot mode with additional features. The timeline control bar at the bottom can be used to scale and pan in the x-axis. Click and drag one of the end tabs to increase or decrease the x-axis range. Click and drag in between the end tabs to pan the x-axis. To return to the full x-axis range, click on the “Go to Bounds” button in the top control bar. Return to the home screen by clicking the “Back” arrow located in the top left-hand corner of the application window. If reviewing data immediately after a data collection,

clicking the “Back” button will return to the collection tab in the home screen. If using the review tab to view previously recorded data, the back button will return to the review tab in the home screen.

### 7.2 Review tab

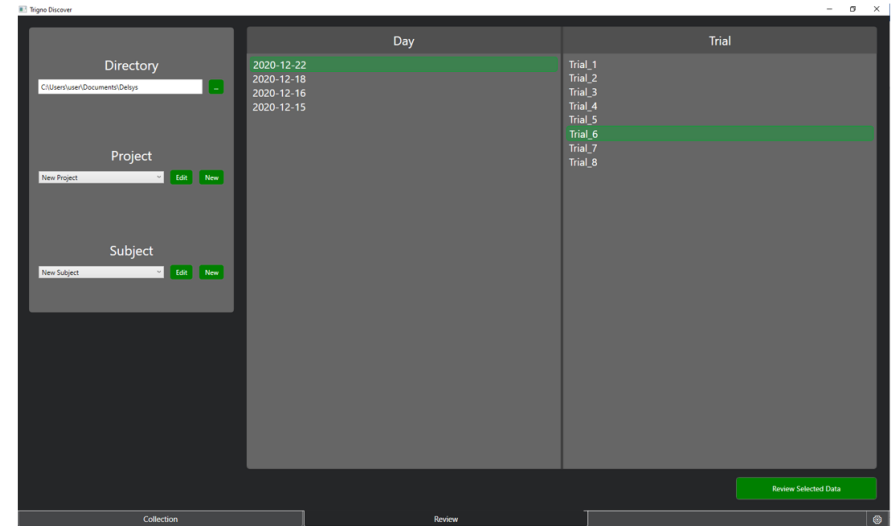


Figure 9: Review tab to browse and load previously collected trials

The review tab is used for browsing and loading previously recorded data. When clicking on the “Review” tab from the in the home screen, the program will default to the current directory/project/subject. To update the directory, click on the “...” button next to the directory text box. Use the dropdowns to change the project/subject. The day column will populate based on the date folder for that subject and the trial column will populate based on the trials that occurred on that date. Click on a trial to select it and click the “Review Selected Data” button on the bottom to load the data into the review plots.