PhysLogger

Installation and Quick Start Guide
V 1.0

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Contents

Introduction

PhysLogger is a tremendously versatile yet easy-to-use data acquisition and output tool. It is built on top of an adaptable hardware and an intuitive software called PhysLogger Desktop. By interfacing with over 15 sensing and actuating **PhysInstruments**, PhysLogger enables fast and accurate recording, measurement, analysis, and control of data.

This quick user guide will help you set up and use PhysLogger along with its PhysInsruments in a few, simple steps. (Please note that the displayed screens and software sequence may differ, based on the version of your PhysLogger.)

1 Getting Started

PhysLogger is not an independent device and needs to be connected to a computer to operate. Its software application: PhysLogger Desktop will also need to be installed on the PC. The software application is used to communicate with PhysLogger as well as to visualize and manipulate any collected data.

1.1 Installing PhysLogger Desktop

System Requirements

- Windows 7+
- RAM 4 GB and above
- Direct X9 Support (included in software)

The Installation

1. Download the Qosain Package Manager from the following link:
   https://github.com/QosainScientific/PackageManager

   Note: Your web browser and operating system may warn you against downloading the executable but you need to ignore this warning and continue. (When warned by Microsoft Defender SmartScreen, select `More information` and then click on `Keep anyway`.)
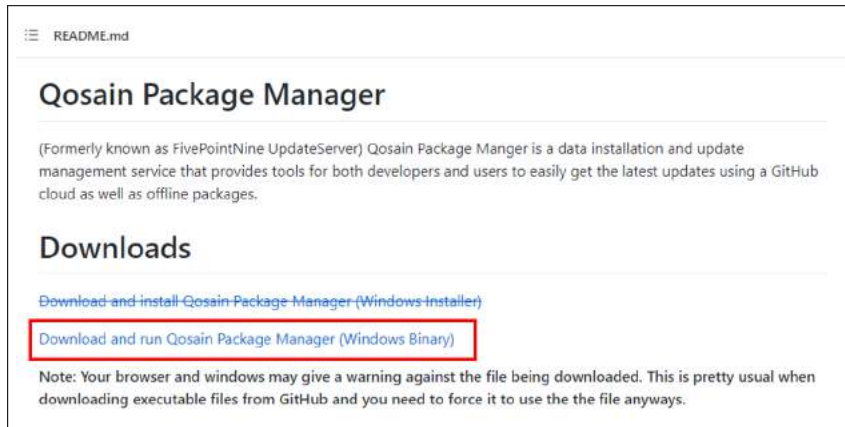
Figure 1.1: Navigate to and click the link for downloading and running Qosain Package Manager [1]

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2. Once downloaded, launch the `Package Manager` 🔽 to install PhysLogger Desktop.

   Note: Prior to installation, ensure that the computer has an active internet connection.

Figure 1.2: PhysLogger Desktop Application is installed using Qosain Package Manager. A working internet connection is required to complete the installation.

3. Click on `Install`.

   `Install` requires an active internet connection for completely installing the package. Whereas, `Make Offline Installer` will allow you to download the PhysLogger Desktop installation package while you are connected to the internet. Later, you may perform the installation, while offline, or transfer the standalone setup to other computers (e.g., via USB) for offline installation.

4. Depending on your requirements and the intended use of PhysLogger, select `Single User` or `Multiple User Installation` → `Next`.

   Note: In `Single User Installation`, PhysLogger Desktop is installed for that user only who is currently logged into the PC. In contrast, `Multiple Users Installation` requires administrative privileges and installs PhysLogger Desktop for all user accounts on a PC. In either case, each user can save their data in their local folders, independently.
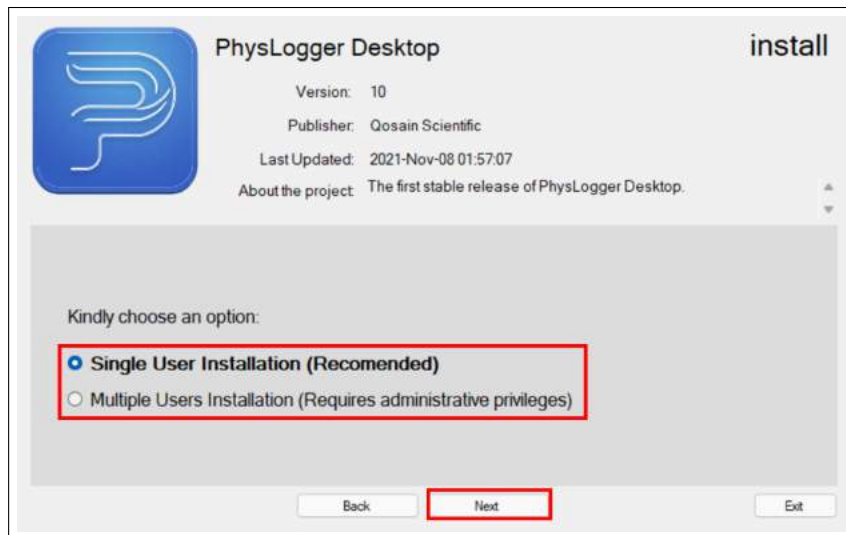

Figure 1.3: Select the type of installation.

5. Specify the directory where the PhysLogger Desktop package will be installed. It is recommend that you accept the default directory for the type of installation selected earlier.

Figure 1.4: Specify the installation location for PhysLogger program and user files.

6. The PhysLogger Desktop installer will now load a series of wizards to guide you through the process.

   Note: When asked, un-check the installation of Bing Bar.

   Note: If any auxiliary installation requires the system to be restarted, you are advised to skip restart, finish PhysLogger installation first, and then restart your system.

Figure 1.5: You will see this dialogue box once installation has completed successfully.

1.2 Updating PhysLogger Desktop

Once installed and whenever connected to the internet, PhysLogger Desktop will automatically check the Software Update Server for recent releases and updates.

There are two basic ways by which the application can be updated:

1. Once the application has been installed, launch it and select `Options → Preferences → Expert → Check for Updates`.

2. Run `Update.exe` (an executable file found in the installation directory of PhysLogger) to check for and perform recent updates.
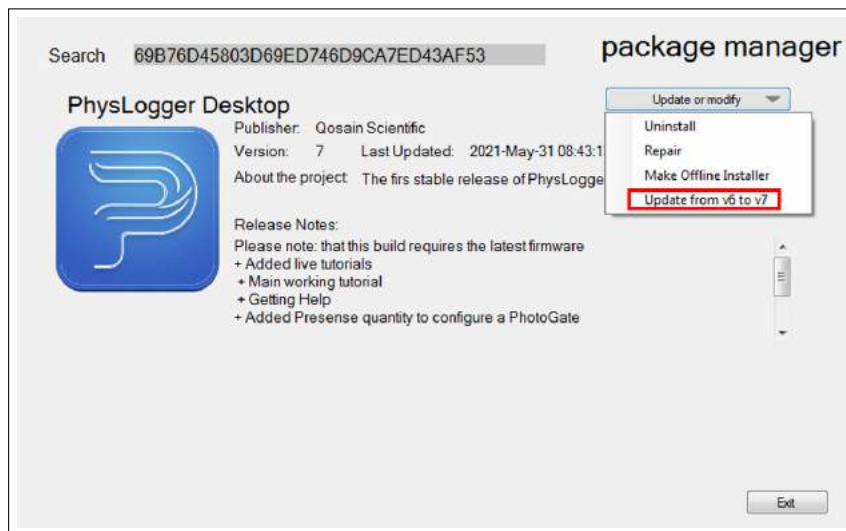

Figure 1.6: Any latest update or version of PhysLogger Desktop, if available, will be visible in the Package Manager.

1.3 Powering PhysLogger

PhysLogger is powered by the USB port of your computer and does not require any additional batteries or other power supplies.

1. Connect the small end of the provided USB cable to the USB port (⟲) of PhysLogger.

2. Connect the other end of the cable to a USB port of your computer.

3. If the computer is on, a green LED on the PhysLogger will immediately light up, indicating that it has been powered on.
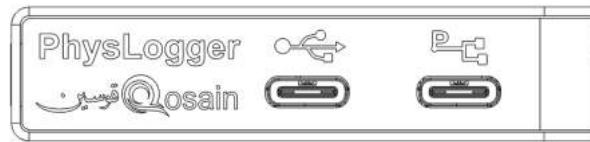
Figure 1.7: Insert the USB cable in the ⟜ port to connect to the computer. The other port, ⊑ᄆ is used if numerous PhysLoggers need to be connected together to form a network of PhysLoggers.

4. After some time, a blue LED on the device will also switch on.

    Note: If either of the green or blue LED do not switch on, check the USB port of your computer or test with a changed USB cable.
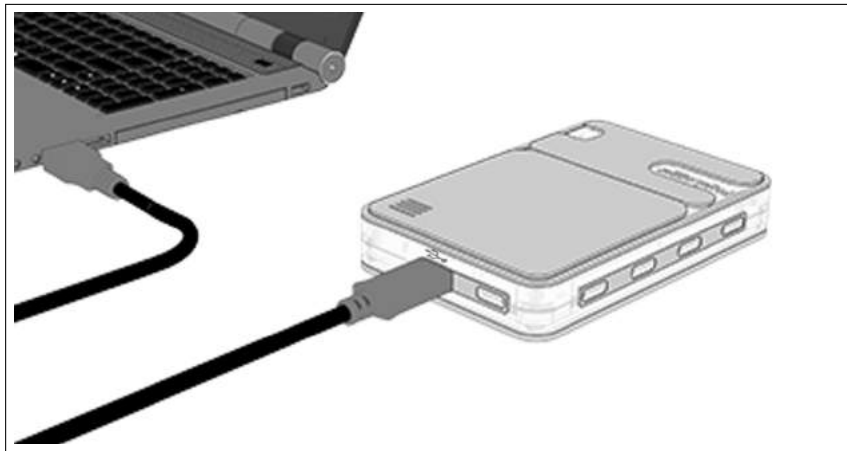

Figure 1.8: One end of the USB cable is connected to the USB port of the PhysLogger device, whereas the other end is connected to the USB port on your computer. No other source is needed to power the PhysLogger device.

Figure 1.9: LED lights indicate that the PhysLogger device has been powered on and is ready to be used.

2 Exploring PhysLogger Desktop

2.1 Starting PhysLogger Desktop

Launch PhysLogger Desktop by double-clicking its icon [icon] that can be searched for and found on your desktop, Start Menu, or Installation Directory.

2.2 Connecting a PhysLogger Device

- PhysLogger Desktop will detect and show the PhysLogger that is connected to your computer (Section 1.3) on the start screen (See Figure 2.1).
- Avoid connecting more than one PhysLogger to the PC at once. If you want extended number of analog and digital channels, interconnect PhysLoggers by connecting them via the [icon] port.

Figure 2.1: If a PhysLogger is connected to your PC, the application will launch at this self-guided tour screen.

- If no PhysLogger is connected to your computer, you may use the `Virtual PhysLogger`. `Virtual PhysLogger` simulates PhysLogger and PhysInstruments with dummy data.
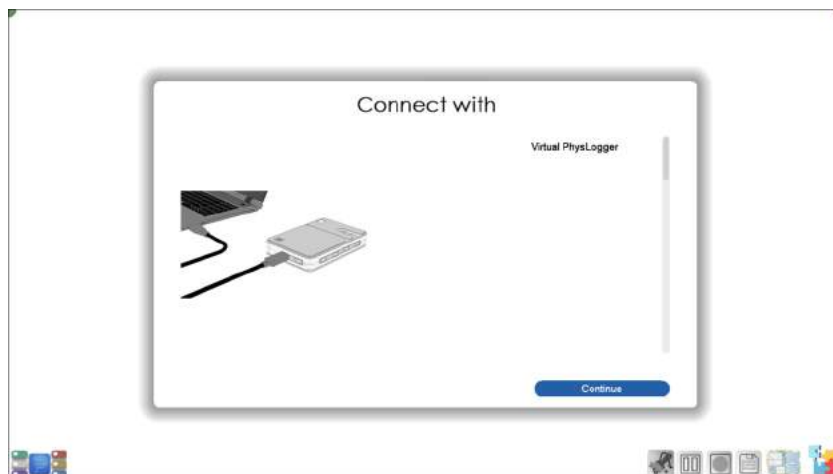

Figure 2.2: If no PhysLogger is connected to your computer, `Continue` with `Virtual PhysLogger` to tour PhysLogger.

2.3 Personalizing PhysLogger Desktop

The `Options` button, present on a top corner (in English language mode) of every screen of the PhysLogger Desktop allows you to `Close` the application as well as adjust the software `Preferences`.
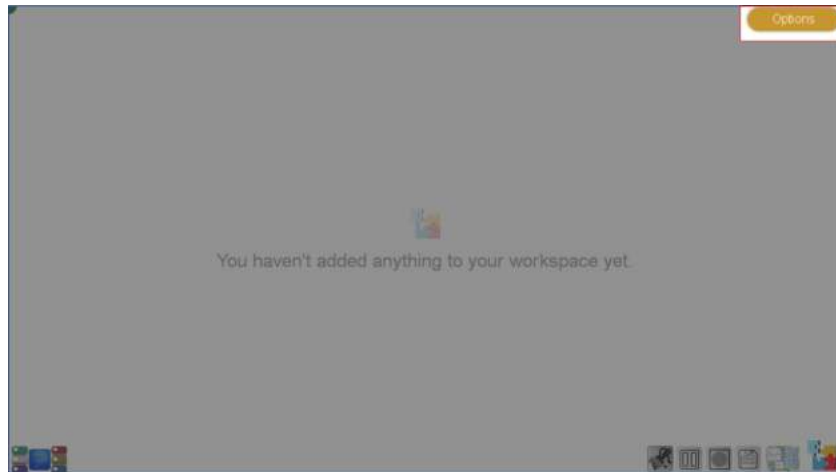
Figure 2.3: `Options` can be found on the corner of every screen in PhysLogger Desktop App.
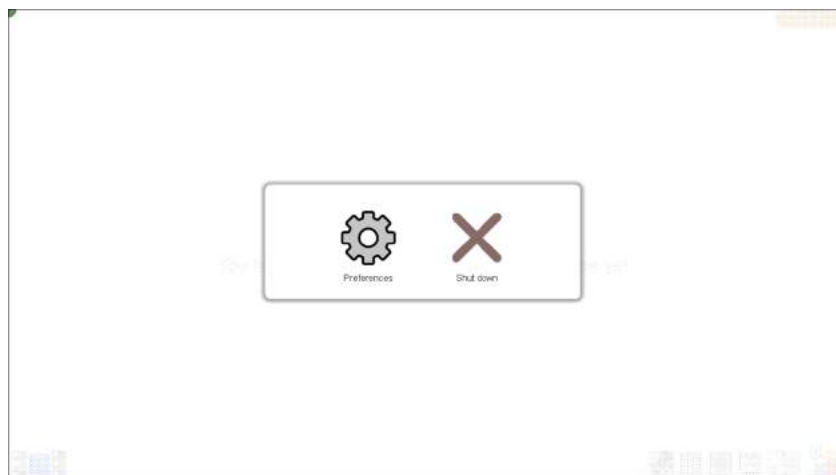

Figure 2.4: Clicking on `Options` will allow you to adjust `Preferences` (e.g., number format, saving and opening workspaces, language settings, storage location, checking for updates, and accessing `Console`) or `Shut down` PhysLogger Desktop.

2.4 Changing the Language Preferences

At any point, you may switch the language of the application. This can be changed by either pressing **F11** key on your keyboard or by selecting your preferred language from `Preferences`.
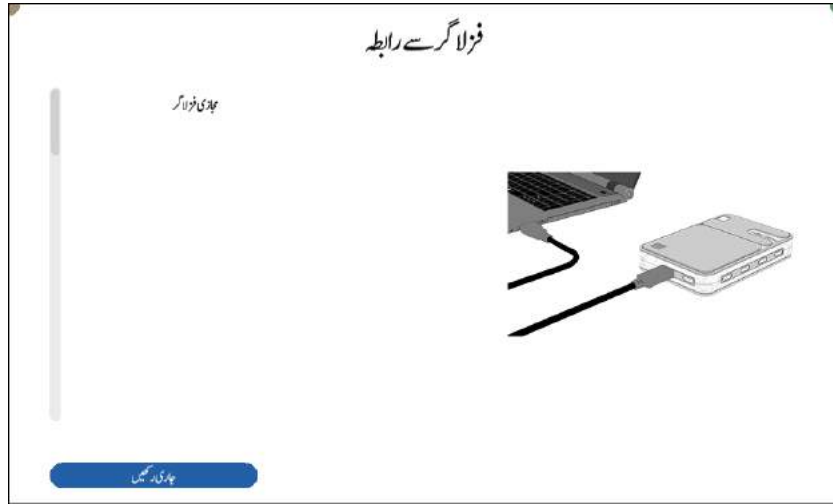
Figure 2.5: Language can be changed from `Preferences` or by pressing the **F11** key on your computer. Changing the language also alters the software alignment.

3 Connecting Instruments

Any sensing or actuating device that interfaces with PhysLogger is called a PhysInstrument. There are three types of connectors on each PhysLogger device:

1. **Four Analog Channels**
   Examples of Analog PhysInstruments that plug in these channels include PhysTherm; PhysGate; PhysHall; I, V, R Probes; and PhysBell.
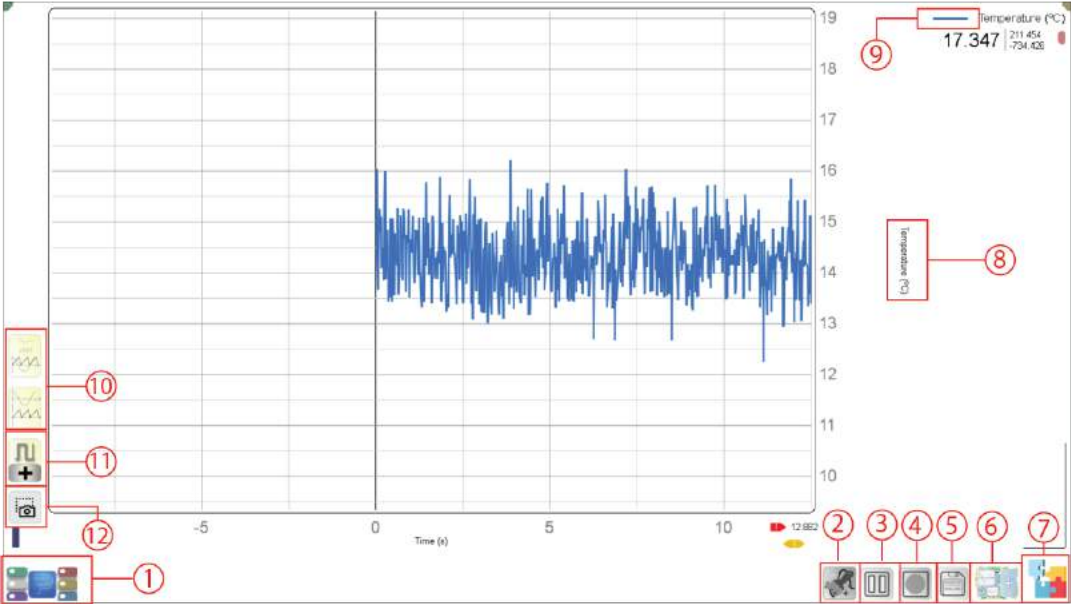
2. **Four Digital Channels**
   Examples of Digital PhysInstruments that plug in these channels, include PhysWatt, PhysLoad; PhysBar; PhysHygro, PhysCloud; and PhysDisp.

3. **Eighteen Pin Connections**
   These connections are used to expand the connectivity of PhysLogger and can connect both sensing and outputting devices.

4 User Interface of PhysLogger

(a)
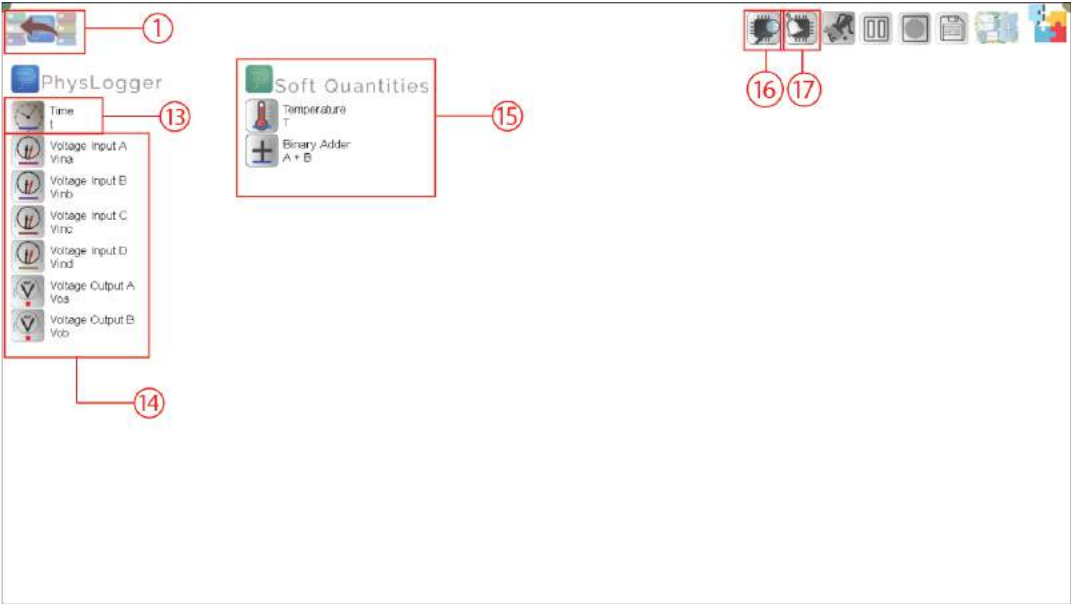
(b)

Figure 4.1: The user interface of PhysLogger Desktop. Figure 4.1b shows the screen that will appear when (1) Quantities Panels is clicked. See Table 4.1 for a description of the various icons and widgets. (Please note that the UI may undergo slight changes with software upgrades).

No.	Icon and its Description
1	**Quantities Panel** When clicked, this button shows: all the quantities of PhysLogger; the configured instruments; and soft quantities. It also displays additional widget options. Figure 4.1b shows an expanded quantities panel.
2	**Clear Liveplot** Clears the liveplot and resets the data being collected.
3	**Pause** Pauses measuring, recording, and plotting of data.
4	**Record** Data is plotted and recorded for a set interval of time.
5	**Save Data** Please note that when Saving is clicked, PhysLogger pauses data logging.
6	**Add Pages**
7	**Extensions** Click to access Widgets Menu or go back to the self guided tour screen (Figure 2.1)
8	**Quantity being logged** Click to change the units and toggle auto-scaling of the plot.
9	**Plot Line Adjustments**
10	**Cascade or overlap multiple plots** These options are useful when more than one quantity is being plotted. Avoid overlapping the plots of those quantities that have conflicting units.
11	**Add Live Plot**
12	**Take Screenshot**
13	**Time Setup** Adjust the sampling frequency of PhysLogger. (An important rule of thumb for sampling frequency is the Nyquist Theorem.)
14	**Voltages of PhysLogger Channels**
15	**Soft Quantities Panel**
16	**Scan** Scans and detects any (digital) PhysInstrument that may have been connected to PhysLogger after launching the application.
17	**Reset Workspace and PhysLogger setup**

Table 4.1: Description of some PhysLogger user interface icons and widgets, as labelled in Figure 4.1.

5 Getting Help

5.1 Help in Software

The `Help` button is present on all screens of PhysLogger Desktop. When clicked on the start screen, `Help` uses a guided tutorial to teach you how to configure and use PhysLogger Desktop. At a particular screen, `Help` will display all resources related to the widgets and functions on that screen.
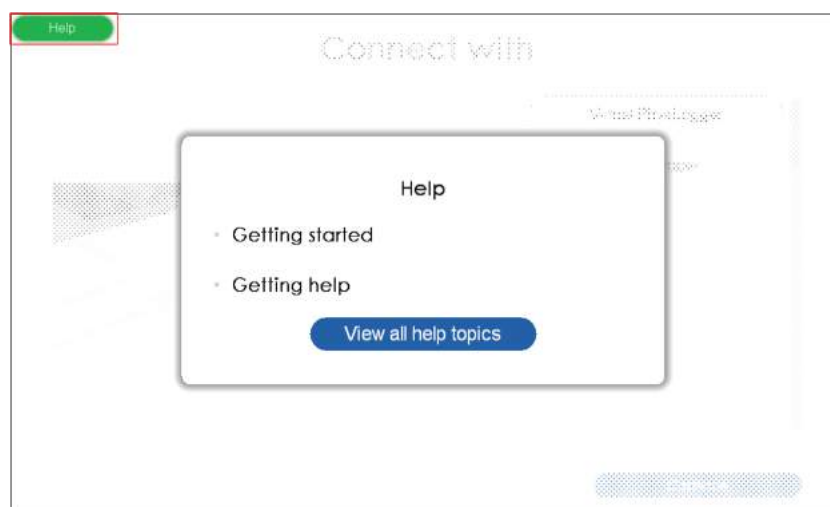

Figure 5.1: Whenever you get stuck, seek `Help`! Clicking on `Getting Started` on the start screen will teach you all the basics of PhysLogger using a series of guided tutorials. Other buttons allow you to read through a library of help topics.

5.2 Community Forum

We have created a community forum, accessible at: www.community.physlogger.com) which allows you to easily interact with the developers and fellow users of PhysLogger. You may use the forum to ask questions; provide feedback; report issues about PhysLogger and other instruments; share your ideas; and engage in many other useful discussions!