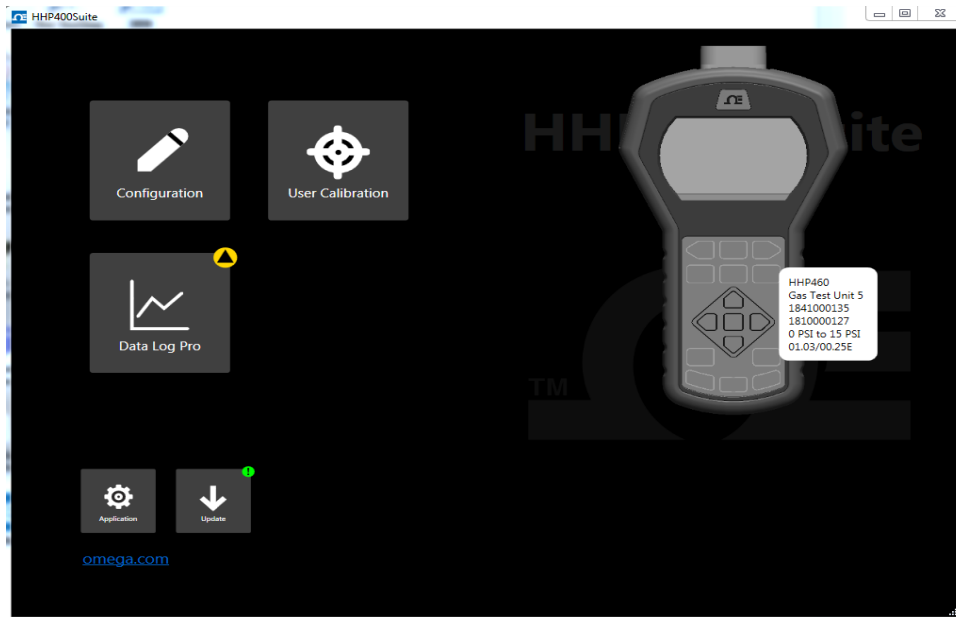




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# User Manual

## HHP400 Suite Application



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# **General Information**

## ***Notification Statements***

### **Disclaimer**

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## Glossary

Words and phrases with their definitions.

<b>Words &amp; phrases</b>	<b>Definitions or explanations</b>
<b>Button or key</b>	<ul style="list-style-type: none"><li>▪ A button always refers to an area on the screen that you can click to select functionality.</li><li>▪ A key always refers to hardware push buttons on the keyboard that you can press.</li></ul>
<b>Dashboard</b>	<ul style="list-style-type: none"><li>▪ The dashboard is the initial window that displays in HHP400 Suite application. The dashboard gives you access to the different functions in the application.</li></ul>
<b>Omega Calibration</b>	Omega calibration refers to any calibration completed at Omega with Omega traceability. Omega calibration includes: <ul style="list-style-type: none"><li>▪ Oven calibration.</li><li>▪ Multipoint Omega adjustment.</li></ul>
<b>User Calibration</b>	User calibration refers to any calibration done outside of Omega with non-Omega traceability. User calibration includes: <ul style="list-style-type: none"><li>▪ Multipoint user calibration or adjustment</li></ul>

## Tips for using HHP400 Suite

### *How does HHP400 Suite benefit you?*

- With HHP400 Suite, you can configure your device or sensor to display information the way your company needs to use it.
- The HHP400 Suite application can configure data logging requirements and Data Log Pro.

### *USB cable and your computer*



#### **For use only in non-hazardous locations (safe locations)**

Connect the USB cable to your device and to your computer to configure any sensors you wish to include.

### *Battery outline*

#### **NOTICE**

#### **Watch for the battery outline**

Do not attempt to modify or update your device when only the outline of the battery icon is visible.

### *Close HHP400 Suite first, then turn off your device*

#### **NOTICE**

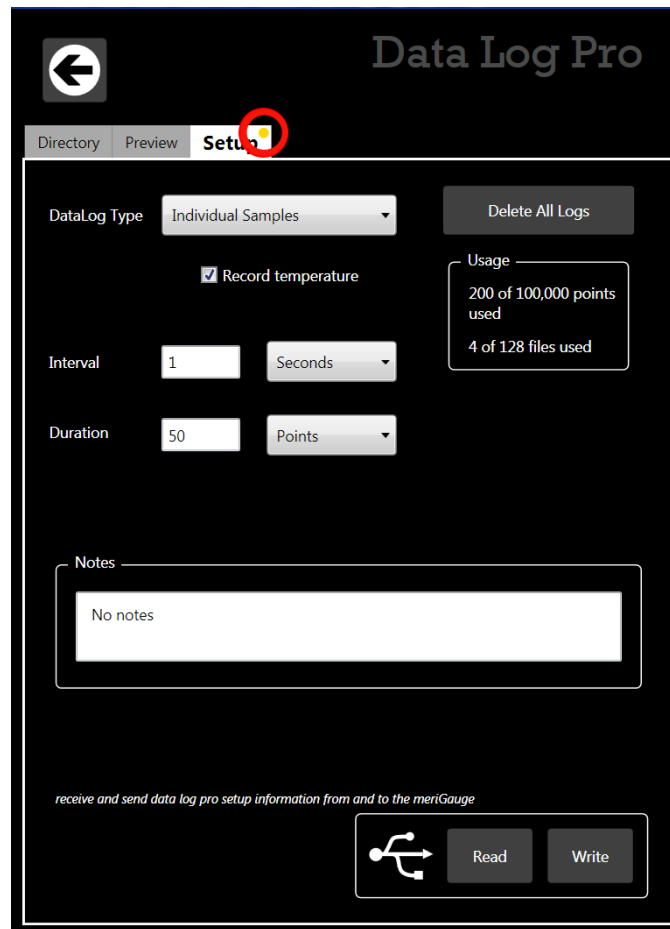
Do not turn off the power on the device while it is communicating with HHP400 Suite. The device displays dashes and the word *USB ACTIVE* while HHP400 SuiteCG is communicating with a device or sensor.

- Close HHP400 Suite first, disconnect the USB, and turn off your device.
- As long as *USB ACTIVE* remains visible, Auto Off is suspended.

## Watch for a yellow dot on a tab

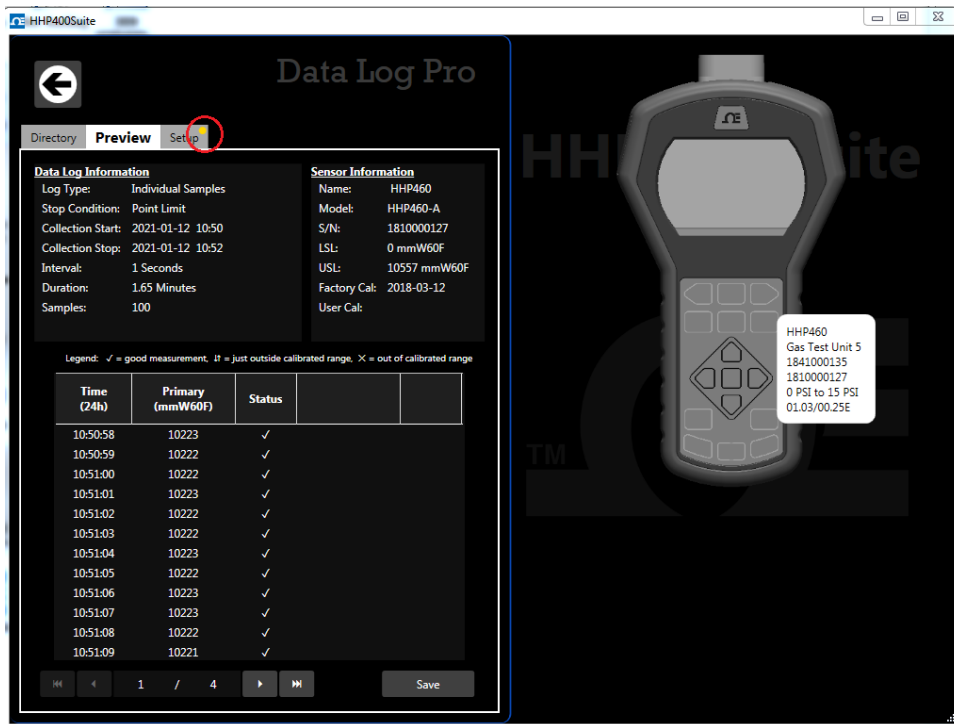
- A yellow dot appears on a tab in HHP400 Suite to indicate that you have made changes to settings but you have not saved them yet. See Figure 1 and Figure 2 below.
- You may click the **Write** button to save the changes you made.

Figure 1: Yellow dot on an active tab. See the red circle in the figure below.



## *(Watch for a yellow dot on a tab continued)*

Figure 2: Yellow dot on an inactive tab. See the red circle in the figure below.



### ***Year-Month-Date format***

- The HHP400 Suite application displays the date in year-month-day format.
- For example: 2016-04-22 (YYYY-MM-DD).

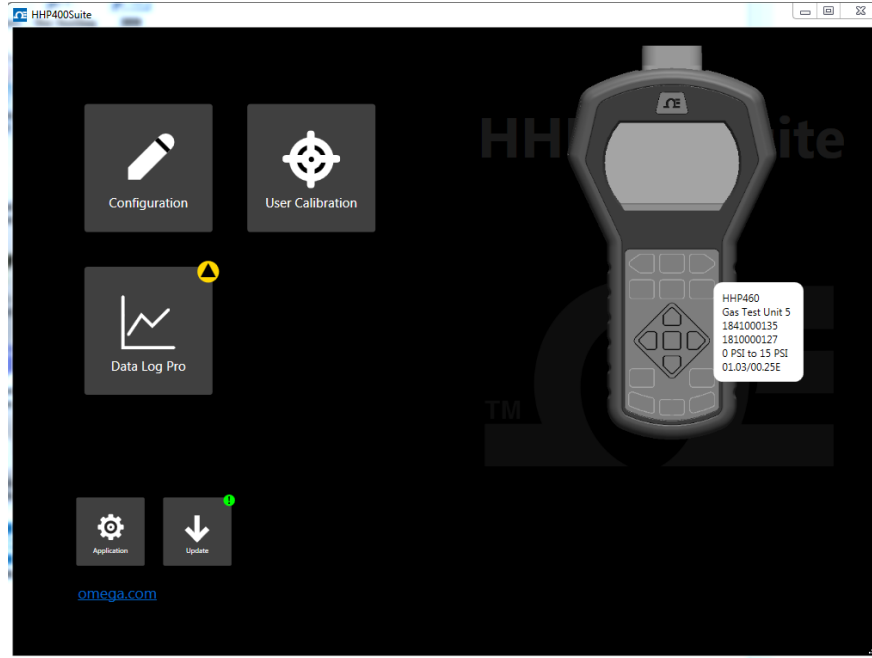
### ***Hours:Minutes:Seconds format***

- The HHP400 Suite application displays the time in **Universal Coordinated Time (UTC)** 24-hour format.
- For example: 15:05:45 UTC (hours:minutes:seconds).

## Connection status

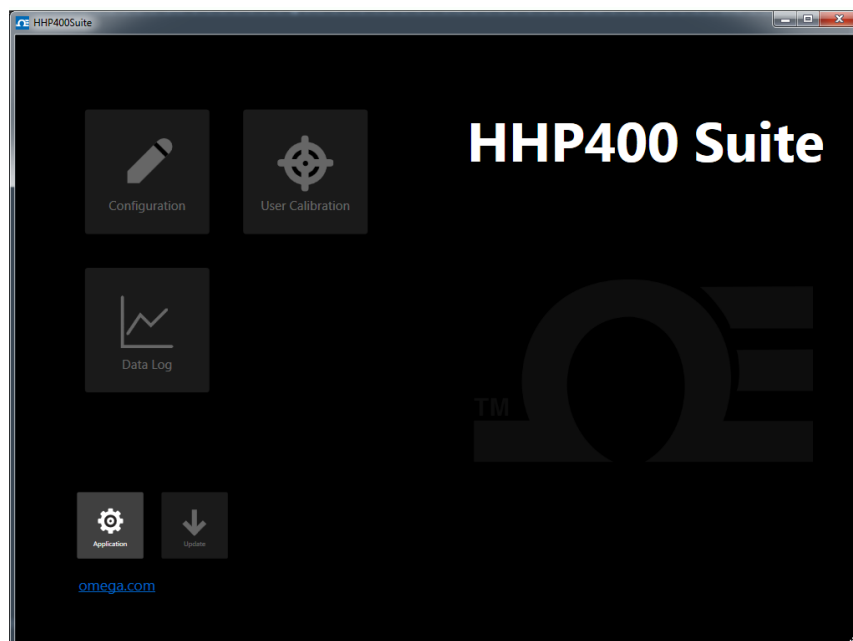
### Attached devices

The HHP400 Suite application displays the outlines of attached devices on the right with descriptions appearing alongside. See the figure below.



### No attached devices

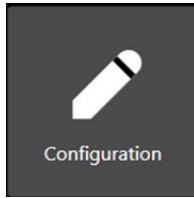
The HHP400 Suite application displays no outlines of devices on the right side. See the figure below.





# Configuration button

## Overview of the Configuration button

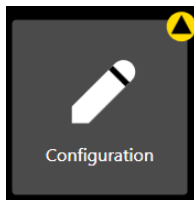


The **Configuration** button displays a window with multiple tabs:

- Device name or the name you assigned to it.
- Sensor type or the name you assigned to it, one for each sensor.

*Note: These tabs offer you various settings to configure each attached device.*

## Notification about unsaved settings



It displays a **yellow alert icon** to indicate you have changed a setting and you have not yet saved the setting to the target element or to your computer.

## Passwords

### Overview of passwords

Passwords are never required to use a device or any sensor.

- The passwords are turned off when the devices are shipped.
- Each device can have its own unique 16-character password. You may use from 1-16 characters: letters, numbers, or symbols, and uppercase and lowercase.
- An internal sensor and a tethered sensor have separate passwords.
- Each device can have its password turned on or turned off independently from any other element.
- HHP400 Suite retrieves the passwords stored on the devices.

### HHP400 SuiteCG uses the password

If you choose to select the **Password Required For Future Access**, then HHP400 Suite requests a password for the following actions:

- To modify a device or sensor's configuration.

**Note:** *This action includes saving to or loading from a file.*

- To update the firmware on a device or sensor.
- To access the Setup tab of Data Log Pro.

## **HHP400 SuiteCG requests a password**

If you choose to select the **Password Required For Future Access**, then HHP400 Suite requests a password whenever you modify a configuration, update the application or firmware, or calibrate a device.

- Once HHP400 Suite accepts a password for one of those actions, the device remains unlocked until it is disconnected from HHP400 Suite.
- If you enter the password on one window, HHP400 Suite unlocks that device or sensor on its other windows as well.

## **Data Log Lite has no password**

HHP400 Suite does not use a password for Data Log Lite since it cannot make any changes to the device.

## ***Request a recovery password***

### **Forgot the password for a device or sensor?**

- If you forget a password, contact Omega to generate a recovery password for you to unlock the device.
- A recovery password disables the password until you create a new password.
- You must have the serial number of the device or sensor to request a recovery password.
- Call 1-800-826-6342 or send an e-mail to [info@Omega.com](mailto:info@Omega.com).

### **Recovery password valid for one date**

When you call Omega to generate a recovery password, you may select a date that is convenient for you. If you do not specify a date, the request date is used.

## ***Common features for devices and sensors***

### **The Names field**

You can assign your own company designations to each device or sensor.

## As Left/As Found Configuration Report button

- You can review a summary of the configuration of the device when it is first connected and the changes you made in the **As Found/As Left Report**.
- The **As Found/As Left Report** cannot report changes made in HHP400 Suite unless you save those new configurations to the device.

## Read and Write Configurations

- **Read** and **Write** refer to reading configuration data from a device or sensor or writing new data to them.

### **NOTICE**

Save your configuration changes before you click the **Read** button. After you click the **Read** button, all changes on-screen are replaced with the configuration that is on the device.

## *Configuring devices*

### Sync PC time to Gauge

- Click to update the device time and date with your computer.
- The LCD display and data logging use this time and date.

### Timeouts

- Backlight.
- Auto Off (Automatic Off).

### Display Functions

- Min/Max.
- Accuracy.
- Tare.
- Average.
- Rate of Change.
- Time & Temp.
- Allow zero adjust (∅)
- Leak Test

## Configuring sensors

### Enabled Units

Select or deselect measurement units to view them on the device with a display.

- The **All** button selects all measurement units.
- The **None** button deselects all measurement units.
- You must select at least one unit before you can **Write** to the device.

### Two User Defined Units

You can define the text, multiplier, type, and zero offset for two non-standard or unsupported display units.

**Note:** *Flow type does not use offset.*

**Note:**  $(\text{multiplier} \times \text{PSI}) + \text{Offset} = \text{the displayed value for linear type.}$

## Damping

### Damping rate

Select a **Time Constant:** 1 second, 2 seconds, 4 seconds, 8 seconds, or 16 seconds.

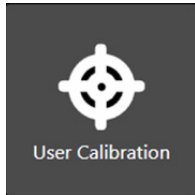
- When set for 4 second time constant, it takes 4 seconds from the time of the step change until the device displays the full value of the new pressure.

### Damping types

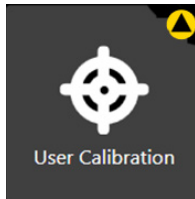
Select a *type:* Exponential, Smart Quick, Smart Normal, or Smart Slow.

- Use adjustable **Exponential** type damping to steady the display when you measure pulsating pressure or flow.
- **Exponential** damping displays approximately 70% of a step change in pressure at the next display update.

## User Calibration button



The User Calibration button displays options to calibrate the sensor.



The User Calibration button displays a **yellow alert icon** to indicate you have changed a setting and you have not yet saved the setting to sensor.

## *User Calibration: For authorized personnel only*

### What does “Calibration Enabled” refer to?

- With a check in the box, Calibration Enabled displays the Live Reading with your current user calibration applied.
- Without a check in the box, it displays Live Reading without your user calibration.

### Restore Factory Defaults

This button clears your user calibration from the sensor.

### Choose Calibration Unit

- Select the calibration reference units.
- This does not affect or depend on the configuration units.

### Begin button...Apply button

1. Click Begin.
2. Select the point.
3. Apply reference pressure within the range shown.
4. Enter the reference value.
5. Save the point.
6. Repeat steps 2-5 until you are done. (You have to change at least one point.)
7. Click the Apply button.

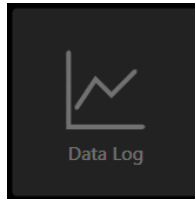
## ***Customer calibration***

You can calibrate the manometer in the field for

1. Zero.
2. Span.
3. Linearity.

# Data Log button

## Overview of Data Log buttons



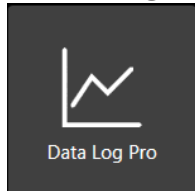
Data logging displays three different buttons depending on what you order or on what you add-on at a later time. The **Data Log** button is always unavailable when no device is attached to HHP400 Suite.

### Data Log Lite



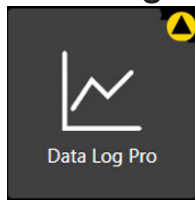
- The **Data Log Lite** button displays when you attach a device. Data Log Lite is the free version of data logging. It has *no options*.

### Data Log Pro



- The **Data Log Pro** button displays when Data Log Pro is activated on the device that is attached to HHP400 SuiteCG.

### Data Log Pro alert



- The button displays a yellow alert icon to indicate you have changed a setting and you have not yet saved the setting to the device.

## Data Log Lite

### Preview tab

#### Preview the data log

The Preview tab displays the first 10 samples so you can confirm the data to save. If you have fewer than 10, it displays all of your samples.

#### Status, pressure, and temperature for logs

The Status symbols for pressure and temperature.

**Note:** *Recording the temperature is dependent on the device and options selected in HHP400 SuiteCG.*

The ✓ symbol corresponds to readings that are within the calibrated range.

- The ↓↑ and × symbols indicate an abnormal condition.
- The ↓↑ symbol indicates readable data.
- The × symbol indicates dashes and no readable data.

## The Pressure

The pressure indicates the reading at each 15-second interval in the data set.

## The Temperature

If...	then...
you have a device	<ul style="list-style-type: none"> <li>▪ The internal temperature of the sensor displays the measured temperature for each 15-second interval in the data set.</li> <li>▪ Internal temperature logging on a meriGauge is only available when the log type is <b>Individual Samples</b> or <b>On Demand</b>.</li> <li>▪ Internal temperature logging can be turned off in HHP400 SuiteCG.</li> </ul>
you have a device	<ul style="list-style-type: none"> <li>▪ Temperature displays only when the OTS RTD PT100 is attached.</li> <li>▪ The internal temperature is not displayed.</li> <li>▪ The MTS displays when it is attached (pressure or temperature).</li> </ul>

## Save a data log file as a TSV file—only option

The **Save** button in Data Log Lite saves the data to a **Tab Separated Values** (\*.TSV) file format.

## Open a data log file as a TSV file

Double click a TSV file and if it opens in a spreadsheet application, then you do not need to do anything additional.

**Examples of spreadsheet applications:** *Microsoft Excel, OpenOffice Calc, and Google Sheets.*

## Associate the file type “TSV” with an application

If double clicking a TSV file failed to open it in a spreadsheet application, then you have to follow these steps:

1. Open the Control Panel in Windows 10, 8 or 7.
2. In the Control Panel, open Default Programs.
3. Click the Associate file type or protocol with a program option.



4. Scroll through the list of file extensions until you locate “.tsv” and select it.
5. Click the Change program button.
6. Select the program you want to associate with it and click OK.

**Note:** *If the program you want to select is not listed, click the Browse button and find the program's executable (.exe) file on the computer. Select the file and click OK to select that program.*

## Drag and drop a TSV file into

Drag and drop TSV files to open them. The following steps are similar for these spreadsheet applications: Microsoft Excel, OpenOffice Calc, and Google Sheets.

1. Open **File Explorer** (Windows 8 and 10). Keep File Explorer small enough to see Excel in the background.

**Note:** *Depending on which version of Windows you have, File Explorer may be known as Windows Explorer, File Manager, or My Computer.*

2. Open **Excel**. It can have a blank spreadsheet or an existing spreadsheet. Drag and drop creates a new spreadsheet.
3. Switch to **File Explorer** and navigate to the location where you saved the TSV file.
4. Select the file and drag-and-drop it in the middle of the blank spreadsheet.
5. Save it as an **Excel** file.

## **Data Log Pro**

### **An optional purchase**

#### **List of benefits**

You can:

- Log 100 000 data points.
- Set data logging intervals from 1 second to 24 hours.
- Set one of four data logging types.
- Select the duration: fixed time, fixed data points, or forever.

**Note:** *Forever is limited by the remaining number of points on the device. Look for these numbers on the Setup tab by clicking the Data Log Pro button.*

- Save logs to two file formats: TSV and PDF format.

### **How many licenses do I need to operate Data Log Pro?**

#### **Do I need a license for each computer (HHP400 SuiteCG)**

- No.

#### **Do I need a license for each sensor?**

- No.

## ***Order Data Log Pro or add it later***

### **Order it installed**

You can order it so the device comes loaded and ready to use when you receive it. The **Data Log Pro** button appears on the HHP400 Suite dashboard when the device is connected.

### **Add it later**

You may add Data Log Pro at any time by calling your distributor or contact the Omega Sales Team.

- You must have the **serial number** from the device.
- You can find it on the back of the device or you can view it in the HHP400 Suite application.
- After you purchase Data Log Pro, your distributor or the Omega Sales Team will give you an Activation Key.
  - **Phone**                    1-800-826-6342
  - **Email**                    [info@Omega.com](mailto:info@Omega.com)

### **Enter the activation key**

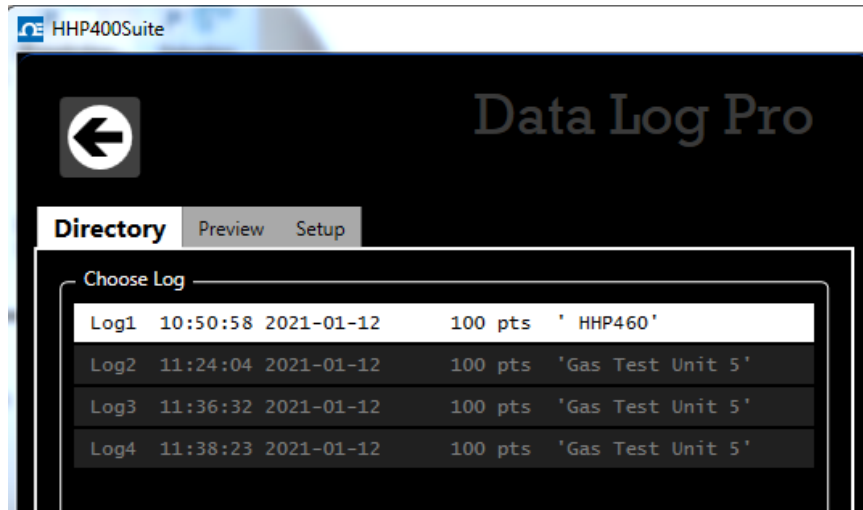
- Click the **Upgrade** tab in **Data Log Lite** to enter the activation key.
- After you click the **Activate Device** button, **Data Log Pro** automatically replaces Data Log Lite in HHP400 Suite.

## Directory tab

### View the list of logs on the device in the Directory tab

The **Directory** tab displays all the logs in the memory of the connected device. Two ways to open a log:

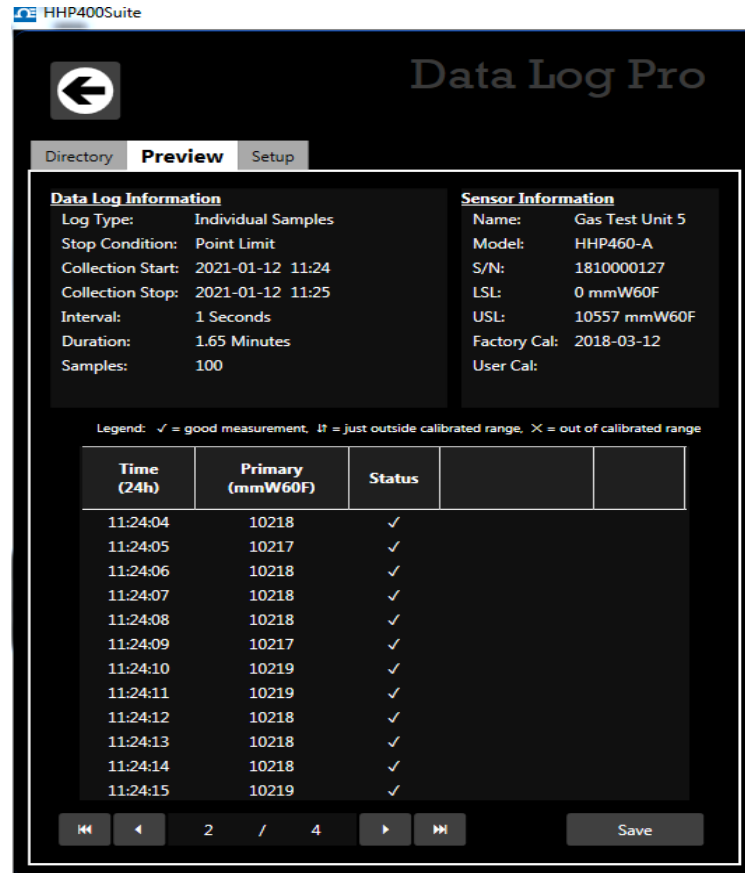
- First, double click a log to open it in the **Preview** tab.
- Second, you may click a log from the list to select it and click the **Preview** tab to view it.



## Preview tab

### Overview of the Preview tab

When you double click a log in the **Directory** tab, the **Preview** tab opens.



The Preview tab contains seven areas of information:

1. Data Log Information list.
2. Sensor Information list.
3. Notes.
4. Legend.
5. Samples table.
6. Navigation bar.
7. Save button.

## Details about the Preview tab

### 1. Data Log Information list

A description of items in this list:

1. **Log type** indicates the type that was selected in the Setup tab when the log was created.
2. **Stop condition** indicates why the log stopped.

**List of stop conditions:** Manual Stop, Data Complete, Time Limit, Point Limit, Storage Limit, Low Power, Sensor Removed, PC Connection, or Sensor Error

3. **Collection Start** indicates the day and time the log began.
4. **Collection Stop** indicates the day and time the log ended.
5. **Interval** is how often data is saved but it does not display with the On Demand option.
6. **Duration** displays how long the log actually recorded data. This may or may not be the Duration you selected in the Setup tab. Check the Stop condition.
7. **Samples** indicate the number of readings in the log. They reflect how many data points were saved.

### 2. Sensor Information list

- All information in this list was retrieved from the internal sensor (and from an MTS if one was attached) that was attached at the time the device recorded this particular log.

### 3. Notes

- The information that displays here comes from the text you enter in the **Notes** box in Data Log Pro **Setup** tab.

#### 4. Legend for the status columns

The samples table has two columns for Status. The legend provides three symbols to indicate the level of confidence for pressure and temperature measurements.

*Note: Temperature is included only if you selected Record temperature in the Setup tab.*

1. The ✓ symbol corresponds to readings that are within the calibrated range.
2. The ↓↑ and × symbols indicate an abnormal condition.
3. The ↓↑ symbol indicates readable data but it is out of range.
4. The × symbol indicates dashes on the device and no readable data.

#### 6. Navigation bar

- The bar provides you with buttons to jump to the first log or to the last log.
- The bar also provides you with buttons to navigate to the previous log or next log.
- The numbers in the bar indicate which log out of the total number of logs on the device that you are currently viewing.

#### 7. Save button

Click the **Save** button on the right side and the **Save As** box appears. You can save the file in a PDF and TSV file format.

## Setup tab

### Overview of the Setup tab

- The Setup tab lists parameters you may change. It gives you usage statistics and it displays three action buttons.
- A yellow dot appears on this tab to remind you that you changed a setting and have not saved it.

### Parameter Choices

#### Four data logging types

1. **Individual Samples** refers to actual measurements taken at fixed intervals.
2. **Average only** refers to average measurements over the intervals you selected. It takes measurements every 200 ms.
3. **Average with peaks** refers to average measurements over the intervals you selected. It also saves the maximum and minimum measured values during the interval you saved. It takes measurements every 200 ms.
4. **On Demand** refers to manually recording actual measurements rather than at fixed intervals.

#### Interval types

You select Seconds, Minutes, or Hours from a drop-down menu and enter a number.

#### Duration types

- You can select: *Minutes, Hours, Days, Forever, or Points* and enter a number.
- Selecting Forever, makes the number box disappear.

**Note:** *Forever* is limited by the remaining number of points on the device. Look for these numbers on the **Setup** tab in *Data Log Pro*.

#### Notes edit box

Notes you enter in this edit box appear in the Preview tab, the TSV file, and the PDF file. This field can hold up to 64 characters.



## Usage statistics

Usage presents the amount of memory available on the device for data logging in two ways:

1. The number of data points used out of a maximum of 100 000.
2. The number of logs used out of a maximum of 128.

## Read

After pressing this button, Data Log Pro reads the parameters from the device and displays them in the **Setup** tab.

### **NOTICE**

Save your configuration changes before you click the Read button. After you click this button, all changes on-screen are replaced with the configuration that is on the device.

**Note:** *If the device has a password, then clicking this button requires you to enter a password. This password was created in the **Configuration** tab for device.*

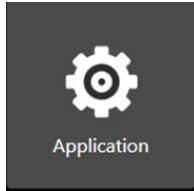
## Write

This button remains unavailable until you make a change in the **Setup** tab. It saves the new setup parameters to the device. It overwrites whatever was on the device.

**Note:** *If the device has a password, then clicking this button requires you to enter a password. This password was created in the **Configuration** tab for device.*

# Application button

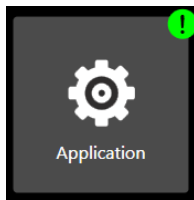
## Overview



The Application button displays a window with three sections:

- About.
- Available Update.
- Language Selection.

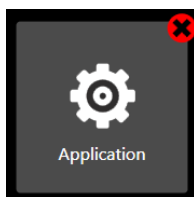
## Application notifies you of available updates



It displays a green alert icon with an exclamation mark to indicate an *Available Update*. After clicking this button, it displays the following message:

*"PLEASE BE ADVISED! If you choose to install the update at this time, you will lose unsaved configuration information or data log setup changes. Be sure to save that information to a file or **Write** it to the connected device."*

## Application notifies you of no internet connection

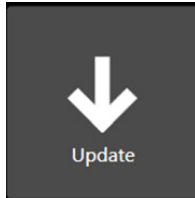


It displays a red alert icon with an "x" to indicate"

*"There is no connection to the update server. This is usually caused by the PC not having internet connectivity or the server may be temporarily unavailable."*

# Update button

## Overview



The **Update** button displays a window with multiple sections:

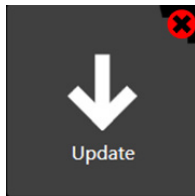
- The **first** section alerts you to updates for the device.
- The **second** section alerts you to updates for **each** sensor that you attach to the device.

## Update notifies you of available updates



It displays a green alert icon to indicate an update is available for the firmware in the device or the sensor.

## Update notifies you of no internet connection



It displays a red alert icon to indicate:

*"There is no connection to the update server. This is usually caused by the PC not having internet connectivity or the server may be temporarily unavailable."*

# Help

## ***Register your product***

We want you to get the most out of your purchase, and that starts with a few, easy registration steps.

1. Go to [www.Omega.com](http://www.Omega.com)
2. In the **Product Registration** section, click **Register** a product.

## ***Find downloads and documents***

1. Go to [www.Omega.com](http://www.Omega.com).
2. In the **Technical Resources** section, click **Learn More**.
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  - **Downloads** | *Applications (software), firmware, updates, installation instructions*
  - **Certifications** | *Certifications and approvals*
  - **SDS (MSDS)** | *Safety Data Sheets*
  - **Control Drawings** | *Intrinsically Safe Drawings*