

Getting Started with

LabTutor® Teaching Suite



LabTutor Teaching Suite

This guide will help you to quickly set up and start using the LabTutor Teaching Suite. It describes a typical install scenario. For detailed installation and set up instructions, and troubleshooting information, please refer to the *Administrator's Guide* on the software DVD.

If any item on the packing list is missing, or the PowerLab® seems to be damaged in any way, please contact your authorized ADInstruments® representative.

The LabTutor Teaching Suite offers two major advances:

1. Centralized experiment storage and administration
 - with LabTutor Server.
2. Access to experiments from outside the classroom
 - with LabTutor Online.

System Requirements

LabTutor Server

- Microsoft Windows 7 or Vista SP1, or later
or Microsoft Windows Server 2003 or 2008, or later
- The LabTutor Server system requirements can vary greatly.
- The LabTutor Server Installation Advisor can be run on a prospective server computer to determine if it meets the recommended system requirements for running LabTutor Server in a particular environment.
- The LabTutor Server Installation Advisor can be downloaded from www.adinstruments.com/LabTutor-Server-Advisor

LabTutor Client & LabAuthor®

- Microsoft Windows 7 or Vista SP1 or later
- Microsoft .NET Framework 2.0 SP2 or 3.5 SP1
- Microsoft Internet Explorer 9 recommended, or 7.0 or later
- 1 GB RAM minimum

Overview

The LabTutor Teaching Suite consists of the following software components:



LabTutor Server controls student access to experiments, and stores all student data. A web interface is provided for managing the server and the experiments, students and data associated with courses. LabTutor Server makes experiments and student data available to LabTutor Client and LabTutor Online. LabTutor Server should be installed on a dedicated server computer.



LabTutor Client displays LabTutor experiments, and handles communication with LabTutor Server and the PowerLab. It should be installed on each computer in the student laboratory. LabTutor experiments contain all instructions needed by students, as well as interactive components that sample and display real data from a PowerLab.



LabTutor Online is an internet-based service that provides the ability for students to view their experiment data and to complete and submit experiment reports. This can be done from any computer or mobile device that has an internet connection and a web browser that supports Flash or HTML5. LabTutor Online also allows administrators to view and assess students' experiments over the internet.



LabAuthor is a tool for customizing, or creating, LabTutor experiments for your courses. LabAuthor can be used on a stand-alone computer that need not be connected to LabTutor Server or the network. Once you are finished creating or editing an experiment it can be exported from LabAuthor as an experiment installer and installed to LabTutor Server.

Checklist

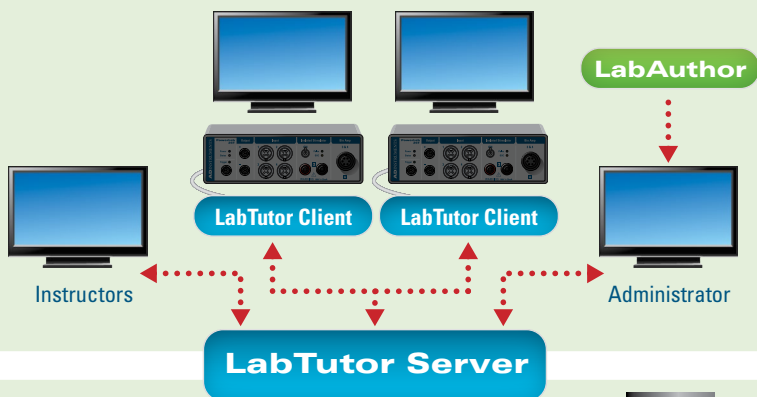
1. Check IT Infrastructure	<input type="checkbox"/>
2. Set Up LabTutor Server	<input type="checkbox"/>
3. Configure LabTutor Server	<input type="checkbox"/>
4. Install Experiments	<input type="checkbox"/>
5. Set Up Courses	<input type="checkbox"/>
6. Import Student Details	<input type="checkbox"/>
7. Activate LabTutor Online	<input type="checkbox"/>
8. Set Up LabTutor Client	<input type="checkbox"/>
9. Access LabTutor	<input type="checkbox"/>
10. Perform Experiments	<input type="checkbox"/>
11. Review Experiments	<input type="checkbox"/>
12. Maintaining LabTutor Server	<input type="checkbox"/>
13. Set Up LabAuthor	<input type="checkbox"/>

1. Check IT Infrastructure

The first step is to ensure that the IT infrastructure of your laboratory is able to support the client-server model of the LabTutor Teaching Suite.

1. All computers should reach the minimum system requirements.
2. The client and server computers must be connected and able to communicate over the network.
3. It is recommended that you use a dedicated computer to run LabTutor Server to avoid resource conflicts.

Institution Network



Internet



2. Set Up LabTutor Server

If you are updating a previous installation of LabTutor Server, all application and student data will be retained.

1. You should use the LabTutor Server Installation Advisor on your chosen computer in order to determine if it is suitable to be used as a LabTutor Server (download from www.adinstruments.com/LabTutor-Server-Advisor)
2. Insert the supplied LabTutor Teaching Suite Software DVD into the server computer, or run the stand-alone LabTutor Setup Installer.
3. In the LabTutor setup window that appears, click **LabTutor Server**. The server setup screen will guide you through the installation.
4. When prompted, supply an administrative user name and password and enter your license details.
5. When installation is finished, use the LabTutor Server desktop shortcut to begin configuring LabTutor Server.

First Run Configuration

When you go to the admin pages for the first time, you will be prompted to install a security certificate. This will allow you to access the admin pages without receiving browser security notifications.

1. Follow the on-screen instructions to complete the installation.
2. Continue to the administration pages.

Access Administration Pages

You can access the administration pages using the LabTutor Server admin desktop icon or start menu item. You can also access the LabTutor Server administration pages on any networked computer.

1. Into the address bar of your web browser, enter:
 - *http://<LabTutor Server IP address>/admin/* or
 - *http://<LabTutor Server computer name>.<domain>/admin/*
2. Use your administrator user name and password to log in.

3. Configure LabTutor Server

The LabTutor administration pages are a central place to configure the LabTutor Server and manage experiments, courses and students.

Configuration

1. Go to the **Server > Configuration** page.
2. Enter a **Department** and **Organization** name.
3. Select the language to use for pages that students will see.
4. Click **Save**.

Add Administrative Accounts

You can make multiple administrative accounts.

1. Choose **Server > Administrators**.
2. Click **Add** and enter a new administrator user name.
3. Take note of the temporary password

When an administrator first logs on using a new user name they will be asked to supply the temporary password and create a new password.

Security Certificate

If you did not install the security certificate on the first run configuration screen and you receive website certificate errors when you access the administration pages, you can install the security certificate to avoid them in the future. Note that you will need to do this on each computer that you use to access the administration pages. For Internet Explorer:

1. Choose **Server > Configuration**.
2. Click **Download Certificate** and open the file.
3. Click **Install Certificate**.
4. Select **Place all Certificates in the Following Store** and choose the **Trusted Root Certification Authorities** folder.
5. Follow the on-screen steps to complete the installation.

4. Install Experiments

ADInstruments Experiments

When LabTutor Server is installed, installers for all available ADInstruments LabTutor experiments are also copied for you to install. To make the experiments available to students, they must first be installed to LabTutor Server.

1. Choose **Experiments > ADInstruments Experiments**.
2. Select the language of the experiments that you want to install.
3. Select a source of experiments to browse:
 - Install Media – Use the versions of experiments that were installed with LabTutor Server.
 - ADInstruments Website – Download the most recent versions of experiments from adinstruments.com
4. Select an experiment **Collection** and use the checkboxes to select the experiments to install.
5. Click **Install**.

Custom Experiments

A custom experiment is either one that has not been written by ADInstruments, or is a modified version of an ADInstruments experiment. You can edit experiments, or write your own using LabAuthor, and upload the resulting experiment installer file to LabTutor Server.

1. Choose **Experiments > Upload an Experiment**.
2. Click **Browse...** and choose the experiment installer file (*.ltxp) that you want to install.
3. Click **Upload**.
4. Click **Install**.

5. Set Up Courses

A course contains a set of LabTutor experiments that is available to all active students. You can create as many courses as you want.

1. Choose **Courses > Add a Course**.
2. Define **Course** and **Display** names for the course.
3. Enter an password for students to access example data.
4. Check any desired experiment and report options.
5. Click the **Experiment List** sub-tab, select one or more experiments from the **Available Experiments** list and click **Add**.
6. Click **Save**.

The screenshot shows the LabTutor Server Administration web interface. On the left is a sidebar with navigation links: Server, Experiments, Courses (highlighted), Students, Student Data, and Archives. Under 'Courses', there are buttons for 'BIO540 S1', 'BIO541 S1', 'BIO541 S2', and 'Add a Course'. The main content area is titled 'Edit Course' and has two tabs: 'Configuration' (selected) and 'Experiment List'. The 'Configuration' tab contains several sections: 'Course name' with a text box containing 'BIO540 S1'; 'Display name' with a text box containing 'BIO540'; 'Example data password' with a text box containing 'password'; a section with three checked checkboxes: 'Restricted access to this course', 'Allow students to add this course with access code: BIO541pass', 'Display LabTutor TV on LabTutor Server', and 'Display LabTutor TV on LabTutor Online'; an 'Experiment Options' section with three checked checkboxes: 'Display example data in experiment preview', 'Allow students to preview experiments from LabTutor Server', and 'Allow students to start experiments from LabTutor Online'; a 'Report Options' section with 'Display Submit button' checked, 'Email reports to:' with an empty text box, 'Display Email button' checked, and 'Display Print button' checked. At the bottom of the configuration area are buttons for 'Archive Data', 'Remove students', 'Save', and 'Cancel'. The footer of the page indicates '© 2012 ADINSTRUMENTS'.

6. Import Student Details

Student details can be imported in bulk from tab delimited (.txt), comma separated (.csv) and Microsoft Excel 97-2003 format (.xls) files. Files should be formatted so that each row represents an individual student, with the student details in each column. Note that for Excel documents only data contained on the first sheet of the document can be imported.

You can also use the **Add a Student** page to manually add students to the LabTutor Server database, one at a time.

1. Choose **Students > Import**.
2. Click **Browse...** and choose the file containing student details.
3. Click **Upload**. Once uploaded, a preview will show the first few rows of the file.
4. If your file contains column titles, check **First row contains column titles**.
5. You can filter the student details using the **Import students from file if:** criteria.
6. You may wish to assign the entire student list to a restricted course. In this case, check the **Import students into course:** option and select a restricted course from the drop-down list.
7. Click **Update Preview** to show the effect of the chosen filters.
8. Click **Next**.
9. Assign each **Student List Column** to the relevant match on the list you are importing.
10. Click **Update Preview** to refresh the preview and to check that the column matches are correct.
11. Click **Next**.
12. Check that the details are correct, then click **Finish**.

LabTutor Server will import the list and merge it with any existing student list. This may take a few minutes, depending on the size of the list.

7. Activate LabTutor Online

LabTutor Online is an Internet-based service which provides the ability for students to view their experiment data (but not to record new data), and to complete and submit experiment reports.

To activate LabTutor Online you need a LabTutor Online activation certificate from ADInstruments.

1. Choose **Server > LabTutor Online**.
2. Click **Browse...** and locate your LabTutor Online activation certificate.
3. Click **Activate**. The connection status bar will turn green once the certificate is verified.
4. Click **Save**.

Take note of the **LabTutor Online name**. This is the web address that students will use to access LabTutor Online.

LabTutor Online licensing

Student licenses are required to permits access to LabTutor Online. Either Bulk licenses, which allow access for a certain number of students for a fixed period, or individual Student Access Card licenses (Optional or Compulsory), may be utilized. In Bulk licensing, the first time an active student logs in to LabTutor, they will automatically be allocated a license if one is available. In either of the Student Access Card licensing modes, the onus is on the student to obtain a Student Access Card and license themselves for LabTutor Online. These may be obtained from their Institution or other authorized reseller.

To purchase more Bulk licenses:

1. Choose **Server > Accounts and Licensing**.
2. Click the blue hyperlink **Buy licenses with myLabTutor.com** and follow the steps.
3. Navigate back to **Server > Accounts and Licensing**, click **Add** and enter the student access license key that has been emailed to you.

If you require assistance, please contact your ADInstruments representative.

8. Set Up LabTutor Client

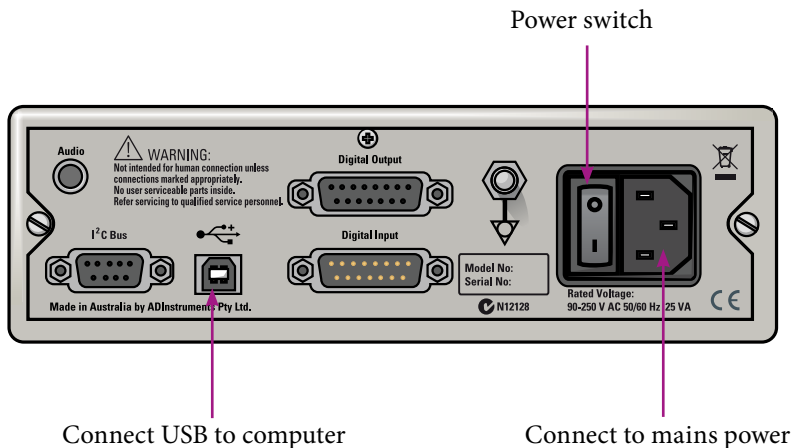
LabTutor Client must be installed on all computers that students will use to perform experiments. On each computer:

1. Using Internet Explorer, browse to the LabTutor Server address.
2. LabTutor Server will detect if the LabTutor Client is not installed
3. Click **Install...** and run the downloaded setup installer.
4. The LabTutor Client setup screen displays status messages and guides you through the installation.
5. Follow the instructions in the LabTutor Client setup screen.
6. Click **Exit**.

A shortcut to the LabTutor Student Login will be added to the desktop.

Connect PowerLabs

In most circumstances, you will need to connect a PowerLab to each of the client computers that students will use to conduct their experiments.



9. Access LabTutor

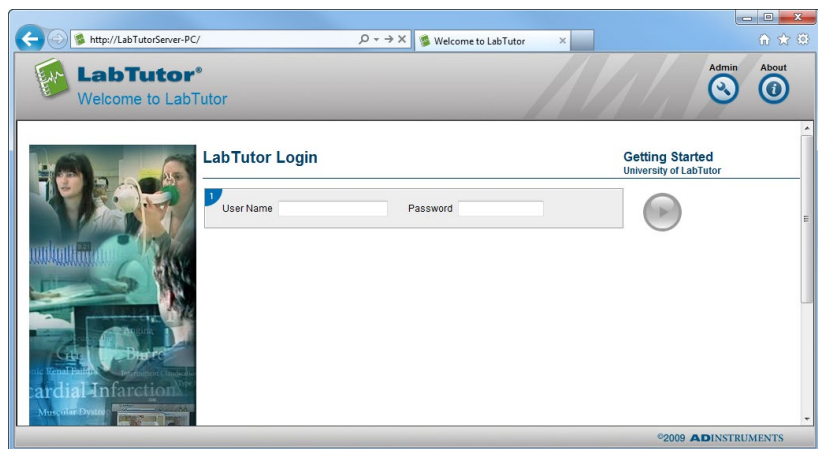
The easiest way for students to access LabTutor is to use the desktop shortcut created during the LabTutor Client installation. The student login page address can also be manually typed into your web browser using the server name or the server IP address:

- *http://<server IP address>*
- *http://<computer name>*

If you are not sure of the LabTutor Server network address consult your IT administrator.

There are two modes of operation for LabTutor Client, depending on the licensing model that is purchased:

1. **Require PowerLabs** – Students can log in and perform experiments if the computer on which LabTutor Client is installed has a PowerLab connected.
2. **LabTutor Online mode** – Where LabTutor Online is activated, and a student is licensed as such in Bulk or Student Access Card modes, they may log in and start or continue an experiment on any computer on which LabTutor Client is installed, with or without a PowerLab connected. LabTutor Client can be installed on any number of computers.



10. Perform Experiments

Students can start an experiment either using LabTutor Client or LabTutor Online (if configured in LabTutor Server).

1. In your web browser, navigate to the LabTutor student login page.
2. Log in using a student login.
3. Choose the course and experiment that you want to start.
4. If the experiment is configured to start in Preview mode, you will need to click Start before you can begin answering questions and recording data.

Note: Experiments started in LabTutor Client can be continued with LabTutor Online, but experiments started in LabTutor Online cannot be continued with LabTutor Client. However, experiments can be previewed using LabTutor Online and then started using LabTutor Client.

Submitting an Experiment

Students can submit their experiments for review using the submit buttons on report pages. Submitting locks the experiment, preventing any further changes by the student. Students can submit experiments from:

- LabTutor Client – while still in the laboratory.
- LabTutor Online – if they haven't finished at the end of the laboratory, students can submit the finished experiment at home.

Depending on your course options, a PDF of the report page can automatically be emailed to the administrator when the student submits their experiment.

Emailing reports

Students can email a PDF version of their report to themselves. If in 'PowerLabs Required' licensing mode, docx (Microsoft Word document) emailing is supported to allow students access to an editable version of their report page for manual submission outside of the classroom.

Using the email feature does not submit the experiment.

11. Review Experiments

Instructors and administrators can review students experiments from the LabTutor administration pages, either locally or via LabTutor Online. Experiments will appear exactly as they do to the students, containing all recorded data and answers.

1. Go to the LabTutor administrator login page. For LabTutor Online this will be *<your-domain>.labtutor.com/admin*
2. Log in using your administrative login.
3. Choose **Student Data > Review**.
4. Search for the experiment or student you want to review.
5. Select the experiment and click the **Review** button.
6. The report page for the experiment will open for viewing. You can use the navigation controls to view any page of the student's experiment.

Instructors and administrators can access a student's experiment at any stage, whether it has been submitted or not.

The screenshot shows the LabTutor Online Administration interface. The browser address bar displays <https://jondal.labtutor.com/admin/studentdata/ReviewExperimentsServlet?sessionId=...>. The page title is "Review Student Experiments".

On the left, under "Student Data", there are buttons for "Status", "Review", and "Archives".

The main content area has a search form with the following fields:

- Course: RIC420 S1
- Experiment: Blood Pressure
- Student: (empty text box)

There is a "Show advanced options" link and a "Search" button.

Below the search form, the section "Student Experiments" shows "Showing results 1 to 2 of 2".

Experiment	Student	Started	Last Accessed	Time Taken	Status	Review
Blood Pressure	0012	May 15, 2012	16:57 May 15, 2012	0.8 mins		
Blood Pressure	0036	May 16, 2012	09:00 May 16, 2012	1.0 mins		

At the bottom right, there is a copyright notice: © 2012 ADINSTRUMENTS.

12. Maintaining LabTutor Server

The LabTutor Server computer should always be on and connected to the network. You should also ensure that the server has enough free disk space for storing experimental data and that the LabTutor Server application data folder is backed up.

Database Backups

LabTutor Server uses an internal database to store information about students and experiments. This database cannot be reliably backed up while LabTutor Server is running. To provide up-to-date copies of your database for backing up, LabTutor Server regularly saves database snapshots to the LabTutor Server data folder.

- Server 2003 – C:/Documents and Settings/All Users/Application Data/ADInstruments/LabTutor Server
- Windows Vista and later – C:/Program Data/ADInstruments/LabTutor Server

These snapshots can then be included as part of your regular backup procedure. The database snapshot does not backup your LabTutor Server, you will need to configure a system backup tool to regularly backup the LabTutor Server data folder to a remote location.

Both the snapshots and a backup are required for restoring a database. Hence, backups should be performed every day.

Archiving Data

After the end of a course or semester, student data can be archived as PDFs and stored in compressed folders. This allows the students to be deactivated or deleted, while retaining their data.

Archived data can be accessed via the Admin pages. In LabTutor Online licensing mode, archived data is also able to be accessed securely via SFTP. To utilize this feature, an SFTP client will need to be installed on the computer being used for access.

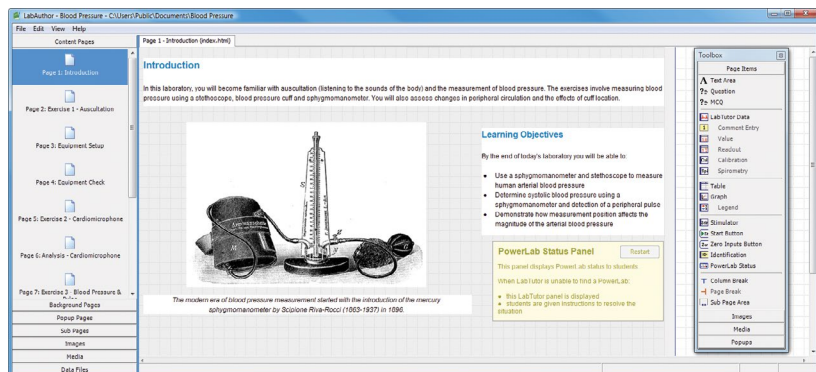
13. Set Up LabAuthor

LabAuthor is a software tool that you can use to create and customize LabTutor experiments. LabAuthor is supplied on the LabTutor Teaching Suite DVD. Installation requires a LabAuthor license.

Note: LabAuthor should not be installed on the same computer as LabTutor Server as this can lead to conflicts with the use of some common software elements.

1. Insert the supplied LabTutor Teaching Suite software DVD.
2. In the LabTutor setup window that appears, click **LabAuthor**.
3. The LabAuthor setup screen displays status messages and guides you through the installation.
4. When prompted, enter the LabAuthor license details. The LabAuthor license code should be shown on the LabTutor Teaching Suite DVD case.
5. Follow the instructions in the LabAuthor setup window and click **Finish** when installation is complete.
6. Proceed to install LabTutor experiments, from either the LabTutor Suite DVD or *ADInstruments.com*.
7. Experiments created with LabAuthor can be saved as LabTutor experiments installers (*.ltxp) and installed to LabTutor Server.

Refer to the LabAuthor Help for guidance on using LabAuthor.



Further Resources

There are many resources available to help you get the most from your LabTutor system.

Help

Each page in the administrative section of the LabTutor Server interface has a help button that opens the help page for that topic. You can also search the help and navigate through topics using the table of contents. You can send feedback on help topics by clicking the **Send Feedback...** link and entering your feedback in the form provided.

Forum

The ADInstruments forum (www.adinstruments.com/forum) provides researchers and educators an interactive environment for discussion of ADInstruments products and related topics. It is a place you can ask questions and make suggestions – with total anonymity if you prefer. You can also share ideas, tips, tricks and experiments with your peers worldwide.

ADInstruments.com

Browse our comprehensive array of free-to-download research and teaching resources at www.ADInstruments.com. Resources include teaching experiments, software videos, sample data files and more.

You can also use our website for local support queries through a network of 11 offices and over 40 distributors around the world.

There are also comprehensive resources and after-sales support. We provide a number of training services for ADInstruments manufactured products. Training can also include assistance in the configuration and use of the ADInstruments software and hardware systems.

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1. is a medical device;
2. may be interpreted as a medical device;
3. is safe to be used as a medical device

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ADI warrants that PowerLab Data Acquisition Units (PL prefix)¹ and Front-ends (FE prefix)² shall be free from defects in materials and workmanship for five (5) years from the date of purchase. Other PowerLab Data Acquisition Units³, Front-ends⁴ and Pods⁵ shall be free of defects in material and workmanship for three (3) years from their date of purchase. ADI also warrants that ADI Specialized Data Recorders⁶ and Instruments⁷ shall be free of defects in material and workmanship for one (1) year from their date of purchase. If there is such a defect, as Purchaser's sole remedy hereunder, ADI will repair or replace the equipment as appropriate, and the duration of the warranty shall be extended by the length of time needed for repair or replacement.

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Hardware Warranty Limitations

This warranty applies only to the ADI hardware specified in this document and used under normal operating conditions and within specification. Consumables, electrodes and accessories are not covered by this warranty. Third party equipment may be covered by the third party manufacturer's warranty. To the extent that ADI has the right to pass through any third party manufacturer warranties to Purchaser it will do so to the extent it is able to do so. Copies of applicable third party manufacturer warranties, to the extent they exist, are available upon request. The warranty provided hereunder does not cover hardware modified in any way, subjected to unusual physical, electrical or environmental stress, used with incorrectly wired or substandard connectors or cables, or with the original identification marks altered. Tampering with or breaking of the Warranty Seal will also void the warranty.

Product Types & Warranty Term

ADI manufactured products covered by five (5) year warranty

- ¹ Data Acquisition Units: PowerLab 35 series with PL prefix
- ² Front-ends: ADI Front-end Signal Conditioners with FE prefix.

ADI manufactured products covered by three (3) year warranty

- ³ Data Acquisition Units: PowerLab 26 series with ML prefix
- ⁴ Front-ends: ADI Front-end Signal Conditioners with ML prefix.
- ⁵ Pods: The entire range of ADI Pod Signal Conditioners.

ADI manufactured products covered by one (1) year warranty

- ⁶ Specialized Data Recorders: Metabolic Systems (e.g. ML240 PowerLab/8M Metabolic System)
- ⁷ Instruments: Blood FlowMeter, Gas Analyzers, NIBP System (excluding transducers), STH Pump Controller.

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1. Definitions

“ADInstruments” means ADInstruments Pty Ltd, 13/22 Lexington Drive, Bella Vista, Australia.

“Computer” means any multi-purpose computing device, including, without limitation, a desktop computer, a laptop computer, a network server, or a smartphone.

“Licensee” means the purchaser of a license or licenses to the Software, as designated in the invoice(s) pertaining to the Software license(s).

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- (b) documentation;
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