



LMS XChange

Operating Manual

Lighthouse Worldwide Solutions

LMS XChange

Operating Manual

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About This Manual

| | This manual describes the LMS XChange application, a program designed to download and analyze data from a Lighthouse SOLAIR or HANDHELD Particle Counter. |
|----------------------|---|
| Audience | The <i>LMS XChange Manual</i> is written for the user who wants to view data from Lighthouse SOLAIR and/or HANDHELD particle counters. |
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Text Conventions

The following typefaces have the following meanings:

| WARNING: A | |
|---------------------------|--|
| warning appears in a | |
| paragraph like this and | |
| warns that doing | |
| something incorrectly | |
| could result in personal | |
| injury, damage to the | |
| instrument or loss and/or | |

Note: A note appears in the sidebar to give extra information regarding a feature or suggestion

improper storage of data.

Additional Help

italics Represents information not to be typed or interpreted literally. For example, *file* represents a file name. Manual titles are also displayed in italics.
 bold face Introduces or emphasizes a term.
 bold italics Indicates a setting in a window for which you must provide a value.

For more information about LMS XChange, contact Lighthouse Worldwide Solutions.

Lighthouse Worldwide Solutions

(866) 507-9200 Toll Free (800) 945-5905 Technical Support techsupport@golighthouse.com www.golighthouse.com

1 Overview

The LMS XChange program is designed to be used with Lighthouse's SOLAIR and HANDHELD Particle Counters. LMS XChange downloads the data collected on these instruments and displays the data in a table that the user can view and/or save to an Excel or HTML file.

LMS XChange has the following features:

- Easy installation
- Auto-detects Lighthouse particle counters on a COM port; no special port or driver configuration required
- Manual data download from Lighthouse particle counters
- Displays data in a table
- Allows the user to print the data table
- Allows the user to save the data to an Excel or HTML file
- Allows users to configure alphanumeric location names. Users can also upload these names to Lighthouse instruments that support alphanumeric location names.
- **Note:** *Time is always displayed in 24 hour time.*

Basic Concepts

• Uses Window's regional settings for displaying dates and decimal numbers

Terms and concepts important to LMS XChange are explained below.

Downloaded Data The set of data downloaded from an instrument. Includes location and channel information.

Instrument A Lighthouse particle counter, either from the SOLAIR family of counters or the HANDHELD family of counters. The particle counter is identified by the model of the counter.

Location Alphanumeric names assigned by the instrument to represent different areas where samples were taken. In LMS XChange, alphanumeric location names can be downloaded from and uploaded to

an instrument that supports them. Instruments that do not support alphanumeric locations names will have default location names assigned to their locations following the format "LOCXXX" where XXX is the location number from the instrument. In all cases Locations can also be assigned a descriptive longer name in LMS XChange.

Data Type Describes the kind of data collected. For particle counters, this is the micron size of the particle; for environmental sensors, this is the kind of analog sensor (i.e. air velocity, temperature, etc.) used.

Features Instrument Download

LMS XChange will auto-detect Lighthouse instruments via a COM port RS-232 connection.

When a download is complete, the serial number and model of the instrument, as well as the date the data was downloaded, the range of the data and whether the particle data is differential or cumulative will be displayed.

Data Table

Data is displayed in a table format. Summary statistics will be calculated per channel and displayed at the bottom of the table under the following headings: Standard Deviation, Average, Maximum data point and Minimum data point. The Data Table can be printed or exported to Microsoft ExcelTM *.xls, Comma Separated Value (*.csv), or HTML (*.html, *.htm) files.

Location Setup

When the data is downloaded to LMS XChange, the location(s) associated with the data are recorded using an alphanumeric Location ID. By default, the "name" of the location is "LOCXXX" where "XXX" is its numeric ID. If alphanumeric location names are set up on the instrument, then the alphanumeric location names will be downloaded with the data. You can update or change the location name and a description for it. If the instrument supports alphanumeric location names to the instrument.

2 Getting Started

This chapter describes the LMS XChange environment including the toolbar and menu commands, explains how to use the mouse and details the operating system requirements necessary to run LMS XChange.

Installation When installing LMS XChange, it is recommended to also install Adobe's free Acrobat Reader in order to be able to view this LMS XChange manual on-line. Acrobat Reader is provided on the same CD as LMS XChange.

Install LMS XChange by inserting the INSTALL CD into the CD drive. The installation program should start automatically. If it does not, run the setup.exe located in the LMS XChange CD's root directory.

Start LMS XChange by double clicking on the LMS XChange icon on your desktop:



Figure 2-1 LMS XChange Desktop Icon

Alternatively, LMS XChange can be launched by opening the Start Menu, Programs Menu and selecting LMS XChange.

| | 🛅 Accessories | F | 0.33 40. | |
|----------|------------------------------------|---|-----------------------|-------------|
| Programs | 🛅 Lighthouse Worldwide Solutions 👘 | • | 🕘 Lighthouse Website | |
| | | | 🛅 LMS XChange 1.5 🔹 🕨 | LMS XChange |
| | | 8 | | 🔀 Manual |
| | | | | |

Figure 2-2 Start Menu access to LMS XChange

From the Start Menu, you can also go to the Lighthouse Worldwide Solutions website or open the Operating Manual.

Startup

| Shutdown | To shut down LMS XChange, press Alt+F4 , click on the "x" in the upper right corner or click on the system menu (the LMS XChange icon in upper left corner) and select "Close". |
|--------------------|--|
| The Main Window | The LMS XChange Main window is shown below. When LMS XChange is started, the application will be maximized on your screen |



Figure 2-3 LMS XChange Main Window

Note: Only one instance of LMS XChange can run at a time. Tasks are performed using the menu, configuration bar and the toolbar.

Basic User Interface

LMS XChange's user interface was designed with simplicity in mind. It is split into several basic parts: the menu, toolbar, configuration bar, and data table.

| Menu | | | | | | | | | | | | | - | |
|---------------------------------|-------------------|-----------------|-------------------------|----------------|--------------|------------|------------|------------|------------|-------------|-------------|---------------|---------------|---|
| | E LMS Achang | (E) | | | | | | | | | | | | |
| | Elle Tools VI | ew <u>H</u> elp | | | | | | | | | | | | |
| | 🔲 🎒 📥 🕒 | 🗄 🔳 🔮 🤋 🍕 | | | | | | | | | | | | |
| T 11 | | | Instrument Model: S0 | LAIR II | | | | | | | | | | |
| loolbar | Instrument | | Instrument Serial #: 0 | 40833001 | | | | | | | | | | |
| | | | Downloaded On: 8/2 | 0/2004 18:39: | 21 | | | | | | | | | |
| | Show Instrument | Info 🔽 | Particle Data: Differer | ntial | | | | | | | | | | |
| | Dow | nload Data | Data Duration: 8/20/ | 2004 13:24:54 | to 8/20/2004 | 16:42:47 | | | | | | | | |
| | | | Timestamp | Location | 0.3 micron | 0.5 micron | 1.0 micron | 3.0 micron | 5.0 micron | 10.0 micron | Sample Time | Sample Volume | Environmental | |
| | - | | | (Name) | (Counts) | (Counts) | (Counts) | (Counts) | (Counts) | (Counts) | (\$) | (ft^3) | | |
| | Location | ۲ | 8/20/2004 15:55:32 | GOWNING | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| | Show Location N | lumbers 🔲 | 8/20/2004 15:55:37 | GOWNING | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| | Show Location N | lame: | 8/20/2004 15:55:43 | GOWNING | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| | | | 8/20/2004 15:55:48 | GUWNING | U | U | U | U | U | U | 5 | 0.1 | | |
| | Use Instrument's | Names 💙 | 8/20/2004 15:55:53 | GUWNING | U | U | U | U | U | U | 5 | 0.1 | | |
| | Setup | My Locations | 8/20/2004 15:55:59 | GUWNING | U | U | U | U | U | U | 5 | 0.1 | | |
| Configuration | | <u> </u> | 8/20/2004 15:56:04 | GUWNING | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| - | Upload L | ocation Names | 8/20/2004 16:24:20 | LUC003 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| Bar | | | 0/20/2004 16:24:25 | 100003 | 0 | 0 | | 0 | 0 | 0 | 5 | 0.1 | | |
| | Doutislo | | 8/20/2004 10:24:36 | 100003 | 0 | | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| | Particle | \odot | 8/20/2004 16:24:41 | 100003 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| | Differential | ~ | 8/20/2004 16:24:46 | 100003 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| | Show Baw Coup | te 🔽 | 8/20/2004 16:24:52 | 100003 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| | Show Normalized | Counter I | 8/20/2004 16:24:57 | 100003 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| | Show Comple Tip | | 8/20/2004 16:25:03 | 100003 | 0 | 0 | 0 | n n | 0 | 0 | 5 | 0.1 | | |
| | Show Sample Via | | 8/20/2004 16:41:42 | PACKAGN | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| \mathbf{D} (\mathbf{T} 1 1 | Stiller Sample VU | iune 💌 | 8/20/2004 16:41:48 | PACKAGN | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| Data Table | Norm. Counts | p/ft^3 🗸 🗸 | 8/20/2004 16:41:53 | PACKAGN | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| | Sample Time | | 8/20/2004 16:41:58 | PACKAGN | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| | o dampio Tanto | seconds | 8/20/2004 16:42:04 | PACKAGN | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| | Sample Volume | cubic feet 🛛 👻 | 8/20/2004 16:42:09 | PACKAGN | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| | | | 8/20/2004 16:42:15 | PACKAGN | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| | - | 0 | 8/20/2004 16:42:20 | PACKAGN | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| | Environment | al 🙁 | 8/20/2004 16:42:25 | PACKAGN | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| | Show Environme | ntale 🔽 | 8/20/2004 16:42:31 | PACKAGN | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| | | | 8/20/2004 16:42:36 | PACKAGN | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| | Temperature | Fahrenheit 🗸 | 8/20/2004 16:42:42 | PACKAGN | 1 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| | Air Velocity | ft (min | 8/20/2004 16:42:47 | PACKAGN | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| | | ivinifi 💌 | | Average | 5502.9 | 614.9 | 81.2 | 6.8 | 5.4 | 1.6 | 5.0 | 0.1 | | |
| | Diff. Pressure | "H20 🗸 | | Maximum | 30599 | 3416 | 439 | 43 | 56 | 14 | 5 | 0.1 | | |
| | | | | Minimum | 0 | 1100.7 | 0 | 100 | 0 | 0 | 5 | 0.1 | | |
| | | | Stan | sard Deviation | 10142.4 | 1133.7 | 149.8 | 12.8 | 11.1 | 3.2 | 0.0 | 0.0 | | ~ |

Figure 2-4 LMS XChange User Interface

Menu

The menu is used to select particular features or functions. The menu consists of four pulldown menus: File, Tools, View and Help.



Figure 2-5 LMS XChange Pulldown Menus

Data Table

After data is downloaded, it will be displayed on the main window's Data Table.



Figure 2-6 LMS XChange Data Table area

Configuration Bar

The configuration bar is used to setup the Data Table.

| Instrumont | | | | | |
|------------------------|---------------|--|--|--|--|
| Instrument | | | | | |
| Show Instrument | Into 🕑 | | | | |
| Dow | inload Data | | | | |
| Location | ۲ | | | | |
| Show Location N | lumbers 📃 | | | | |
| Show Location N | lames 🔽 | | | | |
| Use My Short N | ames 💙 | | | | |
| Setup | My Locations | | | | |
| Upload L | ocation Names | | | | |
| | | | | | |
| Particle | ۲ | | | | |
| Differential | ~ | | | | |
| Show Raw Counts | | | | | |
| Show Normalized Counts | | | | | |
| Show Sample Vo | ilume 🔽 | | | | |
| Norm. Counts | p/ft^3 🗸 | | | | |
| Sample Time | seconds 🗸 | | | | |
| Sample Volume | cubic feet | | | | |
| | | | | | |
| Environment | al 🛞 | | | | |
| Show Environme | ntals 🔽 | | | | |
| Temperature | Fahrenheit 🗸 | | | | |
| Air Velocity | ft/min 🔽 | | | | |
| Diff. Pressure | "H20 🗸 | | | | |
| | | | | | |

Figure 2-7 Configuration Bar

Check or uncheck items and/or select items from the pull down lists to update the displayed Data Table appropriately.

Toolbar

The Toolbar buttons allow the user to save or print the data table, change location names, download data and display information provided by Lighthouse.



Figure 2-8 Toolbar

The following table describes the toolbar buttons and their functions.

| Button | Command | Description | | | | | | |
|------------|-----------------------------|---|--|--|--|--|--|--|
| | Save As | Opens a Save As dialog box and saves the current Data Table information to a file. Data Tables can be saved as *.xls, *.csv or *.html files. | | | | | | |
| 5 | Print | Opens a Print Setup dialog box and prints the current view. | | | | | | |
| _ | Download Data | Opens the Data Download Wizard to walk the user through downloading data from an instrument. | | | | | | |
| Ð | Setup Locations | Opens a list of all the possible locations numbers and their assigned location names. From this list the user can update location names. | | | | | | |
| † | Upload Location Names | Upload locatiom names to instrument. | | | | | | |
| | Show/hide Config Bar | Toggles the configuration bar on/off. Default is on. | | | | | | |
| 9 | Web Link | Opens a web browser and displays the Lighthouse Worldwide Solutions website, www.golighthouse.com. | | | | | | |
| P | Help | Displays the LMS XChange manual (Acrobat Reader is needed to view this file). | | | | | | |
| (i) | About | Opens LMS XChange's About Box. Displays the version number, copyright information and license agreement. | | | | | | |

Table 2-1 Toolbar Buttons and Commands

About window

Clicking the About toolbar button or selecting the About LMS

XChange option from the Help menu, displays the following About window.

| About LMS XChange | X |
|--|---|
| | |
| LMS XChange : v1.5 Copyright (C) 2003 - 2007 License : | |
| Lighthouse Worldwide Solutions Software License Agreement Software Program: LMS XChange | ^ |
| IMPORTANT - THIS IS A LEGAL AGREEMENT BETWEEN YOU (EITHER AN INDIVIDUAL OR AN ENTITY) AND LIGHTHOUSE WORLDWIDE SOLUTIONS. BY INSTALLING AND/OR USING THE SOFTWARE, YOU ACKNOWLEDGE THAT YOU HAVE READ THIS LICENSE | * |
| ОК | |

Figure 2-9 About Box

Select the OK button or click on the "x" in the upper right corner to remove this window from the screen.

About the Mouse

A mouse is recommended to use LMS XChange.

You can perform all LMS XChange actions with the mouse. The exception is entering text information, which is done with the keyboard. Use the mouse to select commands, select views and select options in windows. Here is a list of mouse terms and their meanings:

| Term | Meaning |
|--------------|---|
| Mouse Cursor | The small arrow or other symbol that moves when you slide the mouse across the pad. |
| Mouse Button | A button on the mouse that you press. A mouse usually has two or three buttons. |
| Click | Move the mouse cursor over the command or other object, then press and release the left mouse button. |

Drag

Move the mouse cursor over the command or other object, then press and hold down the mouse button while moving the mouse.

About Microsoft Windows™

LMS XChange runs on Microsoft Windows 2000TM, Windows XPTM and Windows VistaTM. LMS XChange requires Internet Explorer 5.0 or greater.

Each Microsoft[™] Windows window contains a title bar, scroll bars, outer border and other parts as shown in the following figure:



Figure 2-10 Microsoft Window Structure

For more information about Microsoft Windows, consult the Microsoft Windows documentation.

3 Downloading Data

This chapter describes how to download data from a Lighthouse Worldwide Solutions particle counter to LMS XChange.

Downloading Data

Using the connector and cable provided with the software program, connect the instrument to an unused COM port on your computer.

Launch LMS XChange.

Click the **Download Data** button on the Configuration Bar.

| Instrument | ۲ |
|----------------------|----------|
| Show Instrument Info | V |
| Download Data | |

Note: Please make sure to stop all actions on the instrument before beginning the download process. Figure 3-1 Instrument, Download Data button

The Data Download Wizard window will appear:

| Data Download Wizard: Step 1 of 4 |
|---|
| Welcome to the Data Download wizard! |
| This wizard helps you connect your computer to your Lighthouse particle counter so that you can download its data into this application's data table. |
| (Warning! Downloading new data will replace your last downloaded data in the data table.) |
| Click "Next" to continue with this wizard. |
| Click "Cancel" if you do not want to download data. |
| |
| |
| Next > |

Figure 3-2 Download Data Wizard, Step 1

Click Next >.

The next step will appear:



Figure 3-3 Data Download Wizard Step 2

Use the pulldown list of Ports to select the COM port to which you have connected the Lighthouse instrument.

Pick a specific communication address from the list of Addresses or select **<Auto-Detect>**.

Click the **Next >** button to continue to the next page of the Wizard.

To begin the download, click the **Next >** button.

The data download will start. While in progress, the data download will show the following progress bar. On the right side of the progress bar, the percentage of the records already downloaded will be displayed.

Note: *LMS XChange has an auto-detect feature that will find a Lighthouse HANDHELD or SOLAIR instrument when it is connected to the specified COM port via an RS-232 cable.*

Downloading Data



Figure 3-4 Data download in progress

When LMS XChange has finished downloading the data, the progress window will show **Done**.

| 📥 Data Download Wizard: Step 4 of 4 | × |
|--|----|
| Downloading data | |
| Done | |
| Finished downloading data! | |
| Click the "Close" button to display this data in the table | Э. |
| | |
| | |
| | |
| | |
| | |
| < <u>Prev</u> | se |

Figure 3-5 Data Download complete

Click the **Close** button to automatically display the data in the Data Table.

| e <u>T</u> ools ⊻iew <u>H</u> elp | | | | | | | | | | | | |
|-----------------------------------|----------|--------------------------|---------------|--------------|------------|------------|------------|------------|-------------|-------------|---------------|---------------|
| 😂 📥 🛱 🔳 🎐 | 9 🖲 | | | | | | | | | | | |
| | | Instrument Model: SOL | AIR II | | | | | | | | | |
| Instrumont | | Instrument Serial # 04 | 0833001 | | | | | | | | | |
| instrument. | | Downloaded On: 8/20. | 2004 18:39:2 | 1 | | | | | | | | |
| Show Instrument Info | V | Particle Data: Different | al | | | | | | | | | |
| Download Data | | Data Duration: 8/20/2 | 004 13:24:54 | to 8/20/2004 | 16:42:47 | | | | | | | |
| | | Timestamp | Location | 0.3 micron | 0.5 micron | 1.0 micron | 3.0 micron | 5.0 micron | 10.0 micron | Sample Time | Sample Volume | Environmental |
| | | | (Name) | (Counts) | (Counts) | (Counts) | (Counts) | (Counts) | (Counts) | (s) | [ft^3] | |
| Location | | 8/20/2004 15:55:32 | GOWNING | 0 | 0 | 0 | 0 | 0 0 | 0 | 5 | 0.1 | |
| | _ | 8/20/2004 15:55:37 | GOWNING | 0 | 0 | 0 | 0 | 0 0 | 0 | 5 | 0.1 | |
| Show Location Numbers | | 8/20/2004 15:55:43 | GOWNING | 0 | 0 | 0 | 0 | 0 0 | 0 | 5 | 0.1 | |
| Show Location Names | | 8/20/2004 15:55:48 | GOWNING | 0 | 0 | 0 | 0 | 0 0 | 0 | 5 | 0.1 | |
| Use Instrument's Names | ~ | 8/20/2004 15:55:53 | GOWNING | 0 | 0 | 0 | 0 |) 0 | 0 | 5 | 0.1 | |
| Catar Mala series | | 8/20/2004 15:55:59 | GOWNING | 0 | 0 | 0 | 0 |) 0 | 0 | 5 | 0.1 | |
| Setup My Locations | | 8/20/2004 15:56:04 | GOWNING | 0 | 0 | 0 | 0 |) 0 | 0 | 5 | 0.1 | |
| Linipad Location Names | | 8/20/2004 16:24:20 | LOC003 | 0 | 0 | 0 | 0 | 0 0 | 0 | 5 | 0.1 | |
| | | 8/20/2004 16:24:25 | LOC003 | 0 | 0 | 0 | 0 | 0 0 | 0 | 5 | 0.1 | |
| | | 8/20/2004 16:24:30 | LOC003 | 0 | 0 | 0 | 0 | 0 0 | 0 | 5 | 0.1 | |
| Particle | | 8/20/2004 16:24:36 | LOC003 | 0 | 0 | 0 | 0 | 0 0 | 0 | 5 | 0.1 | |
| | | 8/20/2004 16:24:41 | LOC003 | 0 | 0 | 0 | 0 | 0 0 | 0 | 5 | 0.1 | |
| Differential | ~ | 8/20/2004 16:24:46 | LOC003 | 0 | 0 | 0 | 0 | 0 0 | 0 | 5 | 0.1 | |
| Show Raw Counts | V | 8/20/2004 16:24:52 | LOC003 | 0 | 0 | 0 | 0 | 0 0 | 0 | 5 | 0.1 | |
| Show Normalized Counts | | 8/20/2004 16:24:57 | LOC003 | 0 | 0 | 0 | 0 | 0 0 | 0 | 5 | 0.1 | |
| Show Sample Time | | 8/20/2004 16:25:03 | LOC003 | 0 | 0 | 0 | 0 | 0 0 | 0 | 5 | 0.1 | |
| Show Sample Volume | | 8/20/2004 16:41:42 | PACKAGN | 0 | 0 | 0 | 0 | 0 0 | 0 | 5 | 0.1 | |
| | _ | 8/20/2004 16:41:48 | PACKAGN | 0 | 0 | 0 | 0 | 0 0 | 0 | 5 | 0.1 | |
| Norm. Lounts p/ft^3 | ~ | 8/20/2004 16:41:53 | PACKAGN | 0 | 0 | 0 | 0 | 0 0 | 0 | 5 | 0.1 | |
| Sample Time seconds | ~ | 8/20/2004 16:41:58 | PACKAGN | 0 | 0 | 0 | 0 | 0 0 | 0 | 5 | 0.1 | |
| Seconds | | 8/20/2004 16:42:04 | PACKAGN | 0 | 0 | 0 | 0 | 0 0 | 0 | 5 | 0.1 | |
| sample volume cubic feet | ~ | 8/20/2004 16:42:09 | PACKAGN | 0 | 0 | 0 | 0 | 0 0 | 0 | 5 | 0.1 | |
| | | 8/20/2004 16:42:15 | PACKAGN | 0 | 0 | 0 | 0 | 0 0 | 0 | 5 | 0.1 | |
| | | 8/20/2004 16:42:20 | PACKAGN | 0 | 0 | 0 | 0 | 0 0 | 0 | 5 | 0.1 | |
| Environmental | ۲ | 8/20/2004 16:42:25 | PACKAGN | 0 | 0 | 0 | 0 | 0 0 | 0 | 5 | 0.1 | |
| Show Environmentals | | 8/20/2004 16:42:31 | PACKAGN | 0 | 0 | 0 | 0 | 0 0 | 0 | 5 | 0.1 | |
| Show Environmentels | 2 | 8/20/2004 16:42:36 | PACKAGN | 0 | 0 | 0 | 0 | 0 0 | 0 | 5 | 0.1 | |
| Temperature Fahrenheit | ~ | 8/20/2004 16:42:42 | PACKAGN | 1 | 0 | 0 | 0 | 0 0 | 0 | 5 | 0.1 | |
| Air Velocitu | | 8/20/2004 16:42:47 | PACKAGN | 0 | 0 | 0 | 0 | 0 0 | 0 | 5 | 0.1 | |
| tt/min | v | | Average | 5502.9 | 614.9 | 81.2 | 6.8 | 5.4 | 1.6 | 5.0 | 0.1 | |
| Diff. Pressure ''H20 | Y | | Maximum | 30599 | 3416 | 439 | 43 | 3 56 | 14 | 5 | 0.1 | |
| | | | Minimum | 0 | 0 | 0 | 0 | 0 0 | 0 | 5 | 0.1 | |
| | | Standa | ard Deviation | 10142.4 | 1133.7 | 149.8 | 12.8 | 11.1 | 3.2 | 0.0 | 0.0 | |

Figure 3-6 Downloaded data displayed on Data Table

Trouble shooting

If the download is not successful or if the connection between the instrument and the computer was interrupted during the download, LMS XChange may display one of the following windows.

Instrument Not Found

If LMS XChange could not locate the instrument, the Data Download Wizard will display the following information.

Downloading Data



Figure 3-7 Instrument Not found

Follow the troubleshooting tips listed on the window.

Click the **< Prev** button and then the **Next >** button to retry connecting to your instrument.

No Data to Download

If the instrument does not contain any data, the following window will appear when LMS XChange attempts to download data from the instrument.



Figure 3-8 No data found

Click **Close** to close the Data Download Wizard. Collect data with the instrument before attempting to download data from it again.

Connection Lost

If the connection to the instrument is lost while the download is in progress, LMS XChange will display the following window,

| Warning | × |
|---------|---|
| | Instrument communications has been lost! Please reconnect the instrument to your PC and try again. |
| | ОК |

Figure 3-9 Connection Lost

Click OK to acknowledge the message.

LMS XChange will return to the second step in the Data Download Wizard. Reconnect the instrument to the computer and try downloading data again by clicking the **Next >** button.

Data Display

This chapter describes displaying data in the Data Table.

Data Table After a data download has finished, the Data Table updates and displays the downloaded data.

| 🗃 LMS XChange | | | | | | | | | | | × |
|----------------------------|-----------------------------------|--------------|------------|------------|------------|------------|-------------|-------------|---------------|---------------|---|
| Eile Tools View Help | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | Instrument Model: SULAIH II | | | | | | | | | | ^ |
| Instrument 🛞 | Instrument Serial #: 040833001 | | | | | | | | | | |
| Show Instrument Info | Downloaded Un: 8/20/2004 18:39: | 2 | | | | | | | | | |
| Show Institutierk Into | Particle Data: Differential | | | | | | | | | | |
| Download Data | Data Duration: 8/20/2004 13:24:54 | to 8/20/2004 | 16:42:47 | | | | | | | | |
| | Timestamp Location | U.3 micron | U.5 micron | 1.0 micron | 3.0 micron | 5.0 micron | 10.0 micron | Sample Time | Sample Volume | Environmental | |
| | [Name] | (Lounts) | (Lounts) | (Lounts) | (Lounts) | (Lounts) | (Lounts) | (8) | (11.3) | | |
| Location | 8/20/2004 15:55:32 GOWNING | 0 | 0 | U | 0 | 0 | 0 | 5 | 0.1 | | |
| Show Location Numbers | 8/20/2004 15:55:37 GOWNING | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| Show Location Names | 8/20/2004 15:55:43 GUWNING | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| Hards are well Manage | 8/20/2004 15:55:48 GOWNING | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| Use instrument s wames | 0/20/2004 15:55:53 GOWNING | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| Setup My Locations | 0/20/2004 15:50:55 GOWNING | 0 | 0 | 0 | 0 | | 0 | 5 | 0.1 | | |
| | 0/20/2004 10:36:04 GOWNING | 0 | 0 | 0 | 0 | | 0 | 5 | 0.1 | | |
| Upload Location Names | 0/20/2004 16:24:20 LOC003 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| | 9/20/2004 16:24:25 LOC003 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| n-uti-t- | 9/20/2004 16:24:30 LOC003 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| Particle | 9/20/2004 16:24:36 LOC003 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| Differential | 9/20/2004 16:24:41 LOC003 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| Chau Bau Causta | 9/20/2004 16:24:40 LOC003 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| Show Haw Lounts | 0/20/2004 16:24:52 LOC003 | 0 | 0 | 0 | 0 | | 0 | 5 | 0.1 | | |
| Show Normalized Lounts | 9/20/2004 16:24:37 LOC002 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| Show Sample Time | 0/20/2004 16:23:03 E00005 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| Show Sample Volume 🕑 | 0/20/2004 16:41:42 PACKAGN | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| Norm Counts | 0/20/2004 16:41:40 PACKAGN | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| prix 3 | 9/20/2004 16:41:53 PACKAGN | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| Sample I me seconds 🗸 | 9/20/2004 10:41:30 PACKAGN | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| Sample Volume cubic feet | 9/20/2004 10:42:04 FACKAGN | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| cubic recr | 9/20/2004 16:42:05 TACKAGN | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| | 8/20/2004 16:42:13 PACKAGN | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| Environmental (*) | 8/20/2004 16-42-25 PACKAGN | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | | |
| | 8/20/2004 16:42:31 PACKAGN | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 01 | | |
| Show Environmentals | 8/20/2004 16:42:36 PACKAGN | 0 | ů. | ů | 0 | ů. | 0 | 5 | 01 | | |
| Temperature Extractication | 8/20/2004 16:42:42 PACKAGN | 1 | ů. | 0 | 0 | ñ | 0 | 5 | 01 | | |
| Fantenneit | 8/20/2004 16:42:47 PACKAGN | 0 | 0 | 0 | 0 | n n | 0 | 5 | 01 | | |
| Air Velocity ft/min 🗸 | Average | 5502.9 | 614.9 | 81.2 | 68 | 54 | 1.6 | 50 | 0.1 | | |
| Diff Pressure | Masimum | 30599 | 3416 | 439 | 43 | 56 | 14 | 5 | 0.1 | | |
| H2U V | Minimum | 0 | 0410 | 100 | 0 | 00 | 0 | 5 | 01 | | |
| | Standard Deviation | 10142.4 | 1133 7 | 149.8 | 12.8 | 11.1 | 32 | 0.0 | 0.0 | | |
| | | | | | | | | | | | ~ |

Figure 4-1 Data Table, displaying data

A Data Table displays as many records as are downloaded from a Lighthouse SOLAIR or HANDHELD.

By default LMS XChange displays information about the instrument and the date and time, channel sizes, etc. of the data that was downloaded.

Note: Data previously displayed is discarded after the next data download is successful.

4

To display more information on the window, hide the Configuration Bar by clicking on the **Show/Hide Configuration** toolbar button:

Figure 4-2 Show/hide Configuration Bar toolbar button

By default the Configuration Bar is displayed. When the Configuration Bar is hidden, the LMS XChange window appears as follows:

| 🚆 LMS XChang | e | | | | | | | | | |
|-------------------------|----------------|--------------|------------|------------|------------|------------|-------------|-------------|---------------|---------------|
| Eile Tools Vi | sw Help | | | | | | | | | |
| 🖬 🍏 🖆 🕒 I | 1 🗉 🖇 | 9 🧿 | | | | | | | | |
| Instrument Model: SO | LAIR II | | | | | | | | | |
| Instrument Serial #: 04 | 10833001 | | | | | | | | | |
| Downloaded On: 8/2 | 0/2004 16:42:3 | 18 | | | | | | | | |
| Particle Data: Differen | itial | | | | | | | | | |
| Data Duration: 8/20/3 | 2004 13:24:54 | to 8/20/2004 | 16:42:47 | | | | | | | |
| Timestamp | Location | 0.3 micron | 0.5 micron | 1.0 micron | 3.0 micron | 5.0 micron | 10.0 micron | Sample Time | Sample Volume | Environmental |
| | (Name) | (Counts) | (Counts) | (Counts) | (Counts) | (Counts) | (Counts) | (8) | (#^3) | |
| 8/20/2004 15:48:02 | LOC001 | 0 | 0 | 0 | 0 | 0 | C | 5 | 0.1 | |
| 8/20/2004 15:48:07 | LOC001 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | |
| 8/20/2004 15:48:13 | LOC001 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | |
| 8/20/2004 15:55:10 | GOWNING | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | |
| 8/20/2004 15:55:16 | GOWNING | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | |
| 8/20/2004 15:55:21 | GOWNING | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | |
| 8/20/2004 15:55:27 | GOWNING | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | |
| 8/20/2004 15:55:32 | GOWNING | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | |
| 8/20/2004 15:55:37 | GOWNING | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | |
| 8/20/2004 15:55:43 | GOWNING | 0 | 0 | 0 | 0 | Ó | 0 | 5 | 0.1 | |
| 8/20/2004 15:55:48 | GOWNING | 0 | 0 | 0 | Ó | Ô | 0 | 5 | 0.1 | |
| 8/20/2004 15:55:53 | GOWNING | 0 | 0 | 0 | 0 | 0 | - | 5 | 0.1 | |
| 8/20/2004 15:55:59 | GOWNING | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | |
| 8/20/2004 15:56:04 | GOWNING | 0 | 0 | 0 | Ő | Ő | 0 | 5 | 0.1 | |
| 8/20/2004 16:24:20 | 100003 | ů | 0 | 0 | ő | 0 | | 5 | 0.1 | |
| 0/20/2004 10:24:20 | 100003 | 0 | 0 | 0 | 0 | 0 | | | 0.1 | |
| 9/20/2004 16:24:20 | 100003 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | |
| 9/20/2004 10:24:30 | 100000 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | |
| 9/20/2004 16:24:30 | 100000 | 0 | 0 | 0 | 0 | 0 | 0 | E | 0.1 | |
| 0/20/2004 10:24:41 | 100003 | 0 | 0 | 0 | 0 | 0 | | 5 | 0.1 | |
| 0/20/2004 10:24.40 | 100003 | 0 | 0 | 0 | 0 | 0 | | 5 | 0.1 | |
| 0/20/2004 10.24.32 | LOCODS | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | |
| 0/20/2004 16:24:37 | LOCOUS | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | |
| 0/20/2004 16:25:03 | DACKAGN | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | |
| 8/20/2004 16:41:42 | PALKAUN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 | |
| 8/20/2004 15:41:48 | PALKAGN | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | |
| 8/20/2004 16:41:53 | PALKAGN | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | |
| 0/20/2004 16:41:58 | PALNAUN | U | 0 | U | 0 | 0 | | 5 | u.1 | |
| 8/20/2004 16:42:04 | PAUKAGN | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | |
| 8/20/2004 16:42:09 | PAUKAGN | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | |
| 8/20/2004 16:42:15 | PACKAGN | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | |
| 8/20/2004 16:42:20 | PACKAGN | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | |
| 8/20/2004 16:42:25 | PACKAGN | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | |
| 8/20/2004 16:42:31 | PACKAGN | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | |
| 8/20/2004 16:42:36 | PACKAGN | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | |
| 8/20/2004 16:42:42 | PACKAGN | 1 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | |
| 8/20/2004 16:42:47 | PACKAGN | 0 | 0 | 0 | 0 | 0 | C | 5 | 0.1 | 1 |
| | Average | 5502.9 | 614.9 | 81.2 | 6.8 | 5.4 | 1.6 | 5.0 | 0.1 | |
| | Maximum | 30599 | 3416 | 439 | 43 | 56 | 14 | 5 | 0.1 | |
| | Minimum | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.1 | |
| Stand | and Deviation | 10142.4 | 1133.7 | 149.8 | 12.8 | 11.1 | 3.2 | 0.0 | 0.0 | |

Figure 4-3 Configuration Bar hidden

Click the **Show/Hide Configuration Bar** toolbar button to redisplay the Configuration Bar.

Scrolling

Use the scroll bars to scroll through the data when there is more data in the view than the Data Table can display at one time.

When you scroll down or up through the data, the Data Table's header remains fixed. Only the data records scroll.

Statistics

The bottom of the Data Table contains a section of summary statistics. Summary statistics include the Average, Maximum, Minimum, and

| Average | | 95.3 | 13.3 | 4.3 | 2.7 | 0.0 | 0.0 |
|--------------------|--------------|------|------|-----|-----|-----|-----|
| Maximum | \mathbf{N} | 111 | 17 | 10 | 9 | 0 | 0 |
| Minimum | | 77 | 7 | 1 | 0 | 0 | 0 |
| Standard Deviation | | 10.9 | 2.9 | 2.5 | 2.5 | 0.0 | 0.0 |

Standard Deviation values for each channel or environmental sensor.

Figure 4-4 Data Table Summary Statistics

Configuration Bar

Use the Configuration bar on the left side of the LMS XChange window to change how data is displayed. The following sections describe the different formats and units the Data Table uses to display data.

Instrument

| Instrument | ۲ |
|----------------------|----------|
| Show Instrument Info | V |
| Download Data | |

Figure 4-5 Instrument information

Options in the instrument section of the Configuration Bar allow you to show or hide instrument information and start downloading data.

Show Instrument Info

After data is downloaded, when "Show Instrument Info" is checked, the Data Table header displays the instrument's model number, serial number, and the date and time data was downloaded as well as the type of particle data displayed (Differential or Cumulative) and the duration of the downloaded data.

| Instrument Model: Handheld 3016 | |
|--|---------|
| Instrument Serial #: 030802013 | |
| Downloaded On: 8/26/2003 08:49:44 | |
| Particle Data: Differential | |
| Data Duration: 8/25/2003 19:21:27 to 8/25/2003 1 | 9:23:50 |

Figure 4-6 Show Instrument Info, checked

When not checked, the Data Table header displays only the type of

particle data displayed (Differential or Cumulative) and the duration of the downloaded data.

| Particle Data: Differential |
|---|
| Data Duration: 8/25/2003 19:21:27 to 8/25/2003 19:23:50 |

Figure 4-7 Show Instrument Info, not checked

Download Data

Click the Download Data button in the Instrument section of the Configuration Bar to start the Data Download Wizard. For details on downloading data, see the chapter on Downloading Data.

Location

The location section of the Configuration Bar allows you to show or hide location names and numbers, display the instrument's name, your short name or longer description, and set and/or upload location names.

| Location | 8 |
|--|---|
| Show Location Numbers Show Location Names | Image: A start of the start of |
| Use Instrument's Names | * |
| Setup My Locations | |
| Upload Location Names | |

Figure 4-8 Location information

Show Location Numbers

When "Show Location Numbers" is checked, the Data Table displays a Location Numbers column and the location numbers for each data record. When not checked, the Location Numbers column is not displayed.

| Particle Data: Differe | ential 2003 14:04:16 | to 8/25/2003 1 | Location Number | Particle Data: Differential | |
|------------------------|-------------------------|----------------|--------------------|-----------------------------------|------------------------|
| Timestamp | Location (Number) | 0.3 micron | Checked | Data Duration: 8/25, Timestamp | 0.3 micron (Counts) |
| 8/25/2003 14:04:16 | 1 | 38 | Not — | 8/25/2003 19:21:27 | 95 |
| 8/25/2003 14:04:22 | 1 | 50 | Checked | 8/25/2003 19:21:40 | 77 |
| 8/25/2003 14:04:28 | 1 | 38 | | 8/25/2003 19:21:53 | 104 |
| 8/25/200314:04:34 | 1 | 37 | _ | 8/25/2003 19:22:06 | 91 |

Figure 4-9 Show Location Numbers, checked and not checked

Show Location Names

Note: When both "Show Location Numbers" and "Show Location Names" are checked, the Data Table displays both columns. When "Show Location Names" is checked, the Data Table displays a Location Name column and the location name assigned to the location number for each data record. When not checked, the Location Names column is not displayed.

| Particle Data: Differ | ential | | Location | Particle Data: Differential | |
|-----------------------|--------------------|------------------------|----------|-----------------------------|------------------------|
| Data Duration: 8/25 | /2003 14:04:16 | to 8/25/2003 1 | Name | Data Duration: 8/25/ | 2003 19:21:27 |
| Timestamp | Location (Name) | 0.3 micron (Counts) | Checked | Timestamp | 0.3 micron (Counts) |
| 8/25/2003 14:04:16 | Cleanroom 7 | 38 | Not | 8/25/2003 19:21:27 | 95 |
| 8/25/2003 14:04:22 | Cleanroom 7 | 50 | Checked | 8/25/2003 19:21:40 | 77 |
| 8/25/2003 14:04:28 | Cleanroom 7 | 38 | | 8/25/2003 19:21:53 | 104 |
| 0.000.0000.4404.04 | | 27 | | 8/25/2003 19:22:06 | 91 |

Figure 4-10 Show Location Names, checked and not checked

Location Names can be displayed in three forms - Instrument Names, Long Names, or Short Names. The user can select which way they want to display the Location Names using the list below the Show Location Names check box. This list is shown in the figure below.

| Location | ۲ |
|---|-----------------------|
| Show Location Numbers Show Location Names | ✓ |
| Use Instrument's Names | * |
| Use Instrument's Names Use My Long Names Use My Short Names Optioad Location Mames | |

Figure 4-11 Location Names Display

Setup My Locations

When initially installed, LMS XChange assigns each location a default location name like "LOCXXX" where "XXX" is the location's number. Up to 200 location names can be maintained and downloaded from instruments.

To change a location name, click the "Setup My Locations" button. The following Setup My Locations window appears, displaying a list of all

location numbers and names.

| 🗄 Setu | p My Loca | itions | X |
|--------|----------------|----------------|---|
| Number | Short Name | Long Name | ~ |
| 000 | LOC000 | Location 000 | |
| 001 | LOC001 | Location 001 | |
| 002 | GOWNING | Gowning room 2 | |
| 003 | LOC003 | Location 003 | |
| 004 | PACKAGN | Packaging 1 | |
| 005 | LOC005 | Location 005 | |
| 006 | LOC006 | Location 006 | |
| 007 | LOC007 | Location 007 | |
| 008 | LOC008 | Location 008 | |
| 009 | LOC009 | Location 009 | |
| 010 | LOC010 | Location 010 | |
| 011 | LOC011 | Location 011 | |
| 012 | LOC012 | Location 012 | |
| 013 | LOC013 | Location 013 | |
| 014 | LOC014 | Location 014 | |
| 015 | LOC015 | Location 015 | |
| 016 | LOC016 | Location 016 | |
| 017 | LOC017 | Location 017 | |
| 018 | LOC018 | Location 018 | |
| 019 | LOC019 | Location 019 | ~ |
| | | | |
| Оре | n Location Na | mes From Edit. | |
| Sa | ve Location Na | ames As Clos | e |

Figure 4-12 Locations window

To update a location name, select the Location Number row and double click on it, hit the Enter key, or click the "Edit" button. The following "Location Name" window appears, displaying the location's current long and short names.

| Location Name |
|--|
| Enter a Long Name and a Short Name. |
| The Long Name is the name that will appear for that location in LMS XChange. |
| The Short Name is the name that will appear for that location on the instrument if that instrument supports alphanumerical locations. The Short Name must have the following executions |
| -It can be only composed of Capital letters A-Z, numbers, and underscore. |
| -It cannot have any spaces. -It can only be 8 characters or shorter. |
| -Each Short Name must be unique. -The Short Name at index 000 will not be uploaded to the instrument. |
| Long Name : |
| Gowning room 2 |
| Short Name: |
| GOWNING |
| OK Cancel |

Figure 4-13 Setup Location window

To change the long or short Location Name, edit it and then click OK. To close the Setup My Location window without changing the current

Note: Short Location Names can only contain capital letters (A-Z), integers (0-9) and underscores. location name, click the Cancel button.

Import Location Names

You can import Location Names by clicking the **Open Location Names From...** button on the **Setup My Locations** window.

Locations Names are stored in a file with the extension .loc. Browse and select the desired Location Name file and click Open. The list of Location Names will be imported, overwriting any previously loaded Location Names. For example, you can select the *DefaultLocations.loc* file installed in the **My Documents\LMS XChange\Locations** folder to restore all locations back to their initial names.

Save Location Names

You can save your list of Location Names by clicking the **Save Location Names As...** button on the Setup My Locations window.

| 🗄 Setup | My Location | 5 | | × |
|---------|----------------|--------------|---|----------|
| Number | Short Name | Long Name | | ▲ |
| 000 | LOC000 | Location 000 | | |
| 001 | LOC001 | Location 001 | | |
| 002 | LOC002 | Location 002 | | |
| 003 | LOC003 | Location 003 | | |
| 004 | LOC004 | Location 004 | | |
| 005 | LOC005 | Location 005 | | |
| 006 | LOC006 | Location 006 | | |
| 007 | LOC007 | Location 007 | | |
| 008 | LOC008 | Location 008 | | |
| 009 | LOC009 | Location 009 | | |
| 010 | LOC010 | Location 010 | | |
| 011 | LOC011 | Location 011 | | |
| 012 | LOC012 | Location 012 | | |
| 013 | LOC013 | Location 013 | | |
| 014 | LOC014 | Location 014 | | |
| 015 | LOC015 | Location 015 | | |
| 016 | LOC016 | Location 016 | | |
| 017 | LOC017 | Location 017 | | |
| 018 | LOC018 | Location 018 | | |
| 019 | LOC019 | Location 019 | | - |
| | | - | l | |
| Upe | n Location Nar | mes From | | Edit |
| Sa | ve Location Na | ames As | | Close |

Figure 4-14 Setup My Locations Window

The following window displays:

| Save Location Names As |
|--|
| You can save the location names to a file. |
| If you have a Lighthouse particle counter which supports alphanumeric location names, you can save the location names from that instrument. This option is only available after you have downloaded actual data samples from that instrument. |
| After pushing the "Next" button, you can choose the location and name of the save file. |
| Save Names From: |
| My Locations Instrument (donwloaded) Names |
| Cancel Next>> |

Figure 4-15 Save Location Names window

When the **Save Location Names As** window appears, you can choose to either save the instrument's location names or the ones you have created in LMS XChange.

If you have a Lighthouse instrument that supports alphanumeric location names and you have already downloaded data from the instrument to LMS XChange, you can save the instrument's Location Names to a file by selecting **Instrument (Downloaded) Names**.

As an alternative, select **My Locations** to save the location names you have created or edited in LMS XChange to a file.

Click **Cancel** to abort saving Location Names, or click the **Next** button to continue.

If you clicked **Next**, browse and select the directory to save the file to, enter your desired file name (extension .loc), and click OK. Click **Cancel** to exit this window without saving Location Names.

Note: If the instrument has empty location names, they are substituted with pre-generated names following the format, "LOC####". "###" is the index number for that location name.

Upload Location Names

| Location | ۲ |
|--|-----------------------|
| Show Location Numbers Show Location Names | ✓ |
| Use Instrument's Names | * |
| Setup My Locations | |
| Upload Location Names | |

Figure 4-16 Location, Configuration Bar

If your instrument is from Ligthhouse Worldwide Solutions and it supports alphanumeric location names, you can upload location names from LMS XChange to your instrument.

To do this, click **Upload Location Names** on the **Location** section of the Configuration Bar, click **Upload Location Names** tool bar button, or select **Upload Location Names** from the Tools Menu.

The Upload Location Name Wizard appears:

| 🖬 Location Name Upload Wizard: St 🔀 |
|---|
| Welcome to the location name upload wizard! |
| This wizard helps you upload alphanumerical location names from your computer to your Lighthouse particle counter. |
| |
| |
| |
| |
| |
| |
| |
| |
| Next > Cancel |

Figure 4-17 Location Name Upload Wizard

Click **Next >** to continue or **Cancel** to cancel the operation.

| 🗄 Location | Name | Upload | Wiza | rd: St | × | | | |
|--|--|-------------------------------|----------------------|------------------------------|-----------|--|--|--|
| Connect your Lig (serial) port on yo below. | hthouse iur PC S | particle cou Select the C | unter to OM port | an unused (t you are usi | COM ng | | | |
| Port : | COM 1 | | * | | | | | |
| Select the particle counter's communication address below. If you do not know this address, then select the <auto-detect> option. (Auto-detect might take about one minute to locate your particle counter.)</auto-detect> | | | | | | | | |
| Address : | <auto-e< td=""><td>)etect></td><td>~</td><td></td><td></td></auto-e<> |)etect> | ~ | | | | | |
| Please stop all a sampling and prir | ctions on | ı your partic ore clicking | le count the ''Ne | ter such as xt" button. | | | | |
| < P | rev | Next > | | Cance | : | | | |

Figure 4-18 UpLoad Location Name Wizard, continued

Select the COM Port and Address to search for the instrument. Just like when downloading data from an instrument, you can chose "Auto-Detect" as the address and LMS XChange will search for the instrument's address. Click **Next >** to continue, or **< Prev** to return to the previous step.

| 🗄 Location Name U | oload Wizard: St 🔀 |
|---|---------------------------------------|
| Connecting to instrument | |
| | |
| Connection established! Instrument : Serial # : Address : # of Looptions: | SOLAIR II 040833001 1 200 |
| Click the "Next" button to re- about to upload to the instrur | view the location names you are nent. |
| | |
| | |
| | |
| | |
| | |
| < Prev | Next > Cancel |

Figure 4-19 Upload Location Names Wizard, continued

If LMS XChange finds the instrument, the Wizard will display information about the instrument, its model, serial number, address and how many locations it currently has.

Click **Next >** to continue, or **< Prev** to return to the previous step.

| 🗄 Loc | ation | Name | Upload | Wizaro | l: St | X |
|--------------------------------|------------------------------------|-------------------------------------|---|---------------------------|-------------------------|----------|
| The sho your ins the nar | ort name strument. nes to th | s shown i Please c e instrume | n the list be click the ''Ni ent. | low will be EXT'' butt | uploaded on to uploa | to ad |
| Numb | er Sh | ort Name: | s | | | ^ |
| 001 | LO | C001 | | | | |
| 002 | GC | WNING | | | | |
| 003 | LO | C003 | | | | |
| 004 | LO | C004 | | | | |
| 005 | LC | C005 | | | | |
| 006 | LC | C006 | | | | |
| 007 | LO | C007 | | | | |
| 008 | LO | C008 | | | | |
| 009 | LO | C009 | | | | |
| 010 | LO | C010 | | | | |
| 011 | LO | C011 | | | | |
| 012 | LO | C012 | | | | |
| 013 | LO | C013 | | | | |
| 014 | LC | C014 | | | | |
| 015 | LC | C015 | | | | |
| 016 | LU | C016 | | | | |
| 017 | | C017 | | | | |
| J 018 | LU | C018 | | | | <u> </u> |
| | | | | | | |
| | _ | | | | | _ |
| | < | Prev | Next > | | Cance | |

Figure 4-20 Upload Location Names Wizard, continued

The next Wizard step shows you a list of LMS XChange's location

names for your review. They will be uploaded to the instrument if you chose to continue.

Click **Next >** to continue, or **< Prev** to return to the previous step.

WARNING: Uploaded C Location Names will over write any Location Names that currently exist on the instrument.

| Do ye | ou want to overwrite names? |
|-------|--|
| ? | The current names on the instrument will be lost and will be replaced with the new names Do you want to continue? |
| | Yes No |

Figure 4-21 Upload Location Names, warning

Uploading location names overwrites any existing location names on the instrument.

Acknowledge the above warning by clicking **Yes** to continue or **No** to abort the Location Name Upload Wizard. If you click **Yes**, LMS XChange will start uploading location names.

| 💼 Location Name Upload Wizard: St 🔀 |
|---|
| Uploading Location Names |
| /5/200 |
| Please do not use the instrument while uploading location names. |
| Warning: Cancelling this operation will leave the list of names on the instrument partially updated. |
| |
| |
| |
| |
| |
| |
| |
| < Prev Cancel |

Figure 4-22 Location Name Upload, in progress

LMS XChange displays the progress of the location name upload on the above window. When the upload is complete, the window will change to say that it has finished the upload. Click "Close" to exit the Wizard. **Note:** If the instrument is disconnected while location names are being uploaded, a warning message will display.

| 💼 Location Name Upload Wizard: St 🔀 |
|---|
| Uploading Location Names |
| 200/200 |
| Finished uploading the location names to the instrument! |
| Click "Close" to continue and check the instrument's Location list for the uploaded names. |
| |
| |
| |
| |
| |
| |
| |
| |
| < Prev Close |

Figure 4-23 Upload Location Names Completed

Particle

The Particle section of the Configuration Bar allows you to display additional data in the Data Table and/or change the units the data is displayed in.

| Particle | | | ۲ |
|---------------------|------------|---|---|
| Differential | | [| ~ |
| Show Raw Counts | ; | | Image: A start of the start of |
| Show Normalized | Counts | | |
| Show Sample Tim | e | | Image: A start of the start of |
| Show Sample Volume | | | ✓ |
| Norm. Counts p/ft^3 | | | |
| Sample Time seconds | | | |
| Sample Volume | cubic feet | ۷ | |
| | | | |

Figure 4-24 Particle section, Configuration Bar

Differential/Cumulative

The Differential/Cumulative pulldown list allows you to display the data in the Data Table as either Differential (default) or Cumulative data. To change from Differential to Cumulative, or visa versa, select

Differential or Cumulative from the list. The Data Table and its header update appropriately if particle data is displayed.

| Instrument Model: H | andheld 3016 | | | | | | |
|------------------------|----------------|--------------|------------|------------|------------|------------|------------|
| Instrument Serial #: (| 030802013 | | | | | | |
| Downloaded On: 8/3 | 25/2003 15:19: | 12 | | | | | |
| Particle Data: Differe | ential | | | | | | |
| Data Duration: 8/25/ | /2003 14:04:16 | to 8/25/2003 | 14:07:13 | | | | |
| Timestamp | Location | 0.3 micron | 0.5 micron | 0.7 micron | 1.0 micron | 2.0 micron | 5.0 micron |
| | (Number) | (Counts) | (Counts) | (Counts) | (Counts) | (Counts) | (Counts) |
| 8/25/2003 14:04:16 | 1 | 38 | 5 | 1 | 1 | 0 | 0 |
| 8/25/2003 14:04:22 | 1 | 50 | 2 | 3 | 1 | 0 | 0 |
| 8/25/2003 14:04:28 | 1 | 38 | 6 | 2 | 2 | 0 | 0 |
| 8/25/2003 14:04:34 | 1 | 37 | 5 | 2 | 0 | 0 | 0 |
| 8/25/2003 14:04:40 | 1 | 41 | 8 | 2 | 1 | 0 | 0 |
| 8/25/2003 14:04:46 | 1 | 50 | 5 | 1 | 1 | 0 | 0 |
| | 1 | , € | | Cumula | ative D | ata 、 | |

Differential Data

| Instrument Model: Ha | andheld 3016 | | | | | | |
|------------------------|----------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| Instrument Serial #: 0 | 30802013 | | | | | | |
| Downloaded On: 8/2 | 25/2003 15:19: | 12 | | | | | |
| Particle Data: Cumul | lative | | | | | | |
| Data Duration: 8/25/ | 2003 14:04:16 | to 8/25/2003 | 14:07:13 | | | | |
| Timestamp | Location (Number) | 0.3 micron (Counts) | 0.5 micron (Counts) | 0.7 micron (Counts) | 1.0 micron (Counts) | 2.0 micron (Counts) | 5.0 micron (Counts) |
| 8/25/2003 14:04:16 | 1 | 45 | 7 | 2 | 1 | 0 | (|
| 8/25/2003 14:04:22 | 1 | 56 | 6 | 4 | 1 | 0 | (|
| 8/25/2003 14:04:28 | 1 | 48 | 10 | 4 | 2 | 0 | (|
| 8/25/2003 14:04:34 | 1 | 44 | 7 | 2 | 0 | 0 | (|
| 8/25/2003 14:04:40 | 1 | 52 | 11 | 3 | 1 | 0 | (|
| 8/25/2003 14:04:46 | 1 | 57 | 7 | 2 | 1 | 0 | (|
| 8/25/2003 14:04:52 | 1 | 52 | 9 | 3 | 1 | 0 | 0 |



Show Raw Counts

To display data as raw counts, check the Show Raw Counts check box. The Data Table updates and displays a column containing the raw count data for each particle channel size.

| Particle Data: Differe | ential | | | | |
|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| Data Duration: 8/25/ | /2003 19:21:27 | to 8/25/2003 | 19:23:50 | | |
| Timestamp | 0.3 micron (Counts) | 0.5 micron (Counts) | 0.7 micron (Counts) | 1.0 micron (Counts) | 2.0 micron (Counts) |
| 8/25/2003 19:21:27 | 95 | 14 | 4 | 9 | 0 |
| 8/25/2003 19:21:40 | 77 | 16 | 5 | 2 | 0 |
| 8/25/2003 19:21:53 | 104 | 13 | 2 | 0 | 0 |
| 8/25/2003 19:22:06 | 91 | 10 | 10 | 4 | 0 |
| 8/25/2003 19:22:19 | 109 | 14 | 1 | 2 | 0 |

Figure 4-26 Show Raw Counts

Show Normalized Counts

To display normalized data, check the **Show Normalized Counts** check box. The Data Table updates and displays a column containing the normalized data for each particle channels size.

| Particle Data: Differe | ential | | | | |
|------------------------|-----------------------|-----------------------|-----------------------|-----------------------------------|-----------------------|
| Data Duration: 8/25/ | /2003 19:21:27 | to 8/25/2003 | 19:23:50 | | |
| Timestamp | 0.3 micron (p/m^3) | 0.5 micron (p/m^3) | 0.7 micron (p/m^3) | 1.0 micron (p/m ³) | 2.0 micron (p/m^3) |
| 8/25/2003 19:21:27 | 167744.7 | 24720.3 | 7062.9 | 15891.6 | 0.0 |
| 8/25/2003 19:21:40 | 135961.5 | 28251.7 | 8828.7 | 3531.5 | 0.0 |
| 8/25/2003 19:21:53 | 183636.3 | 22954.5 | 3531.5 | 0.0 | 0.0 |
| 8/25/2003 19:22:06 | 160681.7 | 17657.3 | 17657.3 | 7062.9 | 0.0 |
| 8/25/2003 19:22:19 | 192464.9 | 24720.3 | 1765.7 | 3531.5 | 0.0 |

Figure 4-27 Show Normalized Counts

Show Sample Time

To show each data record's Sample Time, check **Show Sample Time**. The Data Table updates and displays a Sample Time column.

| Sample Time (s) | |
|--------------------|--|
| 5 | |
| 5 | |
| 5 | |
| 5 | |
| 5 | |

Figure 4-28 Show Sample Time

Show Sample Volume

To show Sample Volume data for each data record, check **Show Sample Volume**. The Data Table updates and displays a Sample Volume column.

| Sample Volum (L) | e |
|---------------------|---|
| 0. | 2 |
| 0. | 2 |
| 0. | 2 |
| 0. | 2 |
| 0. | 2 |
| | |

Figure 4-29 Show Sample Volume

Note: When both Raw Counts and Normalized Counts are checked, the Data Table displays (from left to right) first raw count columns for each particle channel size and then normalized data columns.

Norm. Counts (Units of measure)

To change the unit of measure for normalized counts in the Data Table, first check the **Show Normalized Counts** check box to display the normalized particle data and then select "p/m^3" or "p/ft^3" from the "Norm. Counts" pull down list. The Data Table updates and displays the normalized counts in the selected unit of measure.

| Timestamp | 0.3 micron | 0.5 micro | on | | |
|---------------------|------------|--------------------|--------------------|----------------------------|------------|
| | (p/m^3) | (p/m^3 |) | | |
| 8/25/2003 19:21:27. | 167744.7 | 2472 | 20.3 | | |
| 8/25/2003 19:21:40 | 135961.5 | 2825 | 51.7 | | |
| 8/25/2003 19:21/53 | 183636.3 | 2295 | Timestamp | 0.3 micron | 0.5 micron |
| 8/25/2003 19:22:06 | 160681.7 | 1765 | | (p/ft^3) | (p/ft^3) |
| 8/25/2003 1/9:22:19 | 192464.9 | 2472 | 8/25/2003 19:21:27 | 4750.0 | 700.0 |
| | | | 8/25/2003 19:21:40 | 3850.0 | 800.0 |
| p/m3 / | | | 8/25/2003 19:21:53 | 5200.0 | 650.0 |
| 10.2 | | 8/25/2003 19:22:06 | 4550.0 | 500.0 | |
| p/ft3 > | | | 8/25/2003 19:22:19 | 5450.0 | 700.0 |

Figure 4-30 Normalized Counts (Units of Measure)

Sample Time (units of measure)

To change the unit of measure for sample time data in the Data Table, first check the **Show Sample Time** check box to display Sample Time data and then select "seconds", "minutes" or "hours" from the "Sample Time" pull down list. The Data Table updates and displays the Sample Time data in the selected unit of measure.



Figure 4-31 Sample Time (units of measure)

Sample Volume (units of measure)

To change the unit of measure for sample volume data in the Data Table, first check the "Show Sample Volume" check box to display Sample Volume data and then select "cubic feet", "cubic meters" or "liters" from the "Sample Volume" pull down list. The Data Table updates and displays the Sample Volume data in the selected unit of measure.



Figure 4-32 Sample Volume (units of measure)

IAQ Instrument Data

After downloading data from an IAQ instrument, two new checkboxes will appear in the Particle section. They are **Show Mass Concentrations** and **Show PM and TPM Values**.

| | LMS XChange | | | | | | | | | | | | | |
|---|--|--------------|------------------------|----------------|---------------|------------|------------|------------|------------|-------------|------------|------------|------------|---------|
| E | jile <u>T</u> ools <u>V</u> iew <u>H</u> elp | | | | | | | | | | | | | |
| L | l 😂 🖆 🗄 🔳 🔮 | 💡 🍳 | | | | | | | | | | | | |
| Г | Instrument Model: HH 3016 IAQ | | | | | | | | | | | | | |
| | Instrument | * | Instrument Serial #: 0 | 70244001 | | | | | | | | | | |
| | | _ | Downloaded On: 3/1 | /2007 15:16:4 | 11 | | | | | | | | | |
| | Show Instrument Info | | Particle Data: Differe | ntial | | | | | | | | | | |
| | Download Data | | Particle Density: 2.50 |)0 g/ml | | | | | | | | | | |
| | | | Data Duration: 3/1/2 | 2007 08:56:11 | to 3/1/2007 1 | 5:18:32 | | | | | | | | |
| | | | Timestamp | Location | 0.3 micron | 0.5 micron | 1.0 micron | 2.5 micron | 5.0 micron | 10.0 micron | 0.3 micron | 0.5 micron | 1.0 micron | 2.5 mic |
| | Location | * | | (Name) | (Counts) | (Counts) | (Counts) | (Counts) | (Counts) | (Counts) | (ug/m^3) | (ug/m^3) | (ug/m^3) | (ug/m^ |
| | Show Location Numbers | | 3/1/2007 08:56:11 | LUCOUT | 17778 | 1650 | 122 | 17 | 5 | 3 | 3.16 | 1.93 | 1.81 | |
| | Show Location Names | V | 3/1/2007 09:02:44 | LUCUUI | 14021 | 1172 | 109 | 31 | 5 | 5 | 2.49 | 1.37 | 1.62 | |
| | Lies Instrument's Manage | | 3/1/2007 15:15:25 | LOC001 | 16088 | 814 | 30 | 10 | 0 | 1 | 2.94 | 0.95 | 0.45 | |
| | Use instrument's Names | | 2/1/2007 15:15:45 | 100001 | 17225 | 000 | 33 | 11 | 4 | 0 | 3.00 | 1.01 | 0.30 | |
| | Setup My Locations | | 3/1/2007 15:16:51 | 100001 | 17223 | 943 | 40 | 8 | 4 | 0 | 3.00 | 1.00 | 0.56 | |
| | Listand Landian Marray | | 3/1/2007 15:18:32 | 100001 | 16442 | 810 | 46 | 6 | 3 | 6 | 2.92 | 0.95 | 0.55 | |
| | Upload Location Names | | 0/1/2001 10:10:02 | Average | 16659.1 | 1025.4 | 60.6 | 12.9 | 2.6 | 21 | 2.96 | 1.20 | 0.90 | |
| | | | | Maximum | 17778 | 1650 | 122 | 31 | 5 | 6 | 3.16 | 1.93 | 1.81 | |
| | Particle | * | | Minimum | 14021 | 810 | 30 | 6 | 0 | 0 | 2.49 | 0.95 | 0.45 | 1 |
| | | | Stand | dard Deviation | 1265.8 | 301.5 | 38.0 | 8.8 | 2.2 | 2.5 | 0.22 | 0.35 | 0.56 | |
| | Differential | | | | | | | | | | | | | |
| | Show Raw Counts | \checkmark | | | | | | | | | | | | |
| | Show Normalized Counts | | | | | | | | | | | | | |
| r | Show Mass Concentrations | | | | | | | | | | | | | |
| K | Show PM and TPM Values | | | | | | | | | | | | | |
| | Show Sample Time | | | | | | | | | | | | | |
| | Show Sample Volume | | | New C | Check | boxes | 3 | | | | | | | |
| | Norm. Counts p/ff^3 | | | | | | | | | | | | | |
| | Sample Time seconds | | | | | | | | | | | | | |
| | Sample Volume Level - | | | | | | | | | | | | | |

Figure 4-33 New Checkboxes Main Screen

Show Mass Concentrations

To display mass concentrations, check the **Show Mass Concentrations** check box. The Data Table will update and display columns containing mass concentrations for each particle channel size. This data will always display in Differential mode, even when the drop down menu

box is set to Cumulative. Data units are always displayed in micrograms per cubic meter (ug/m^3) .

Show PM and TPM Values

To display Particulate Matter (PM) and Total Particulate Matter (TPM), choose the **Show PM and TPM Values** check box. The Data Table will update and display PM columns for each particle channel size, except the first. A TPM column is displayed after the last PM column. The data displayed is unaffected by the Differential/Cumulative drop down menu box. Data units are always displayed in micrograms per cubic meter (ug/m^3).

Environmental

The Environmental section of the Configuration Bar allows you to display additional environmental data in the Data Table and/or change the associated units of measure.

| Environmental 🔅 | | | | | |
|-----------------|------------|----------|--|--|--|
| Show Environmen | tals | ~ | | | |
| Temperature | Fahrenheit | * | | | |
| Air Velocity | ft/min | * | | | |
| Diff. Pressure | ''H2O | * | | | |

Figure 4-34 Environmental information

Show Environmentals

To show environmental data, select the "Show Environmentals" check box. The Data Table updates and displays the available environmental data..

| Temperature (F) | Relative Humidity (%) |
|--------------------|--------------------------|
| 80.0 | 43.2 |
| 80.0 | 44.0 |
| 80.0 | 43.8 |
| 80.0 | 43.7 |
| 79.5 | 43.4 |
| 80.0 | 44.0 |
| | |

Figure 4-35 Show Environmentals (HANDHELD instrument)

Note: HANDHELD instruments can record temperature and relative humidity data. SOLAIR instruments can record temperature, relative humidity, air velocity and differential pressure data. To record environmental data, the appropriate probe(s) must be attached and analog channels enabled on the instrument.

Temperature (units of measure)

To change the unit of measure for temperature data, first check the "Show Environmentals" check box to display environmental data and then select "Fahrenheit", "Celsius" or "Kelvin" from the "Temperature" pull down list. The Data Table updates and displays the temperature data in the selected unit of measure.



Figure 4-36 Temperature (units of measure)

Air Velocity (units of measure)

To change the unit of measure for air velocity data, first check the "Show Environmentals" check box to display environmental data and then select "ft/min" or "m/sec" from the "Air Velocity" pull down list. The Data Table updates and displays the air velocity data in the selected unit of measure.

Diff. Pressure (units of measure)

To change the unit of measure for differential pressure data, first check the "Show Environmentals" check box to display environmental data and then select a unit of measure from the "Diff. Pressure" pull down list. The Data Table updates and displays the differential data in the appropriate unit of measure.

Data Status

When data is recorded on the instrument under compromised conditions, such as insufficient flow or laser voltage, it is displayed on the Data Table in a different color so that you can easily identify it.

Data Status colors are as follows in order of priority:

1) Instrument malfunction (purple)

2) Bad laser (purple)

3) Bad flow (blue)

Note: SOLAIR

instruments can record air velocity and differential data if the appropriate probes are attached and enabled. HANDHELD instruments cannot record air velocity or differential data.

Note: Bad Laser's color takes priority over bad flow's color. If data is under both bad laser and bad flow conditions, the data will be colored purple (bad laser) on the Data Table.

4) Overflow (orange) - Overflow occurs when particle counts on the instrument exceed its maximum count.

0.3 micron 0.5 micron Sample Time Temperature Time Stamp (Counts) (Counts) (s) (F) Data Status 7/6/2003 14:01:24 75.2 1555 800 5 7/6/2003 14:01:30 800 5 400 75.2 7/6/2003 14:01:36 800 5 1555 75.6 7/6/2003 14:01:42 800 400 5 75.2 7/6/2003 14:01:48 1555 800 5 75.2 7/6/200314:01:54 800 400 5 75.6 7/6/2003 14:02:00 1555 800 5 75.6

For Example:



If any compromised data is displayed during a given time range, the summary section of the Data table also reflects the compromised data.

| Summary, Data | Average | 1199.7 | 143964.7 | 611.8 | 73411.8 | 75.5 | 5.0 |
|---------------|------------------------|--------|----------|-------|---------|------|-----|
| Status | Maximum | 1555 | 186600.0 | 800 | 96000.0 | 76.1 | 5 |
| | Minimum | 800 | 96000.0 | 400 | 48000.0 | 75.2 | 5 |
| | Standard Deviation | 388.4 | 46613.3 | 205.8 | 24695.8 | 0.4 | 0.0 |
| | Instrument Malfunction | Yes | Yes | Yes | Yes | NA | Yes |
| | Flow Status | Bad | Bad | Bad | Bad | NA | Bad |
| | Laser Status | Bad | Bad | Bad | Bad | NA | NA |
| | Instrument Overflow | Yes | Yes | Yes | Yes | NA | NA |

Figure 4-38 Data Table Summary section

To see details about the data's status, place your cursor over any cell in the Data Table or its summary section that contains compromised data. The data's status' appears in a tooltip.

| 800 | 96000.0 | 400 | 48000.0 | 7 | | | |
|------|---------------|----------------------|----------|---|--|--|--|
| 1555 | 186600.0 | 800 | 96000.0 | 7 | | | |
| 800 | Instrument | malfuncti | oned | 7 | | | |
| 1555 | - Bad laser | - Bad laser voltage. | | | | | |
| 800 | - Bad flow ra | - Bad flow rate. | | | | | |
| 1555 | - Instrument | data ove | rflowed. | 7 | | | |
| 800 | 0.00039 | 400 | 48000.0 | 7 | | | |

Figure 4-39 Data Status tool tip

Data Status tooltip messages include:

- Instrument malfunctioned.
- Bad laser voltage.

Data Display

- Bad flow rate.
- Instrument data overflowed.

Printing Print the displayed Data Table by clicking on the Print button on the toolbar.

6

On the default print window select a printer and click OK to print the Data Table.

Saving Data Data from LMS XChange can be saved to several different file types: HTML (*.html,*.htm), Microsoft ExcelTM (*.xls) or Comma Separated Value (*.csv) files.

- 1. Download data and view the Data Table.
- 2. Click the Save As button,

This action brings up the following dialog box:

| Save As | | | | <u>? ×</u> |
|--------------|-------------------------|--------------------|---------|--------------|
| Save jn: | 🔁 DOC | | - 🗢 🖻 🖻 | * 🎫 • |
| | | | | |
| Desktop | | | | |
| My Documents | | | | |
| My Computer | | | | |
| Mu Natwork P | , File <u>n</u> ame: | | • | <u>S</u> ave |
| My NEWOIK F | Save as type: | Excel File (*.xls) | • | Cancel |

Figure 4-40 Save Data Table

- 3. Use the navigation tools at the top of the dialog box to select a directory into which to save the file.
- 4. Enter a name in the "File Name" field.

- 5. Select which file type to save it as: *.xls, *.html or *.csv.
- 6. Click on Save to save.

Once saved to a Microsoft Excel or comma separated value format, the data can be manipulated and formatted using the standard Microsoft Excel functions.

Please refer to the Microsoft Excel manual for further information.

IAQ Instrument Setup

Overview This chapter describes the IAQ Instrument Setup wizard.

ProcedureAttach the Communications cable to the IAQ instrument Data port.
Start the XChange program and, from the Main menu, choose Tools,
Setup IAQ Instrument. Turn the instrument ON.



Figure 5-1 Tools Drop Down Menu

1. At the next screen, click **Next** to continue or **Cancel** to cancel.



Figure 5-2 IAQ Setup Step 1

2. At the next screen, verify that the COM port shown in the Drop down is correct and change it if needed. If a USB-RS232 converter will be used, make sure it is connected and the driver installed before attempting to use it to connect to the instrument. Choose its COM port (usually higher COM numbers such as 5 or 6). The illustration in Figure 5-3 shows the Default COM 1.

| 😭 IAQ Setup Wizard: Step 2 of 5 | | | | | | |
|--|--|--|--|--|--|--|
| Connect your Lighthouse IAQ instrument to an unused COM (serial) port on your PC. Select the COM port you are using below. | | | | | | |
| Port : COM 1 | | | | | | |
| Select the instrument's communication address below. If you do not know this address, then select the <auto-detect> option. (Auto-detect might take about one minute to locate your instrument.)</auto-detect> | | | | | | |
| Address : Auto-Detect> | | | | | | |
| Please stop all actions on your instrument such as sampling and printing before clicking the "Next" button. | | | | | | |
| < Prev Next > Cancel | | | | | | |

Figure 5-3 IAQ Setup Step 2

3. Make sure the instrument is ON and click **Next** to continue or **Cancel** to cancel.



Figure 5-4 IAQ Setup Step 3

4. Allow the program to search for the instrument. If the software cannot find the instrument, make sure the correct port is chosen, the cable is solidly attached at both ends and the instrument is turned ON. If it continues to fail, contact Lighthouse Technical Support for assistance.

| 😭 IAQ Setup Wizard: Step | 3 of 5 🛛 🗙 |
|---|---|
| Connecting to instrument | |
| | |
| Connection established! Instrument : Serial # : Address : Click the "Next" button to view | HH 3016 IAQ 070244001 1 w the instrument's IAQ settings. |
| < Prev | Next > Cancel |

Figure 5-5 IAQ Setup Step 3 Success

 When the instrument has been found, the software will display the instrument type, serial number and address (typically 1). Click Next to continue and display the IAQ settings or Cancel to cancel.



Figure 5-6 IAQ Setup Step 4

6. To change the particle density value, click **Change the particle** density to the value below:

| 😭 IAQ Setup Wizard: Step 4 of 5 | 4 | | | | |
|--|---|--|--|--|--|
| The instrument assumes that all particles have the following density: | | | | | |
| 2.500 grams / milliliter | | | | | |
| Change the particle density to the value below: | | | | | |
| 2.500 grams / milliliter | | | | | |
| Click the "Next" button to upload the new density value. | | | | | |
| < Prev Next > Cancel | | | | | |

Figure 5-7 Particle Density Change Screen

7. The default value used by the IAQ Handheld for the particle density is the same as carbon, 2.500 grams per milliliter. Values allowed are from 0.001 to 9.999, illustrated in Figure 5-8.

| 😭 IAQ Setup Wizard: Step 4 of 5 🛛 🔀 | 😭 IAQ Setup Wizard: Step 4 of 5 🛛 🔀 |
|--|--|
| The instrument assumes that all particles have the following density: | The instrument assumes that all particles have the following density: |
| 2.500 grams / milliliter | 2.500 grams / milliliter |
| Change the particle density to the value below: | Change the particle density to the value below: |
| 0.001 grams / milliliter | 9.999 grams / milliliter |
| Click the "Next" button to upload the new density value. | Click the "Next" button to upload the new density value. |
| < Prev Next > Cancel | < Prev Next > Cancel |

Figure 5-8 Minimum and Maximum Values

8. Click < **Prev** to go back, **Next** > to continue or **Cancel** to cancel the operation.

9. When the desired value is entered, click the **Next** button to write this value to the IAQ and proceed to Step 5 (Figure 5-9).

| 🖀 IAQ Setup Wizard: Step 5 of 5 | × |
|--|---|
| Writing configuration into the instrument | |
| The new density value has been successfully written to the instrument. | |
| If you have already downloaded data from this instrument, then you'll need to download the data again for this new density value to be applied to the instrument's mass concentrations. | |
| < Prev Close | |

Figure 5-9 Configuration Change Confirmation Screen

- 10. Click **Close** to close the window and return to the program Main screen.
- 11. See "IAQ Instrument Data" on page 4-17. and review IAQ data view options.

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