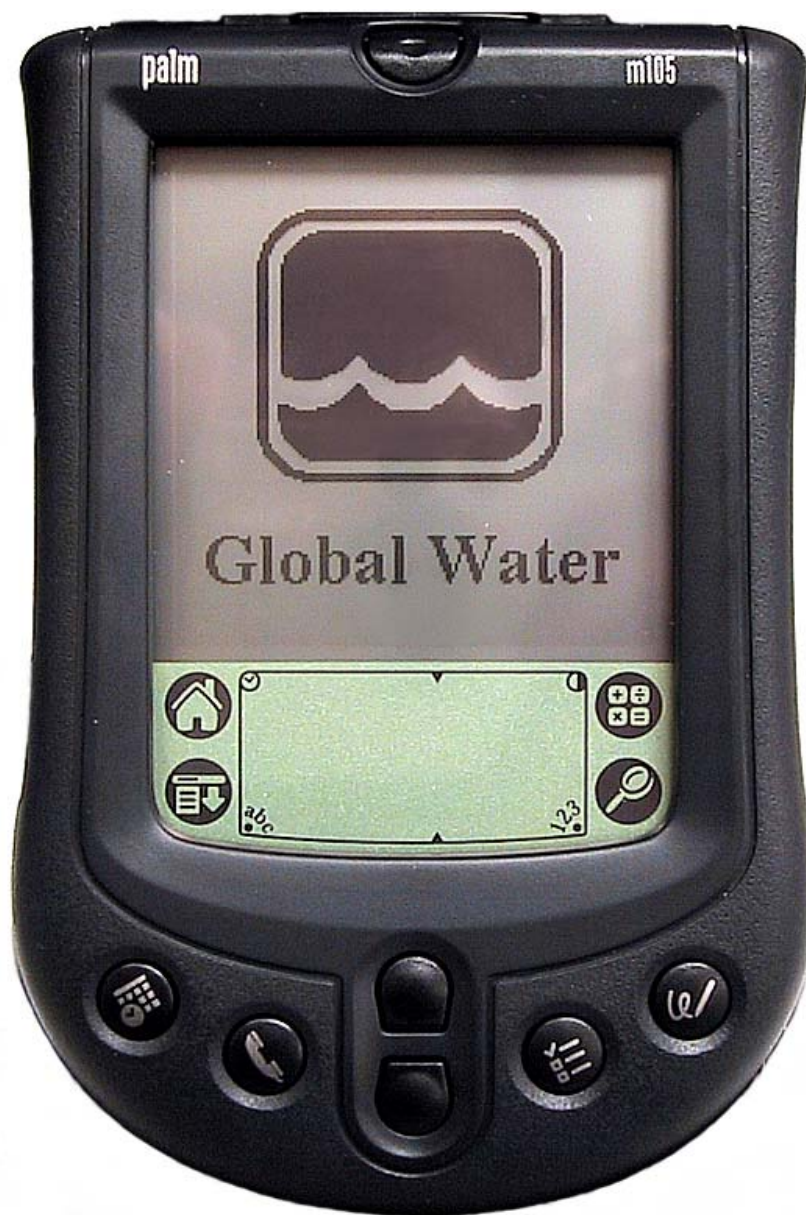




Global Water
Instrumentation, Inc.

PLM

Global Logger for Palm OS



3/15/2002

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Requirements

PDA

- Palm OS* software version 3.5 or above

PC

- Windows 95, 98, ME, NT, 2000 or XP**
- 486DX 66MHz, 16MB RAM (Windows 95 base machine; newer operating systems may require higher specifications)
- Available COM port

Contact Information

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Terminology

In order to better understand this product manual, please be aware of the following terminology and formatting standards.

Bolded terms (i.e. **bold**) indicate either a keyboard key, a word or icon that appears on your hand-held Palm* device or computer monitor screen or a phrase to be emphasized. Context will dictate which is indicated.

Since it is assumed that users of this manual are familiar with mouse usage, many mouse operations are implied. The term “click” or “clicking” means to press and release the left mouse button. Similarly, “double-click” means to press and release the left mouse button twice in quick succession. For example, the phrase “Click the **start** button” should be interpreted as “Move the mouse pointer to the task bar and click the **start** button.” If any other mouse button is used in an operation, it will be specified in the documentation.

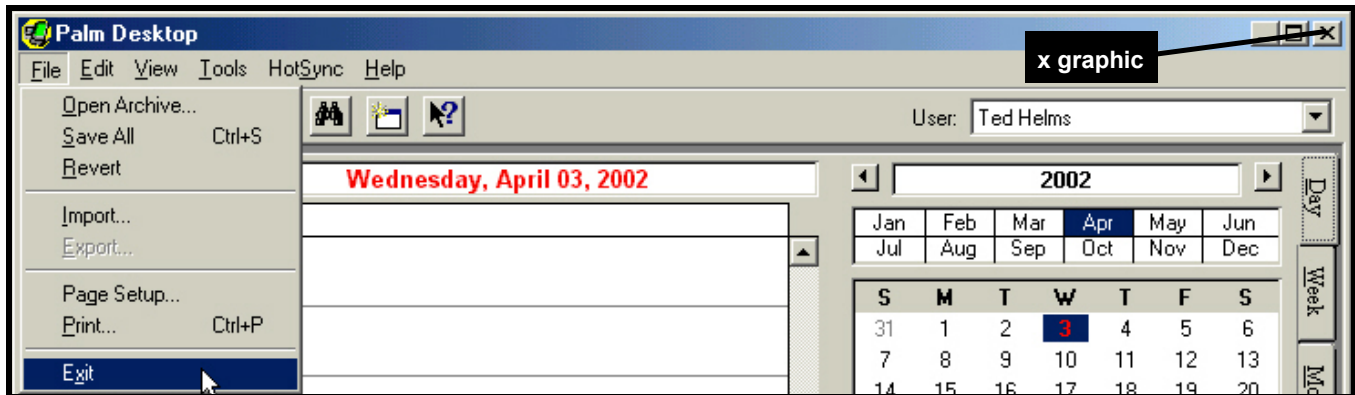
The term “select” means to move the mouse pointer over the indicated target. For example the phrase “Select **Toolbars** from the **View** menu” means to move the mouse pointer over **View**, click **View** and then move the mouse pointer over **Toolbars**. This action provides access to the **Toolbars** menu. “Select” is normally used when the mouseover action will cause additional menus to display.

The → symbol is used with submenu operations where the user should click the first and last items in the string separated by →. For example, the phrase “Click on **File** → **New** → **Folder**” means click on **File**, select **New** and click on **Folder**.

* Palm™ and Palm OS™ are registered trademarks of Palm, Inc.

**Windows 95™, 98™, ME™, NT™, 2000™ and XP™ are registered trademarks of the Microsoft Corporation

When the documentation directs you to exit a program or window, you can generally do so by clicking the **x** graphic in the upper right-hand corner or by clicking **File** → **Exit**.



Since it is assumed that users of this manual are familiar with PDA usage, many stylus operations are implied. The term “tap” means to lightly touch the PDA screen with the stylus. For example, the phrase “Tap the icon to launch the program” should be interpreted as “Touch the screen with the stylus at the icon’s location.” If any other stylus action is required in an operation, it will be specified in the documentation.

Please note that this user’s manual was designed using the Palm m105 Handheld. Although the operation of other Palm compatible devices will be similar to that of the m105, some details may vary.

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Introduction

Global Logger for the Palm OS

Congratulations on your purchase of Global Logger* for the Palm OS. This software has been quality tested and approved. We are confident that you will find the logger software to be a valuable asset for your application. Should you require assistance, our technical staff will be happy to help.

Features

- Tabular display
- Global Logger data can be converted to standard spreadsheet format
- Adaptor cable included
- Compatibility with WL15 and GL400 Global Water dataloggers

Checklist

Your Global Logger software package was carefully inspected and certified by our Quality Assurance Team before shipping. If any damage has occurred during shipping, please notify Global Water Instrumentation, Inc. and file a claim with the carrier involved. Use the checklist to ensure you have received everything needed to operate the Global Logger for the Palm OS. Note, there are two varieties of the software package. One contains the WL15 adaptor cable and the other the GL400 adaptor cable. Use the checklist appropriate to your model number.

Package Contents for PLM-WL



- User Manual
- Adaptor Cable
- Global Logger software (3 1/2" Floppy Diskette)

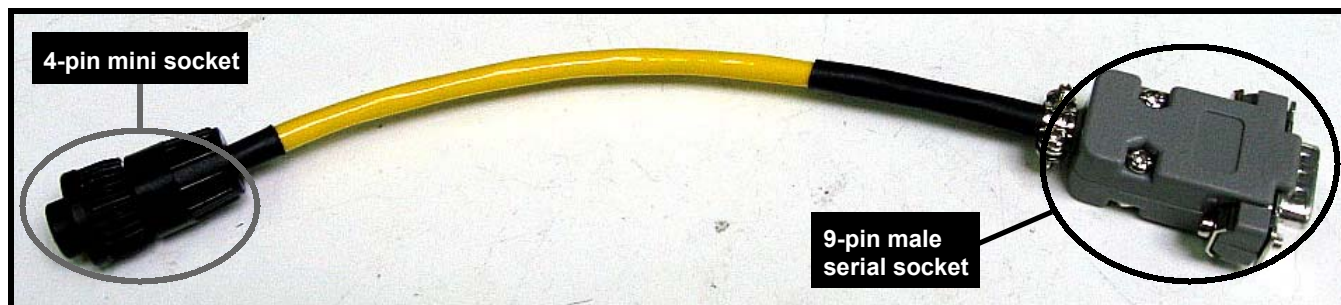
Package Contents for PLM-GL

- User Manual
- Adaptor Cable
- Global Logger software (3 1/2" Floppy Diskette)

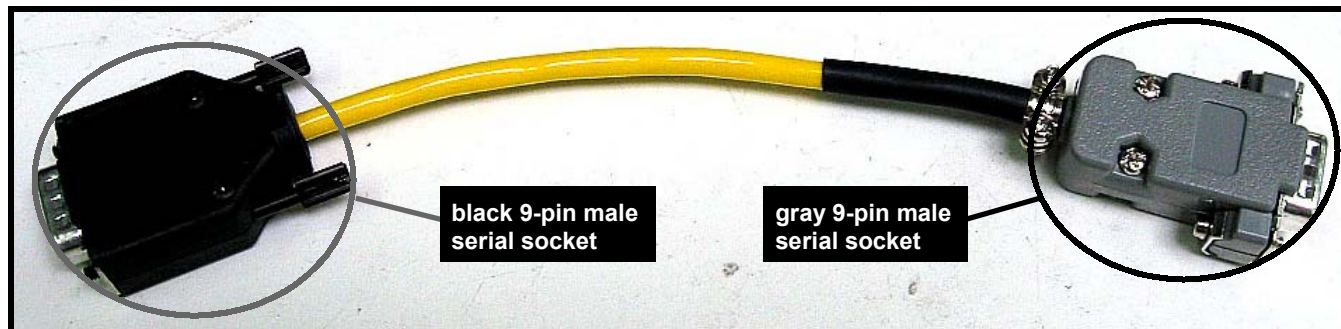


Getting to Know the PLM Adaptor Cable

Adaptor cables designed for the WL15 have two dissimilar connectors. Connect the 4-pin mini socket to the datalogger and the 9-pin male serial socket to the HotSync* Cradle cable.



Adaptor cables designed for the GL400 have two similar connectors. Connect the gray 9-pin serial socket to the datalogger and the black 9-pin male serial socket to the HotSync Cradle cable. Verify that the connectors are attached in the specified manner.



*HotSync™ is a registered trademark of Palm, Inc.

Setup

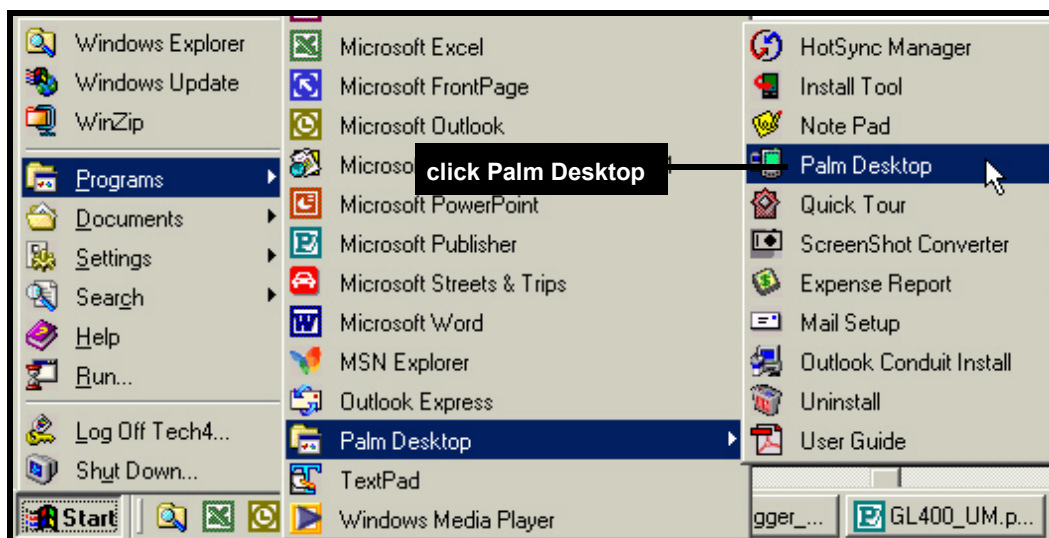
2

Installing Global Logger for the Palm OS

If the Palm Desktop software has not been installed, do so now. This application is provided with all Palm devices. To obtain Palm Desktop, go to <http://www.palm.com/>.

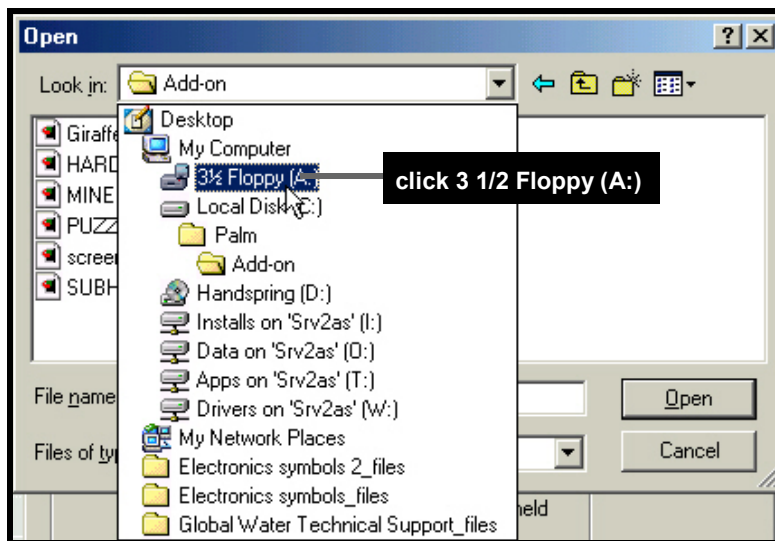
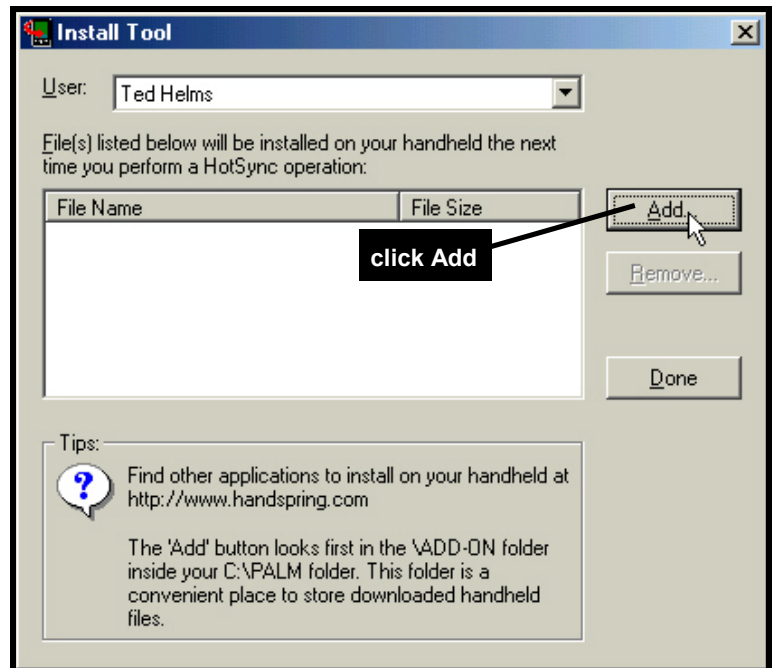
Insert the floppy disk labeled **Global Logger for the Palm OS** into the PC's floppy drive.

Open Palm Desktop, by clicking **Start → Programs → Palm Desktop → Palm Desktop**.



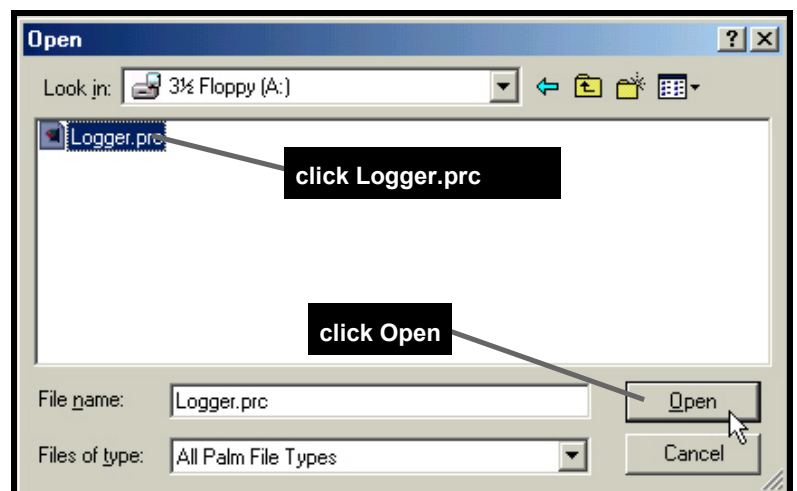
Click on the **Install** icon located on the left-hand menu bar in the **Palm Desktop** window.

Click on the **Add** button in the **Install Tool** window.

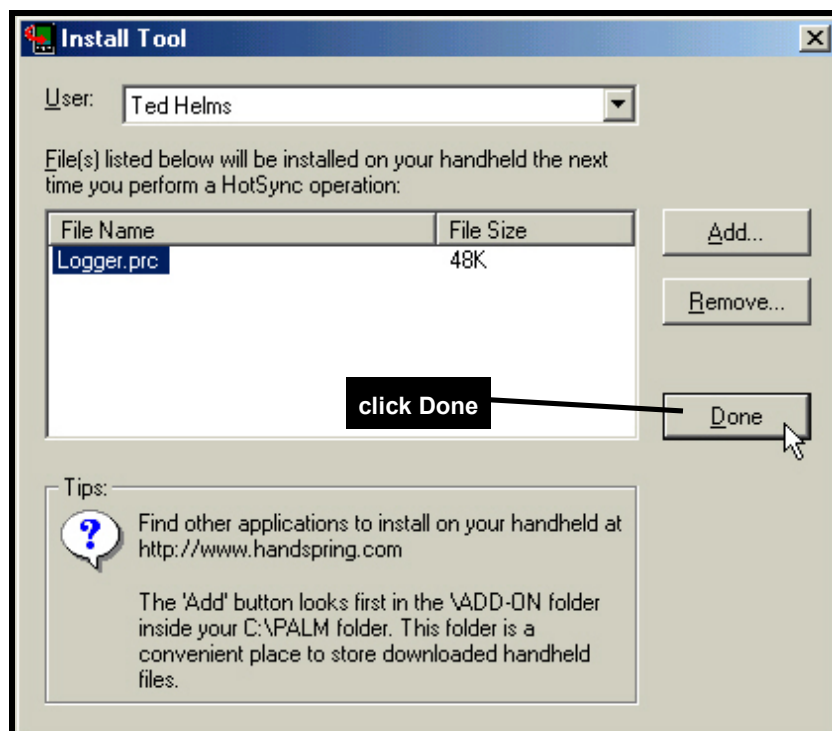


Click the down carrot of the **Look in:** field in the **Open** window. Click on the **3 1/2 Floppy (A:)** icon. Most systems fit this profile. If the PC used to synchronize the Palm device does not list the indicated drive (i.e. **3 1/2 Floppy (A:)**), click the icon that represents the drive containing the Global Logger floppy disk.

Click the file **Logger.prc** and click the **Open** button.

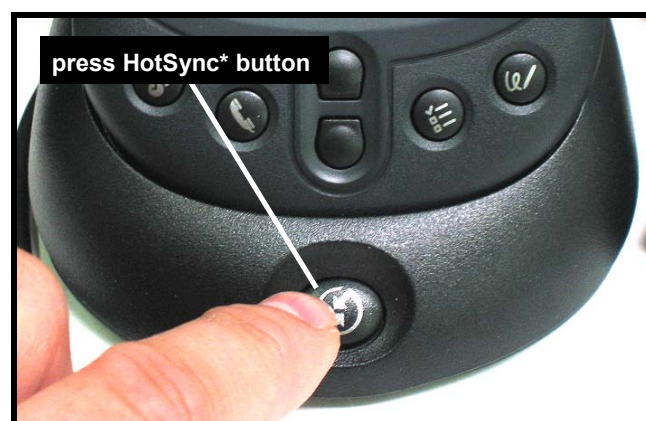


After clicking **Open**, Palm Desktop returns to the **Install Tool** window. **Logger.prc** should be listed in the **File Name** column. If not, click the **Add** button and repeat the previous steps. After the file appears, click the **Done** button.

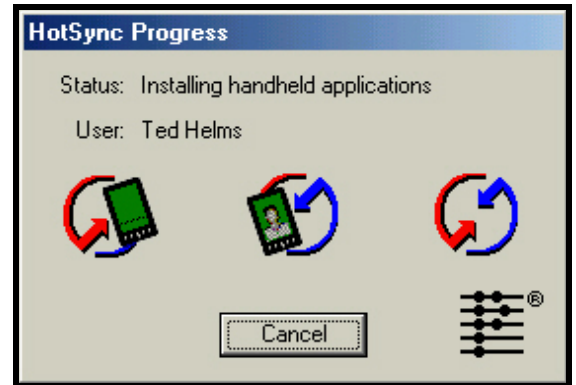


Click the **OK** button in the **Install Tool** dialog box.

Perform a HotSync operation by connecting the Palm device to the cradle and pressing the HotSync button.



A **HotSync Progress** dialog box should display. If the HotSync operation is successful, Global Logger will be installed on the Palm device. See chapter 3* for software operation.



Installing Global Logger Converter

To transfer datalogger readings from Palm OS to PC format, install Global Logger Converter** software. Insert the 3 1/2" floppy diskette labeled **Global Logger Software Version x.xx** (where x.xx is a version number such as 1.38) into the computer's floppy disk drive. Normally, the floppy is configured as the system's "A" drive.

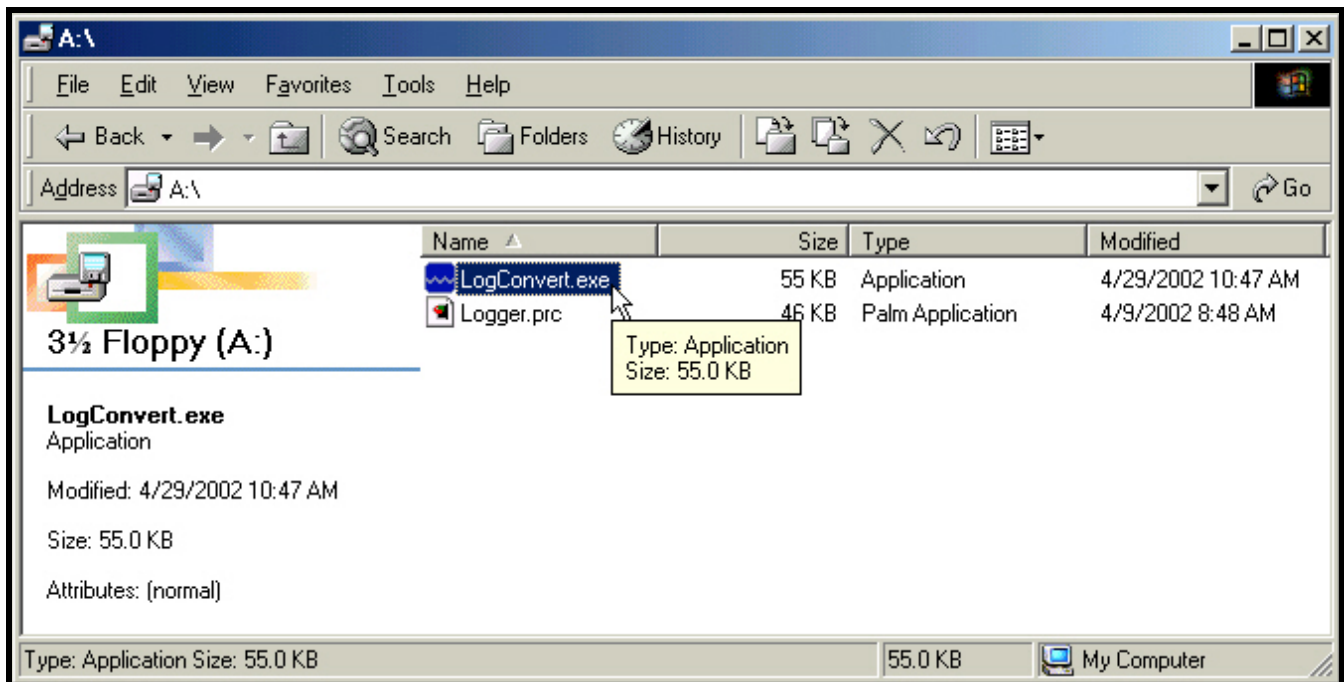


Double-click the **My Computer** icon on the desktop.

Double-click the floppy icon (normally listed as **3 1/2 floppy (A:)**).



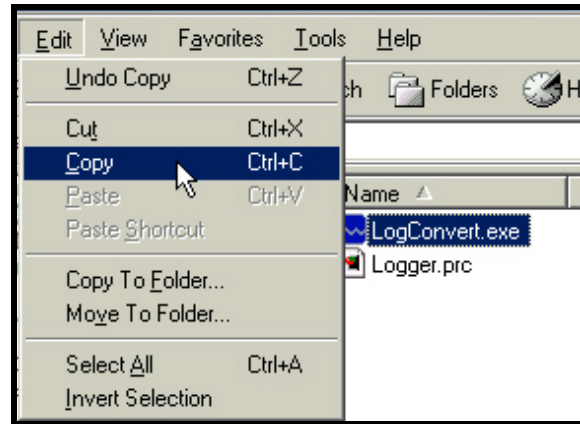
Click on the file **LogConvert.exe**.



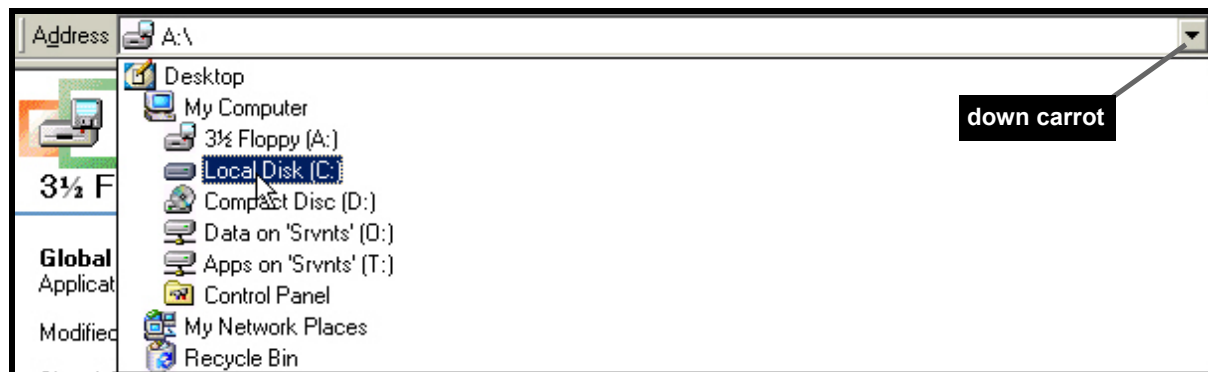
* See *Using Global Logger for the Palm OS*, pages 18 – 40

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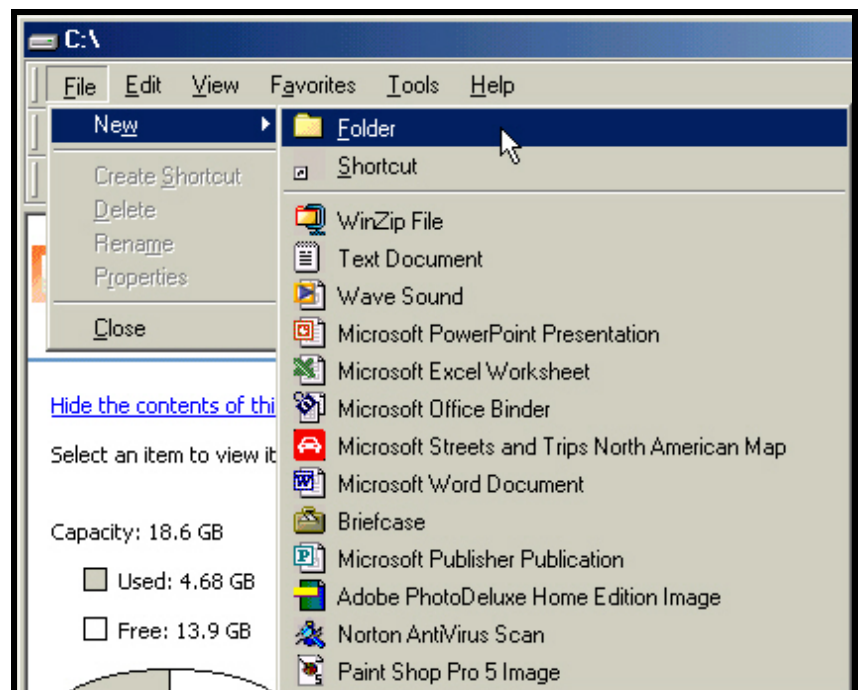
Click **Edit** → **Copy** from the menu bar.



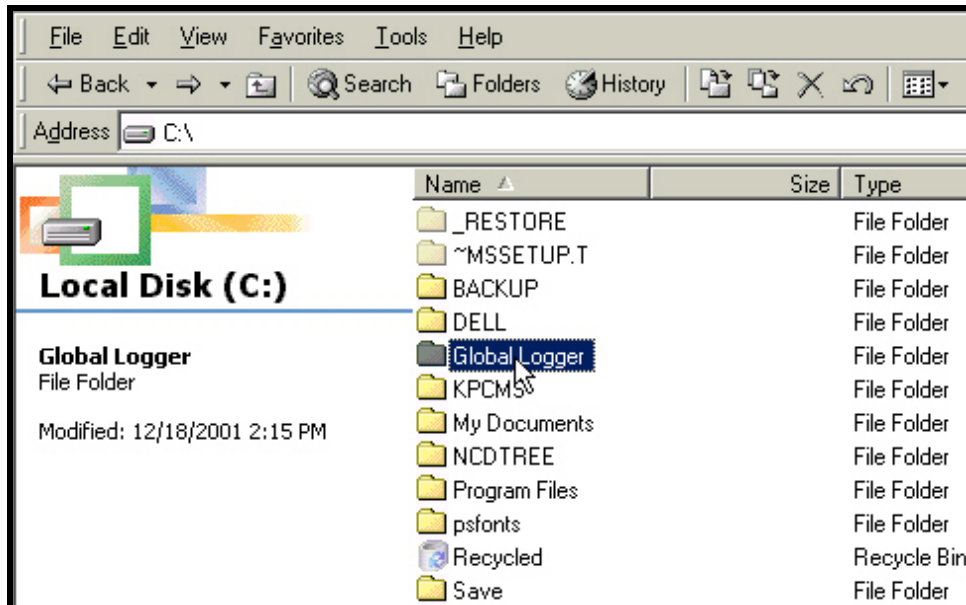
Save the file to a directory that will be easy to remember. To save to the directory **Global Logger** located on the main “C” hard drive (although “C” is normally the main system drive, the designation can vary from system to system), start by clicking the down carrot of the address field. Click on the **Local Disk (C:)** icon or appropriate main system drive designation.



If the directory **Global Logger** is not listed, click **File** → **New** → **Folder** from the menu bar.

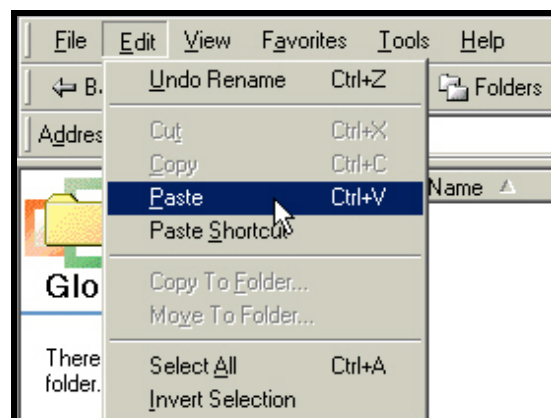


The directory **New Folder** will be created and automatically selected for typeover. Type **Global Logger** and press the **enter** key.

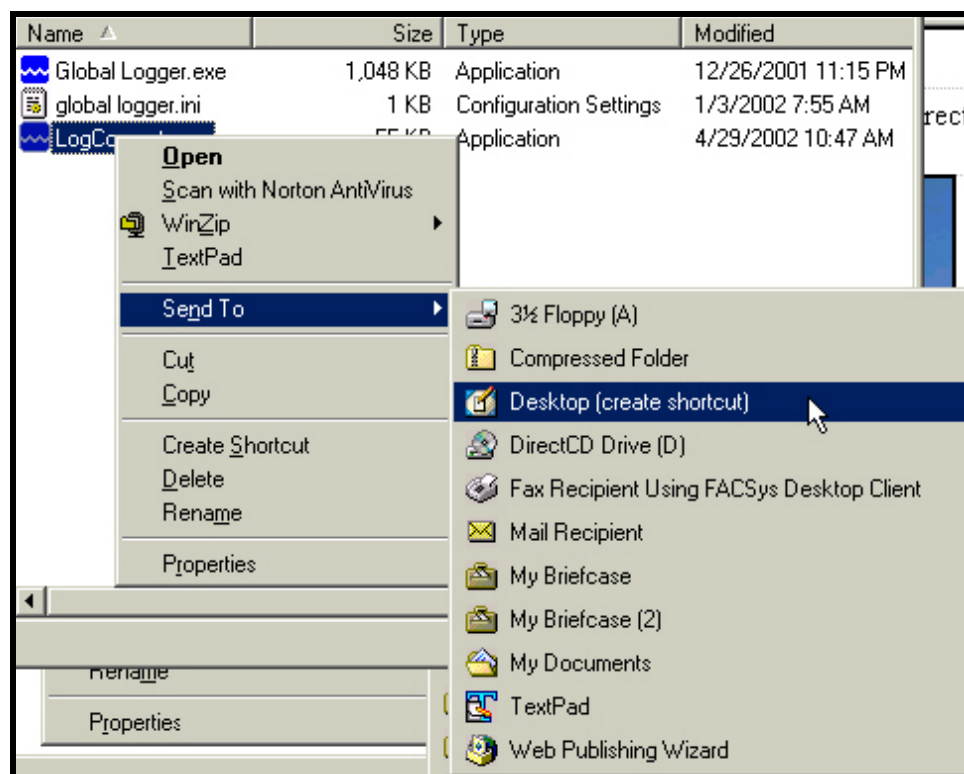
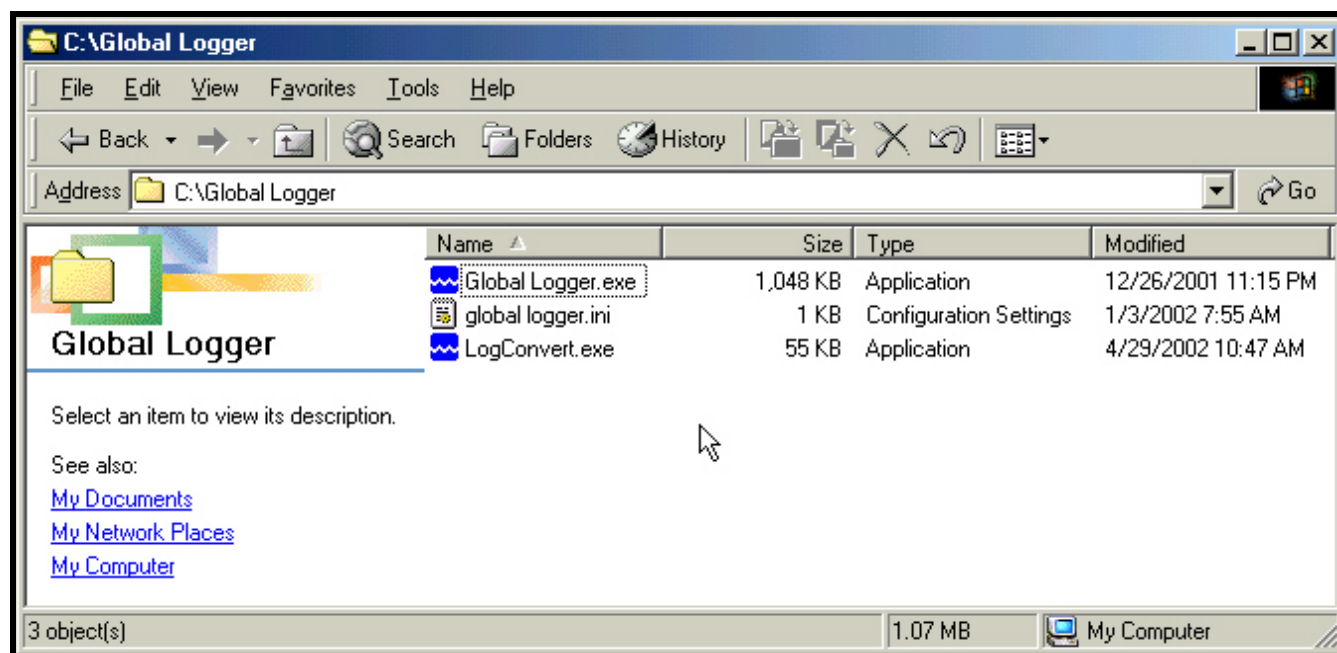


Double-click on the new **Global Logger** directory.

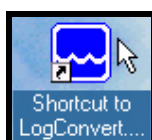
Click **Edit** → **Paste** from the menu bar.



The file **LogConvert.exe** will appear in the **C:\Global Logger** directory.

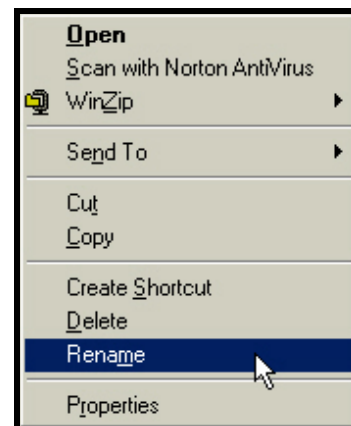


To create a desktop shortcut, right-click **LogConvert.exe** in the **C:\Global Logger** (or alternate directory), select **Send To** and click on **Desktop (create shortcut)**.



Global Logger Converter is now accessible directly from the desktop.

To rename the shortcut, go to the desktop and right-click the icon. Click **Re-name** from the pop-up menu.

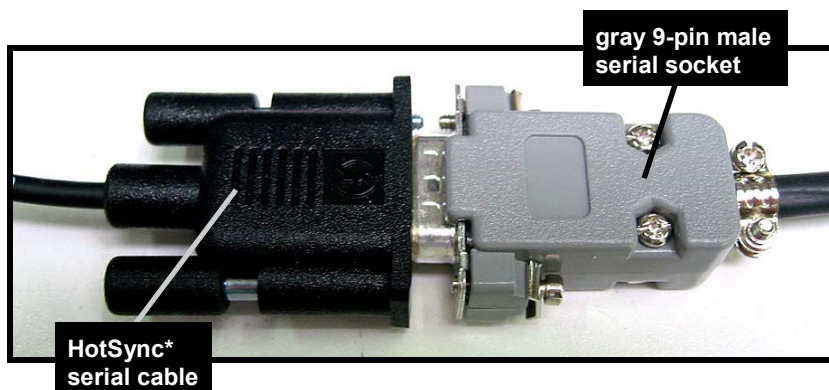


Type the desired name for the icon and press **enter**.

Hardware Connection

WL15 Connection

If connecting to a WL15, attach the gray 9-pin male serial socket of the Global Logger adaptor cable* to the HotSync Cradle serial cable.



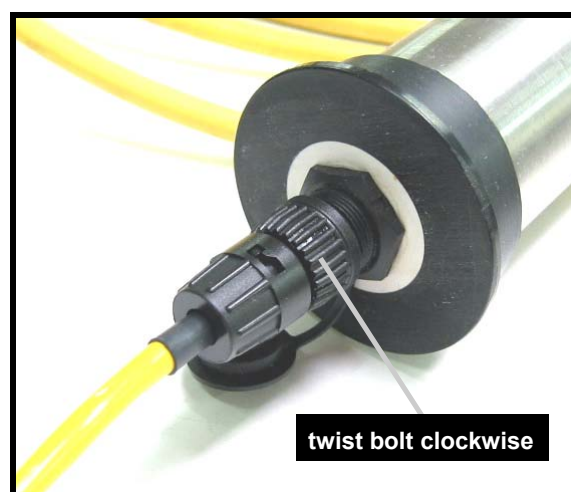
Attach the 4-pin mini socket of the adaptor cable to the WL15 COM port. To attach, align the notches and twist the securing bolt clockwise.



align notches



WL15 COM port



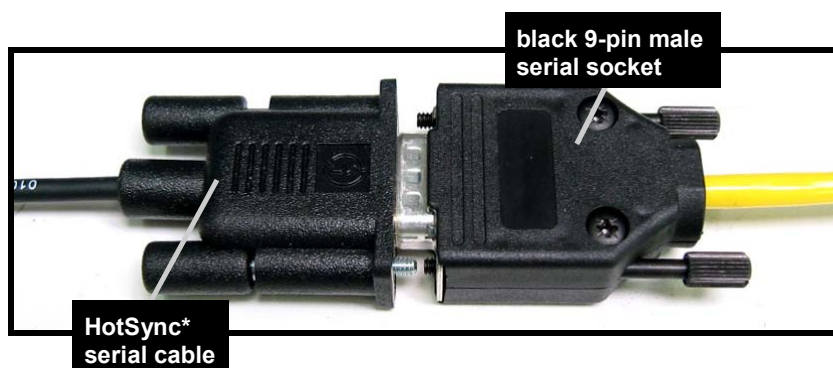
twist bolt clockwise

*See Getting to Know the PLM Adaptor Cable, page 6

The image below illustrates a connected HotSync Cradle/WL15 datalogger.



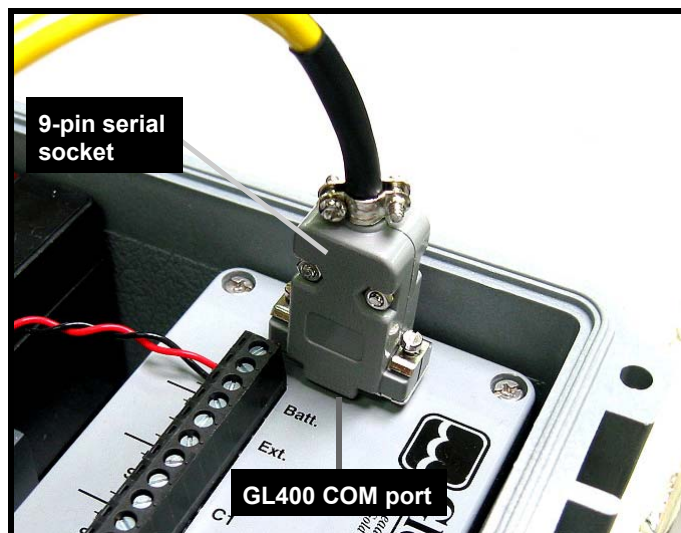
GL400 Connection



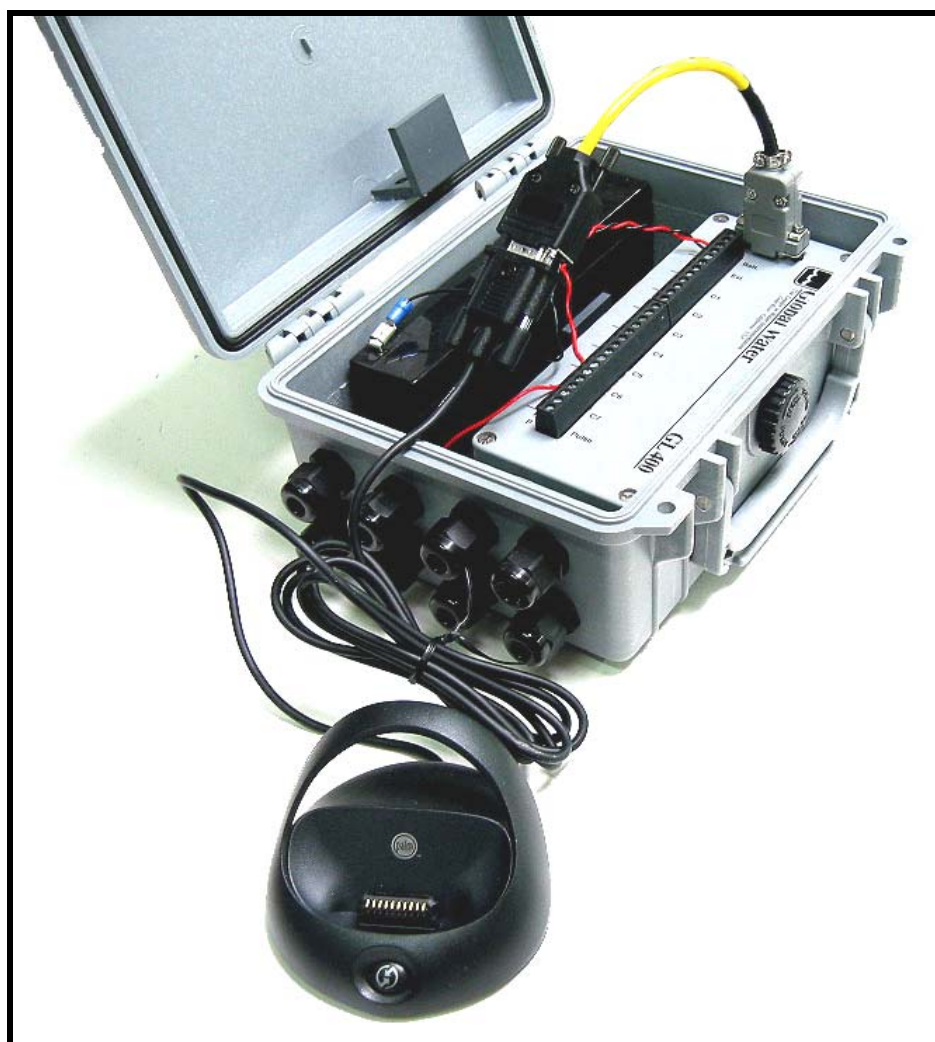
If connecting to a GL400, attach the black 9-pin male serial socket of the Global Logger adaptor cable* to the HotSync Cradle serial cable.

*See Getting to Know the PLM Adaptor Cable, page 6

Attach the gray 9-pin male serial socket of the adaptor cable to the GL400 COM port.



The image below illustrates a connected HotSync Cradle/GL400 datalogger.



Hardware Connection Alternatives

A connection alternative to the HotSync Cradle is the HotSync Cable. The cable maintains all the functionality of the cradle while allowing convenient connection to dataloggers in the field.



To purchase a HotSync Cable visit your local Palm retailer or go to <http://www.palm.com>.

Using Global Logger for Palm OS

Global Logger Startup



Insert the Palm handheld device into its HotSync cradle.

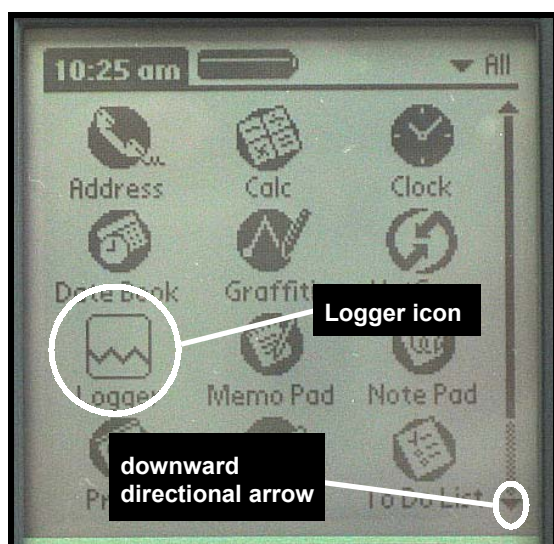
Turn on the Palm device by pushing the **power button**.



If the **Logger** icon is not visible, tap the pick list in the upper right-hand corner of the screen.



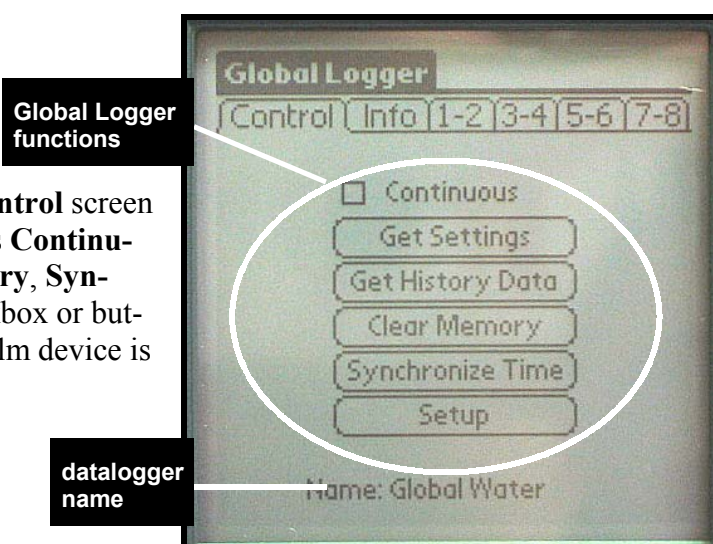
Tap **All** in the drop down list.



The **Logger** icon should now appear on the screen. Tap the icon to launch the program. If the icon does not appear, scroll down the application list by tapping the downward directional arrow. If the icon does not appear anywhere in the application list, re-install* Global Logger software.

Global Logger Control Screen

After launching the program, the Global Logger **Control** screen will display. To access the Global Logger functions **Continuous**, **Get Settings**, **Get History Data**, **Clear Memory**, **Synchronize Time** and **Setup** tap the appropriate checkbox or buttons. The name of the datalogger attached to the Palm device is displayed at the bottom of the **Control** screen.

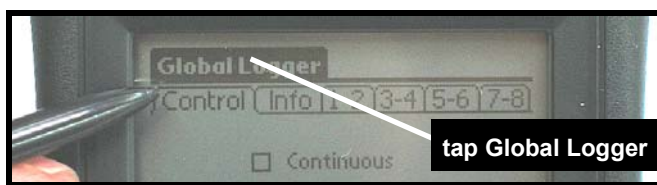
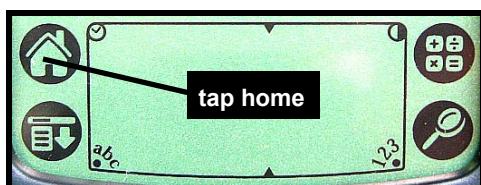


*See Software Installation, pages 7 – 10

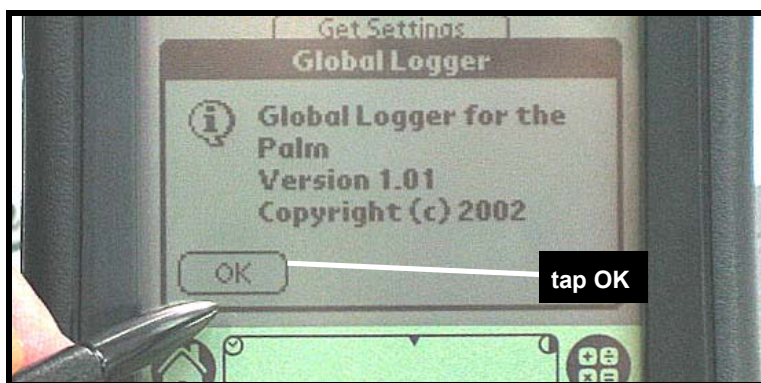
If the **Get Settings** button is the only function displayed on the **Control** screen, see **Troubleshooting***.



To access Global Logger version information, open the screen menu by tapping the **Menu** icon or by tapping the **Global Logger** label at the top of the **Control** screen. Tap **About Global Logger** in the **Options** menu to display the software version dialog box.

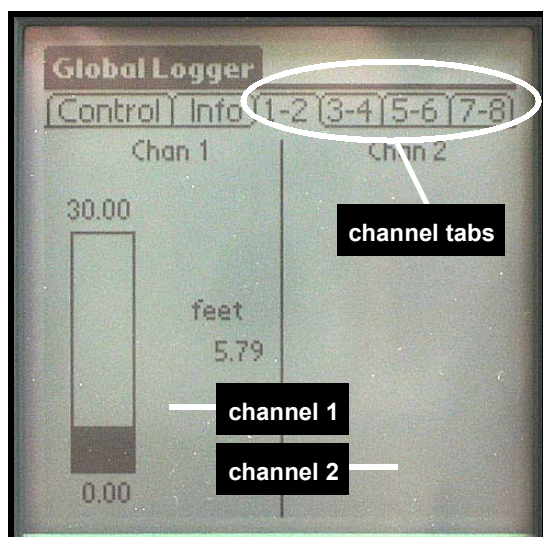
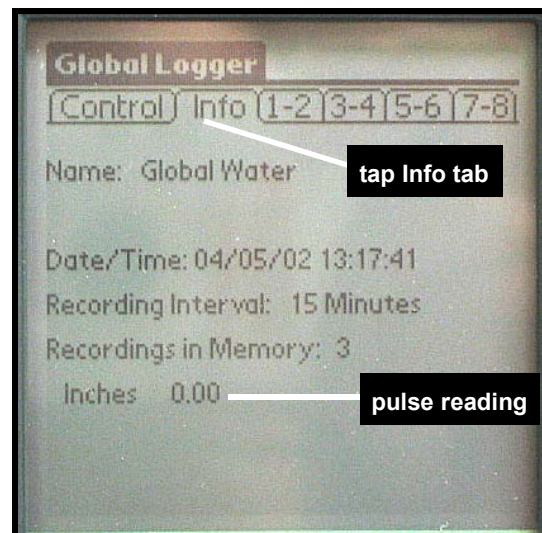


Tap the **OK** button to exit.



*See **Comm Failure**, page 41

Tap the **Info** tab to switch to the **Info** screen. This page reflects the following datalogger settings: **Name**, **Date/Time**, **Recording Interval** and **Recordings in Memory**. Dataloggers with a pulse channel display pulse information on this page.

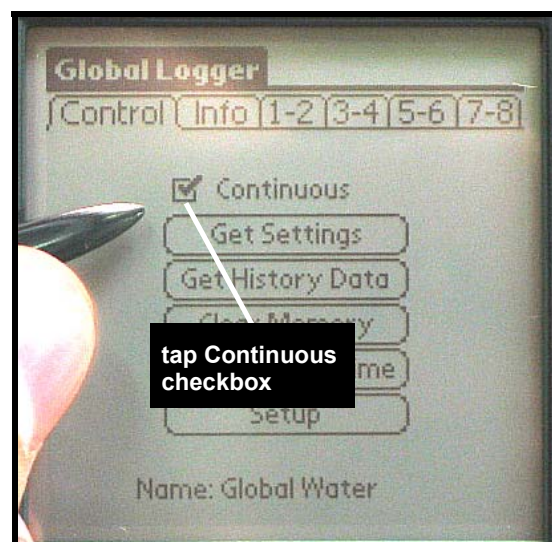


Tap channel tabs (1-2, 3-4, 5-6, 7-8) to switch between various channel screens. These screens reflect the current status of the sensor connected to the specified channel. Channel information is represented by a bar graph as well as the actual value in pre-programmed engineering units. Accessibility of the channel screens depends on the datalogger. For example 1-channel dataloggers will only be able to access channel tab 1-2 while 8-channel dataloggers will be able to access all channel tabs.

Global Logger Functions

Continuous

Tap the **Continuous** checkbox under the **Control** screen to take continuous real time readings while connected to the Palm device. Note this does not permanently set the datalogger to read continuously. The continuous function will stop upon clearing the checkbox (by tapping), exiting Global Logger or disconnecting the adaptor cable from your datalogger. A “checked” **Continuous** box indicates the Palm device is monitoring real time readings while a clear **Continuous** box indicates the Palm device is not currently monitoring real time readings.



Get Settings

Tap the **Get Settings** button to refresh datalogger setting information. Tap the **Info*** tab to view updated settings.

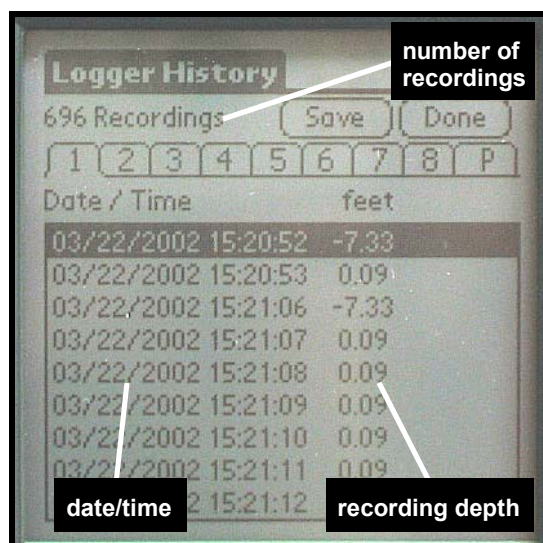


Get History Data



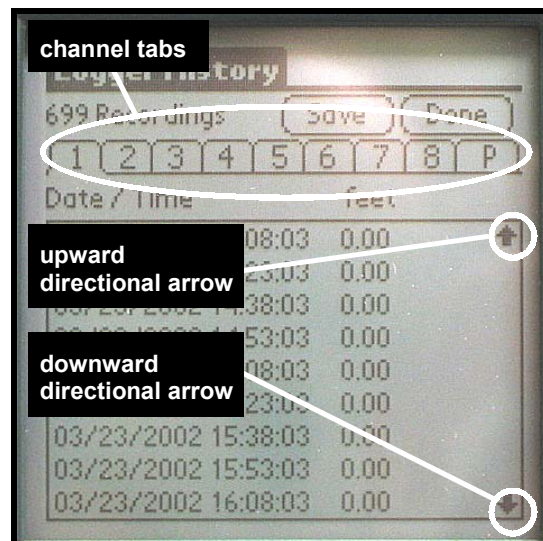
Tap the **Get History Data** button to download all data from datalogger. A **Reading record XXXX of XXXX** (where X represents an integer) message will display at the bottom of the **Control** menu. This process may take several minutes.

Once the Palm device downloads the logger data, the channel 1 screen displays. The number of recordings for the channel is displayed in the upper left-hand corner under **Logger History**. Each recording is listed by date/time and recording depth.

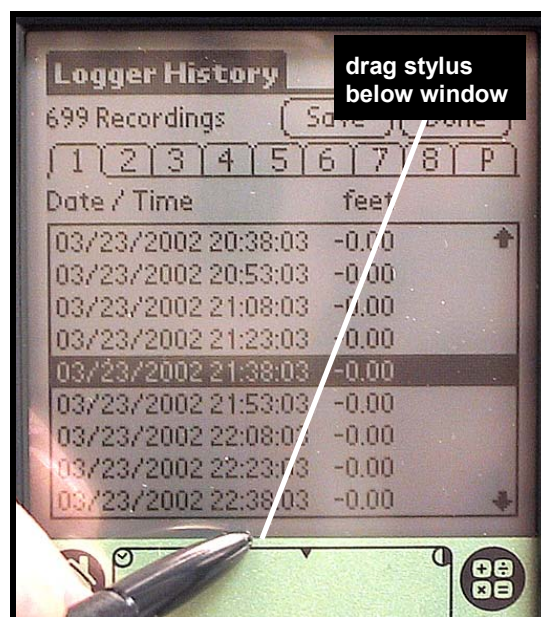
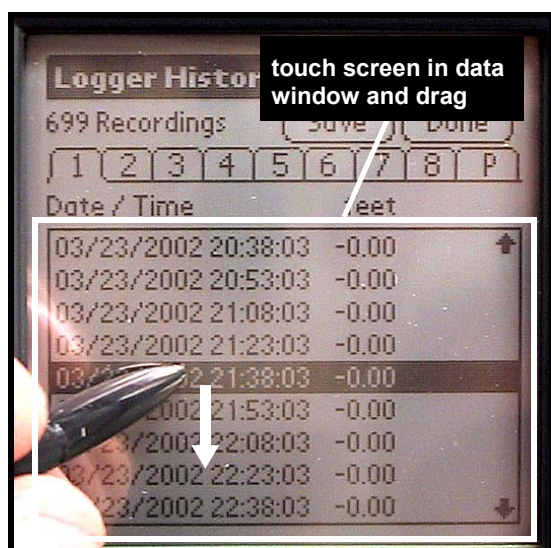


*See Global Logger Control Screen, page 21

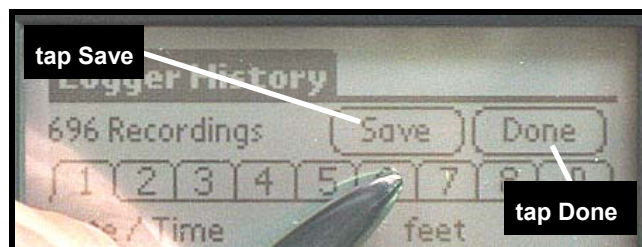
Tap the channel tabs (1, 2, 3, 4, 5, 6, 7, 8, P) to switch between the various channel screens. Accessibility of channel screens depends on the datalogger. For example 1-channel dataloggers will only be able to access channel screen 1 while 8-channel dataloggers will be able to access channel screens 1 – 8. Dataloggers with a pulse channel can access channel screen P. Each screen reflects the recordings taken on the specified channel. Single tap the directional arrows to scroll through the data page by page. If the data window only displays the upward directional arrow, the data window reflects the bottom of the list. Conversely, if the data window only displays the downward directional arrow, the data window reflects the top of the list.



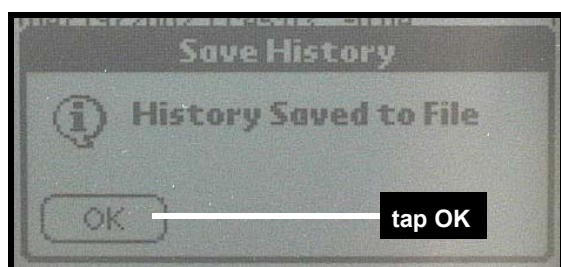
To scroll through the data entry by entry follow these steps. Touch the screen with the stylus at any location in the data window and drag down the data list to just below the window. Reverse this action to scroll up the list.



Tap the **Save** button to save recordings to a Palm database file. If not saving, tap the **Done** button to exit to the **Control** menu.



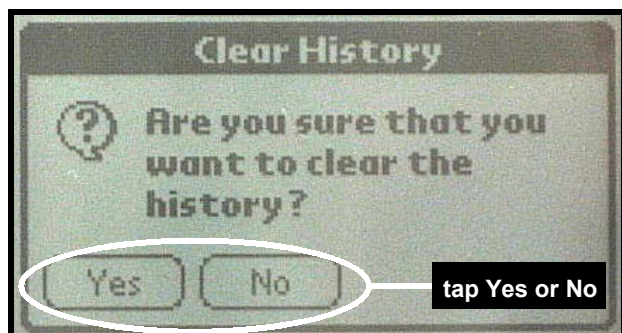
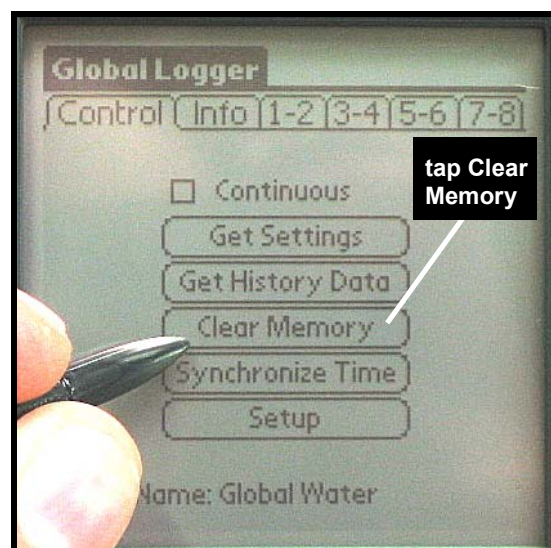
To change the Palm database file name, tap the **Save history as:** field in the **Save History** dialog box and type in a new name. Refer to the Palm device's user manual for instructions on entering text in the Palm OS. Tap the **Save** button to save recordings or the **Cancel** button to exit without saving.



If saving, a Save History dialog box will display confirming the save operation. Tap the **OK** button to continue.

Clear Memory

Tap the **Clear Memory** button on the **Control** screen to clear all recordings from the datalogger.



Tap the **Yes** button to confirm the action or the **No** button to cancel. Note that clearing recordings is not reversible.

Synchronize Time

Tap the **Synchronize Time** button on the **Control** screen to synchronize the datalogger's clock to the Palm device's clock.



Setup



Tap the **Setup** button on the **Control** screen to calibrate the datalogger or to change the datalogger's time interval settings. A **Main** screen will display.

Global Logger Setup

To change the datalogger's name, tap the **Name** field on the **Main** screen and type in a new name.



To change warmup time, tap the **Sensor Warmup Time** field and enter the desired time (0 –15 seconds).



Global Water recommends that the **Sensor Warmup Time** field be set at 3 seconds to supply the level sensor with adequate power for accurate data measurements. This setting dictates the length of time power is applied to the level sensor before the datalogger takes a reading.

For example, if you set your WL15 to record a reading every 20 minutes at fixed intervals and the process begins at 12:00:00, power will be applied to the level sensor immediately and a reading taken at 12:00:03. At 12:20:00, power will again be applied to the level sensor, and the datalogger will take a reading at 12:20:03. Note that if the recording interval fields are less than or equal to the **Sensor Warmup Time** field, the sensor is powered continuously.



Select the recording interval type by tapping the down carrot in the **Sample** field.

To repeatedly record values at a specified interval, tap **for fixed interval** in the popup menu.



Note, that if you choose to record at fixed intervals, memory will fill up according to the following product-specific charts. Refer to the battery maintenance chart in the datalogger manual for battery life to available memory comparisons.

WL15

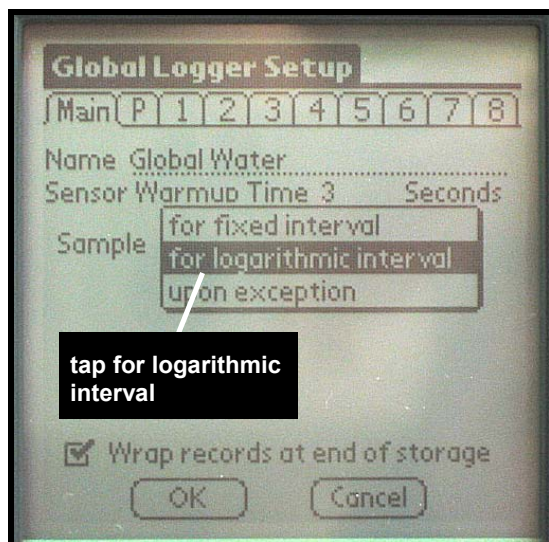
Recording Interval	Time
1 second	6 hours, 49 minutes
1 minute	17 days
5 minutes	84 days
15 minutes	254 days
30 minutes	509 days
1 hour	1018 days

GL400-1-1

Recording Interval	Time
1 second	5 hours, 31 minutes
1 minute	13 days
5 minutes	68 days
15 minutes	206 days
30 minutes	413 days, 30 hours
1 hour	827 days

GL400-7-1

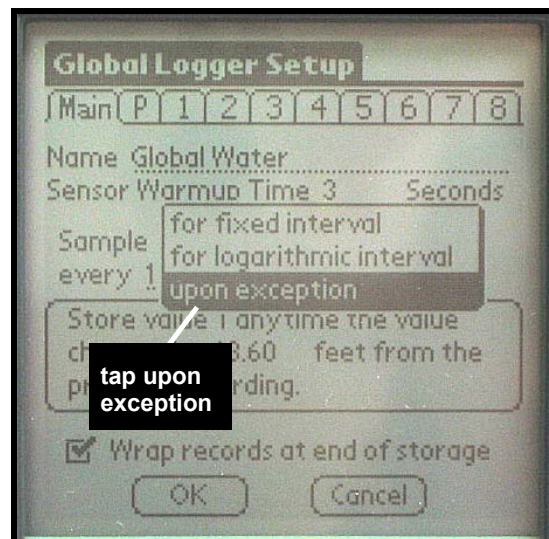
Recording Interval	Time
1 second	2 hours, 20 minutes
1 minute	5 days, 20 hours
5 minutes	29 days
15 minutes	87 days
30 minutes	175 days
1 hour	350 days



To record values according to a logarithmic curve, tap **for logarithmic interval** in the popup menu. See chart for timeline specifications.

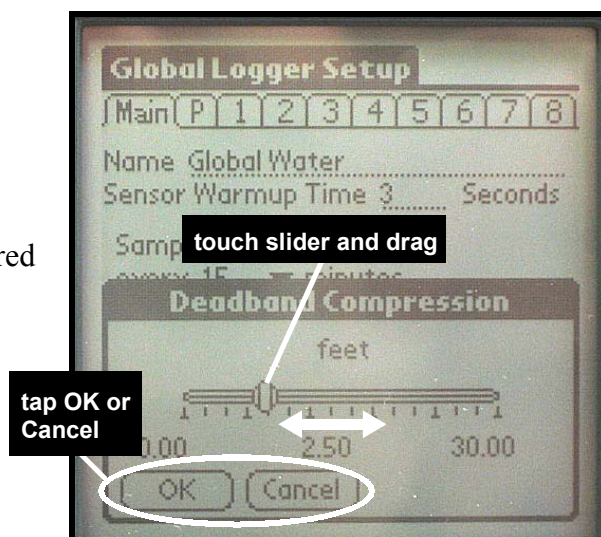
Time Frame	Readings per time unit	Expected total readings during Time Frame
0-19 seconds	As fast as possible	1000
20-59 seconds	1 per 1 second	40
60-599 seconds	1 per 12 seconds	45
10-99 minutes	1 per 2 minutes	45
100-999 minutes	1 per 200 minutes	45
1000-9999 minutes	1 per 1440 minutes	45

To take readings upon exceeding a specified unit range, tap **upon exception** in the popup menu. This setting sets the logger to record a single reading after detecting a variance from the previously recorded exception reading.



To change the exception variance, tap the large exception button.

In the **Deadband Compression** dialog box, touch the toggle slider with the stylus and drag it back and forth to select desired exception range. Tap the **OK** button to preserve selection or **Cancel** to revert to the previous setting.



Set the recording interval digit by tapping the **every** text field and entering the desired number. Set the recording interval time unit, by tapping the down caret in the time unit field (not labeled). Note that these settings apply only to **fixed interval** recordings.



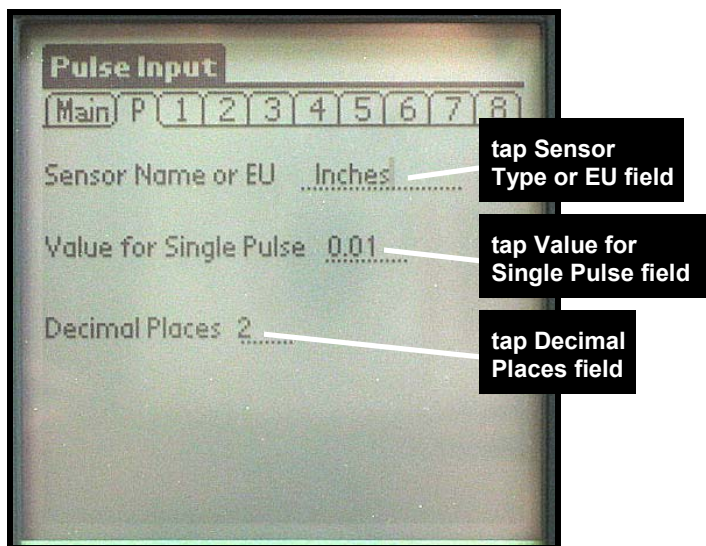
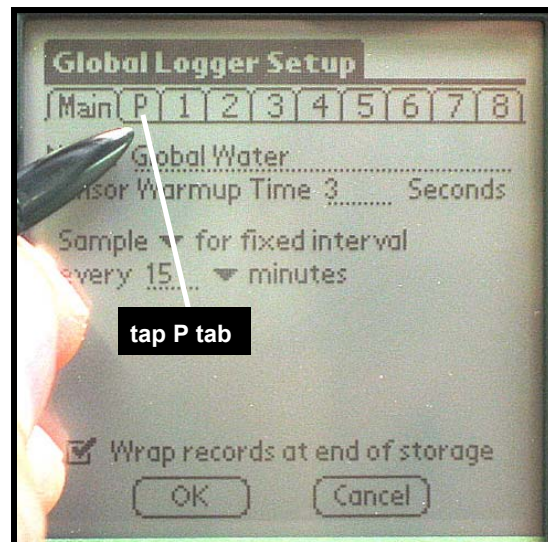
Tap the desired time unit (**seconds, minutes, hours or days**) in the popup menu. Note that this setting applies only to **fixed interval** recordings.

To overwrite readings in synchronous order after memory is filled, click the **Wrap records at end of storage** checkbox. Note that Global Logger overwrites the earliest readings first. To preserve readings and stop recording after memory is filled, leave box unchecked.



Pulse Channel Setup

Tap the **P** tab to access pulse channel settings. The pulse channel records a predetermined value each time the sensor detects a pulse signal. This feature is often used to track rainfall levels.



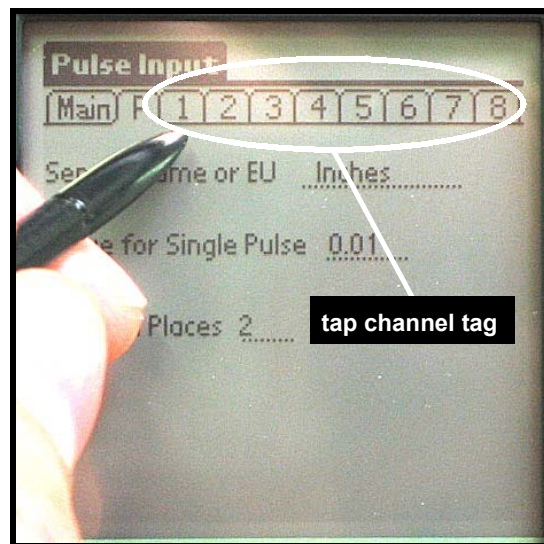
To change the displayed unit type (i.e. meters, feet, etc.), tap the **Sensor Type or EU** (engineering units) field and enter the unit type you are calibrating to. Note that the **Sensor Type or EU** field only serves as a text label.

To set the recorded value for a single pulse reading, tap the **Value for Single Pulse** field and enter the desired predetermined value.

To set the number of decimal place values to display, tap the **Decimal Places** field and enter the number of decimal places. This setting controls pulse information displayed on the **Info** screen*.

Analog Channel Setup (1 – 8)

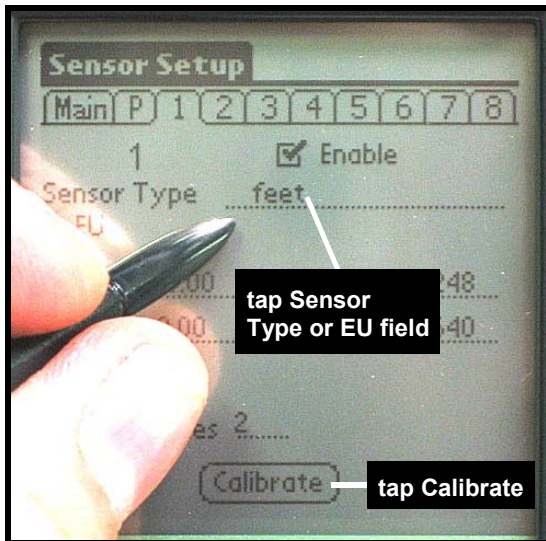
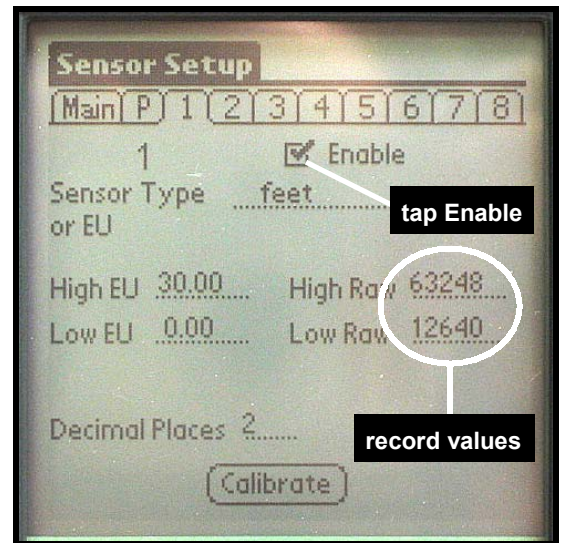
Tap one of the analog channel tabs (**1 – 8**) to access the specified channel settings.



*See Global Logger Control Screen, page 21

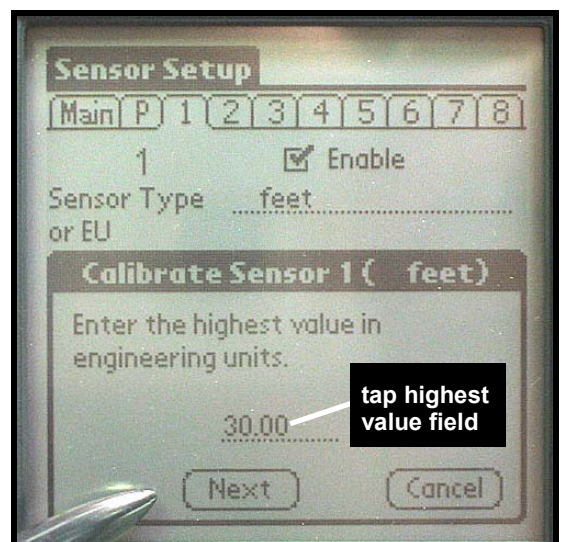
Tap the **Enable** checkbox to enable or disable the current channel. A check indicates that the channel is enabled.

Before calibrating, record the existing values in the **High Raw** and **Low Raw** fields (in this case **63248** and **12640**). These values may be necessary if an error occurs during the calibration process.



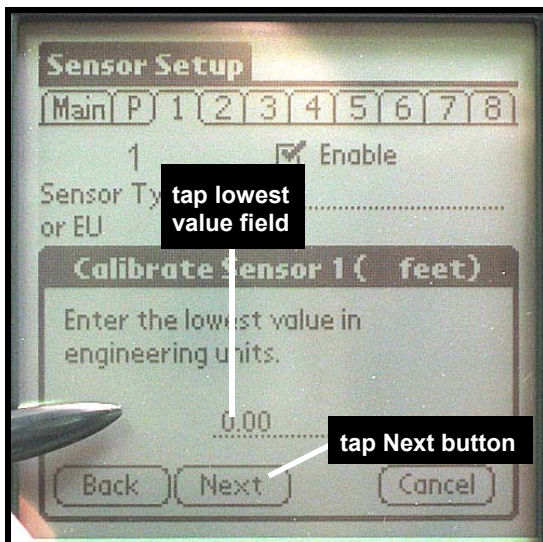
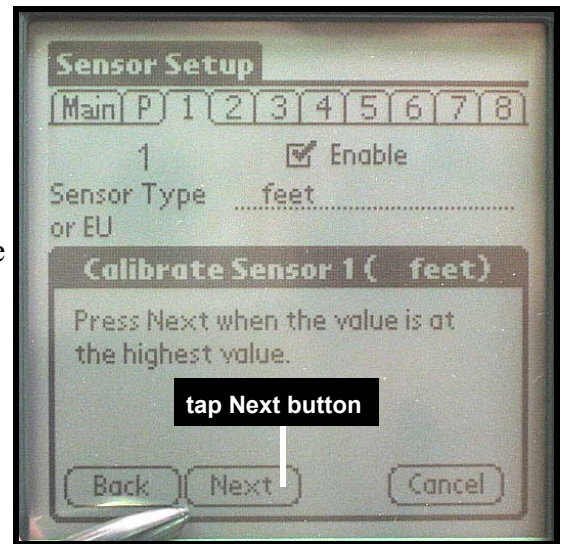
If necessary, change the displayed unit type (i.e. meters, feet, etc.) by tapping the **Sensor Type or EU** (engineering units) field and entering the unit type you are calibrating to. Note that the **Sensor Type or EU** field only serves as a text label. Tap the **Calibrate** button.

Enter the maximum unit range of the sensor (**30** for a 30' level sensor in this example) in the **highest value** text field and tap the **Next** button.



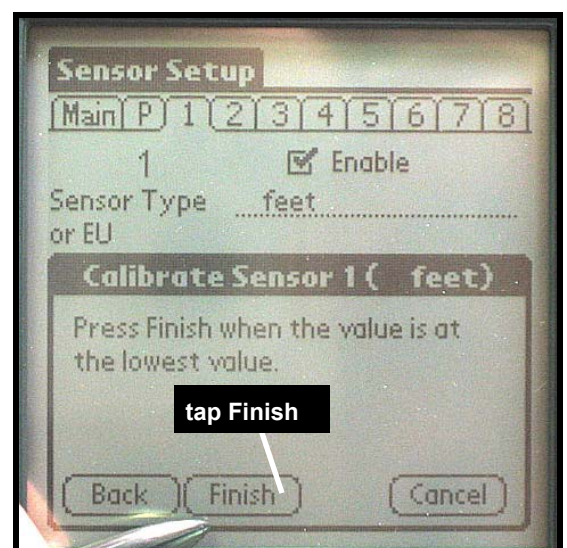
If performing a lab calibration, insert the sensor into the appropriate calibration meter and set to full scale range of the sensor. If performing an environmental calibration, insert sensor into its targeted environment at conditions of at least 10% of full scale range. For example a 120' water level sensor should be calibrated at a water depth of at least 12'. Calibrating at greater percentages (up to 100%) provides greater accuracy.

For both environmental and lab calibrations, wait at least five seconds for the sensor to adjust to current sensing levels. Tap the **Back** button to return to the previous step, the **Next** button to continue or the **Cancel** button to cancel calibration.



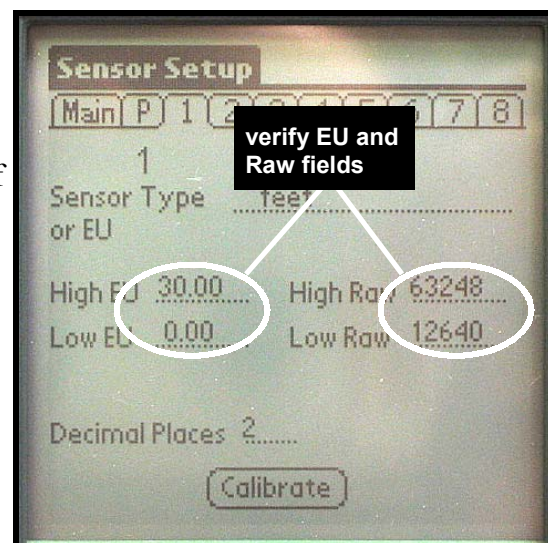
Tap the lowest value text field and enter **0.00**. Tap the **Back** button to return to the previous step, the **Next** button to continue or the **Cancel** button to cancel calibration.

For lab calibrations, release the sensor from calibration meter. For environmental calibrations, take sensor out of targeted environment. For both environmental and lab calibrations, wait at least five seconds for the sensor to adjust to 0 sensing levels. Tap the **Back** button to return to the previous step, the **Finish** button to finish calibration or the **Cancel** button to cancel calibration.

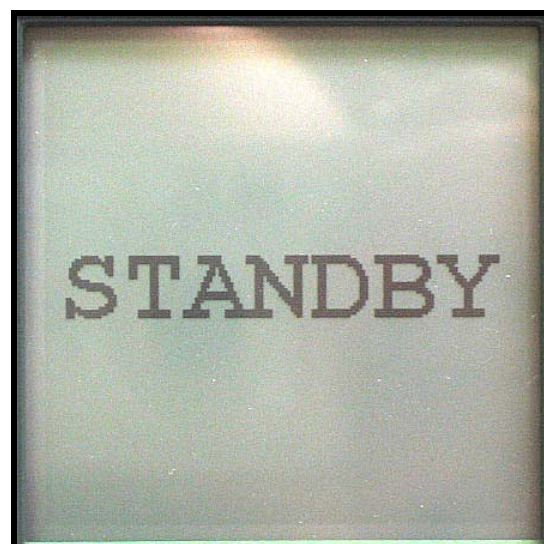


Verify that **High EU** and **Low EU** fields reflect desired unit readings. Also, verify that the **High Raw** field reflects a range of 60,000 – 65,000 and that the **Low Raw** field reflects a range of 10,000 – 15,000.

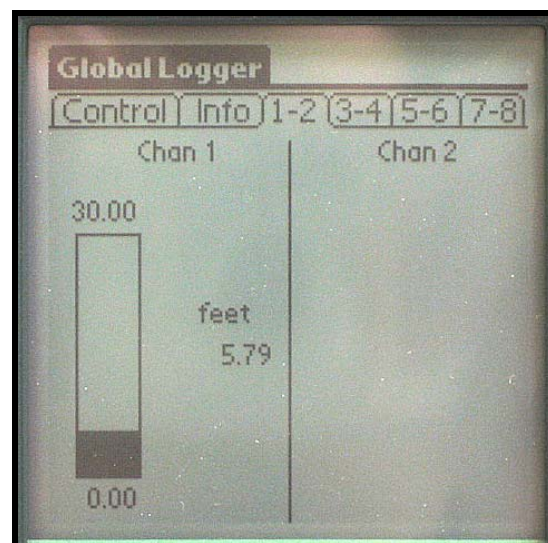
Adjust the **Decimal Places** field according to the accuracy percentage rating. The number of decimal places should not exceed the accuracy of the sensor. See the sensor spec sheet for accuracy rating.



Tap the **Main** tab, and then tap the **OK** button. A **STANDBY** message will display.



Note, that if performing an environmental calibration at a fraction of total sensor range, the bar graphs in the channel menus (1-2, 3-4, 5-6, 7-8) under the **Control** screen will interpret full scale range at maximum calibration readings instead of actual total sensor range. All other datalogger operations will perform correctly. To revise calibration settings so that the graphs will function correctly, follow the worksheet **Calibrating the Bar Graph to Higher or Lower Range** in **Appendix A***.

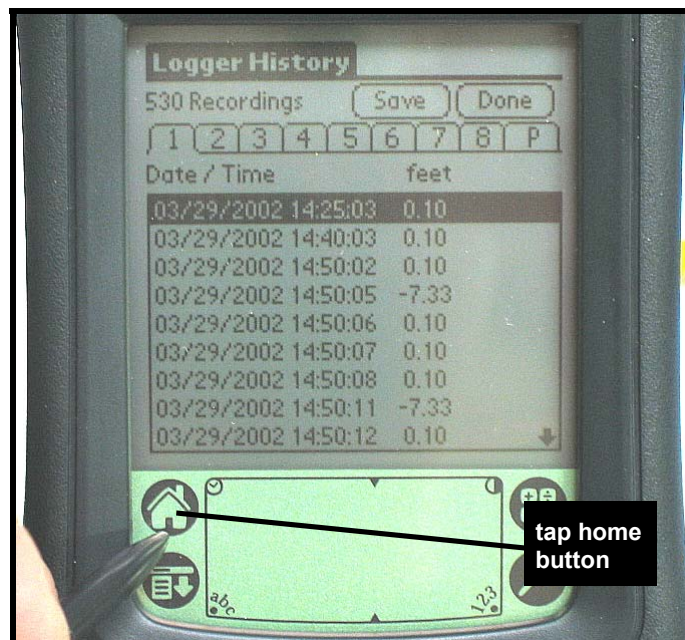


*See Appendix A: Worksheets, page 43

Importing Data to PC

Before importing data, install Palm Desktop Software onto a PC. If Global Logger Converter was not installed during setup*, do so now. Save datalogger readings to memory**.

Tap the home button to exit Global Logger for the Palm OS. Disconnect HotSync cable from adaptor cable, and connect HotSync cable to COM1 of the PC.



Perform a HotSync operation by setting the Palm device on the cradle and pressing the HotSync button.

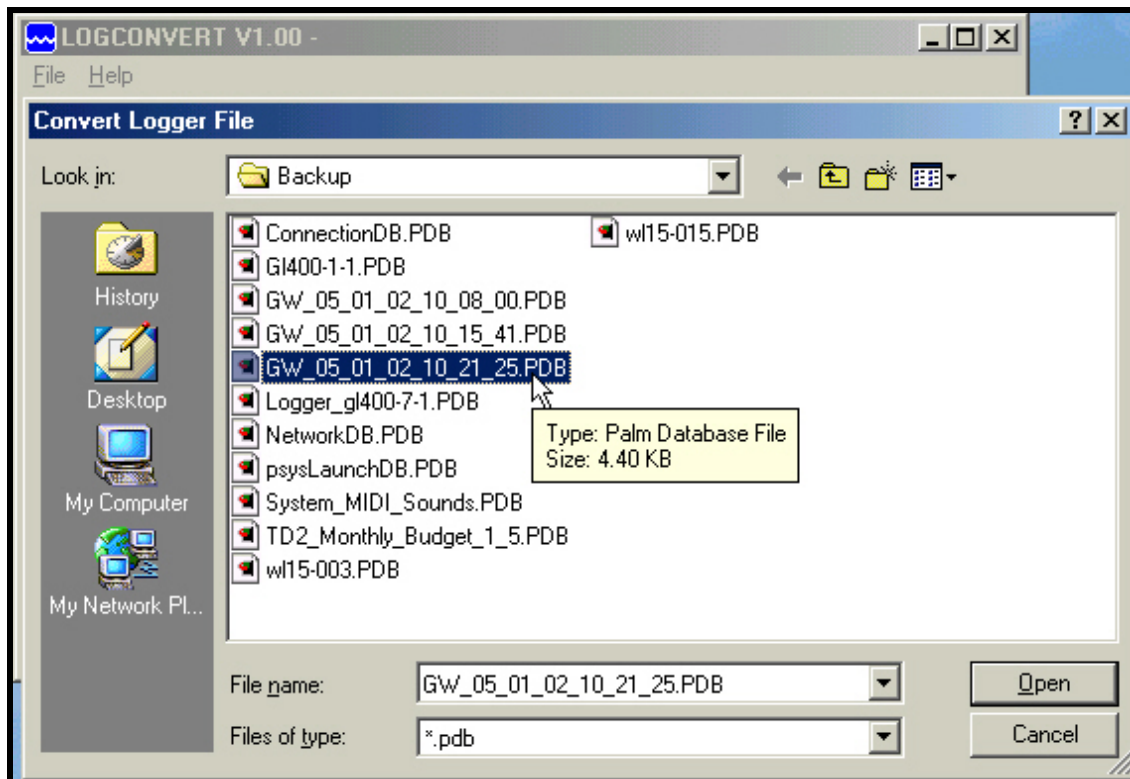
Open Global Logger Converter by double-clicking the desktop icon labeled **Logger Converter** created during setup*.



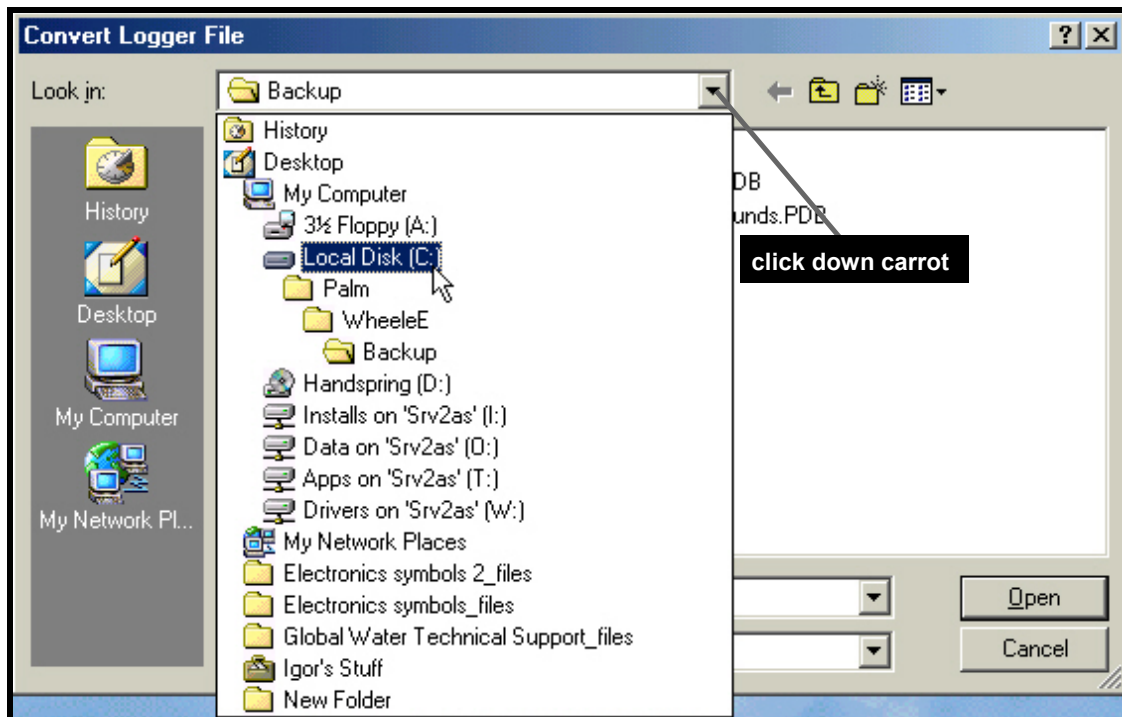
* See **Installing Global Logger Converter**, pages 10 – 14

See **Get History Data, pages 22 – 23

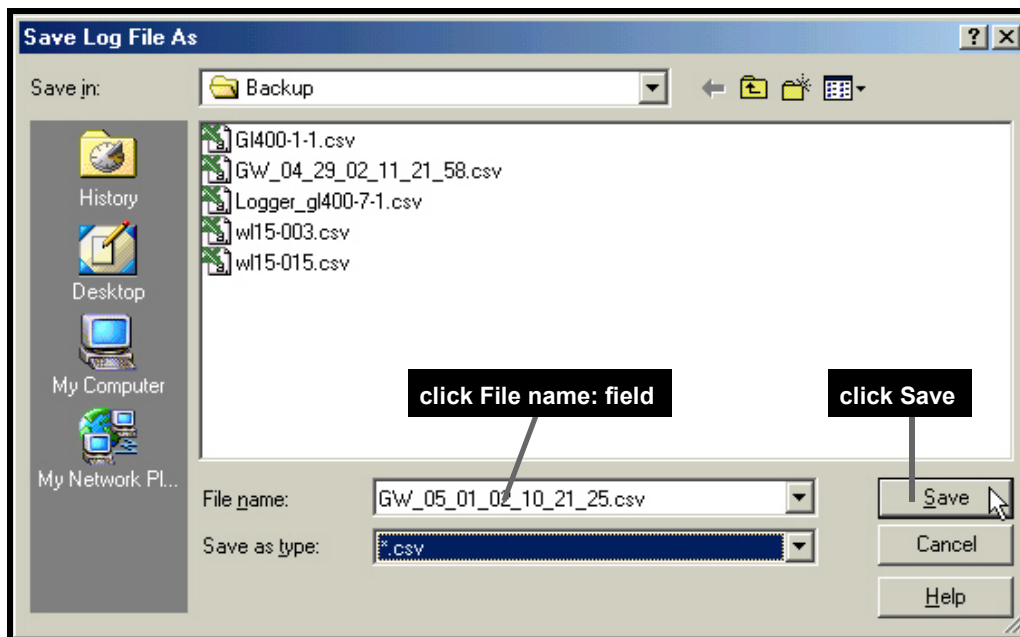
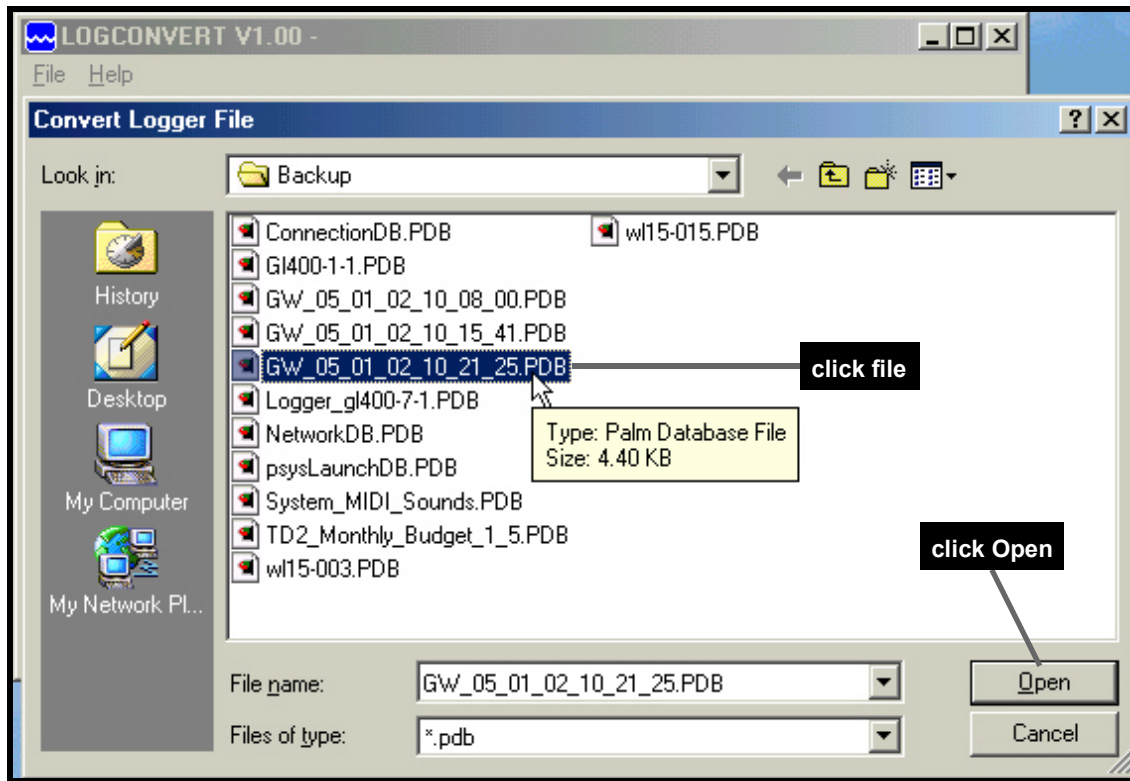
Global Logger Converter will open a **Convert Logger File** dialog box.



If the desired Palm database file is not in the current directory, click the down caret of the **Look in:** field. Navigate to the directory containing the file.



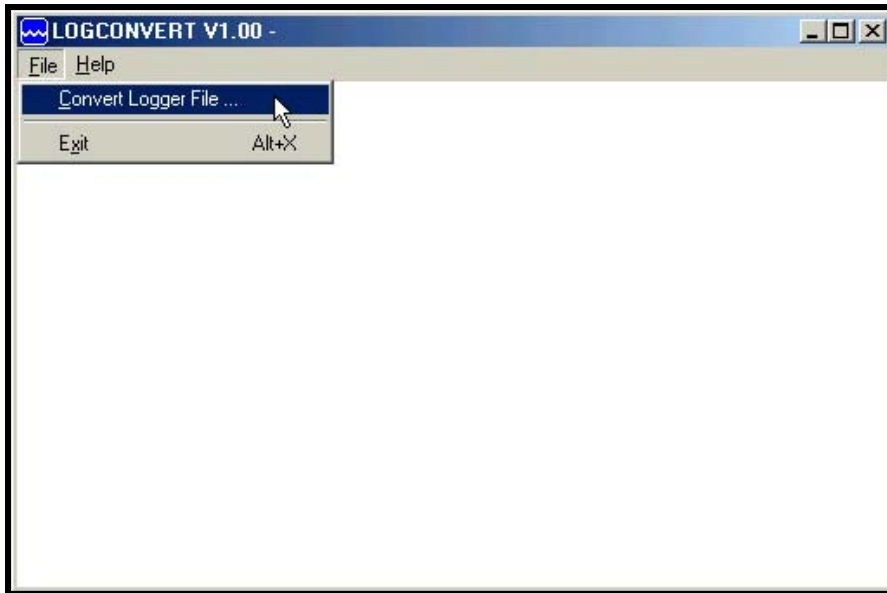
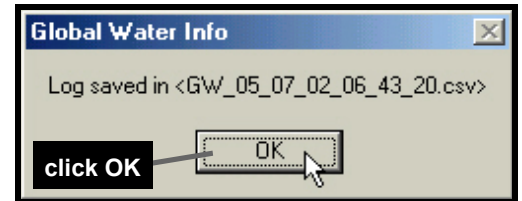
Click the file to be converted, and then click the **Open** button. The filename will appear as it was saved* in the Palm device. Note that if using the default name format, the forward-slash, space and colon characters (/ , , :) are transformed into the underscore (_) character (i.e. **GW_05/01/02 11:58:28** becomes **GW_05_01_02_11_58_28.pdb**).



A **Save Log File As** dialog box will appear. To change the default name, click in the **File name:** field and type in the desired name. To save the file to a different directory, click the down carot and navigate to the desired directory. Click the **Save** button to save the Palm database file as a comma separated value file (*.csv).

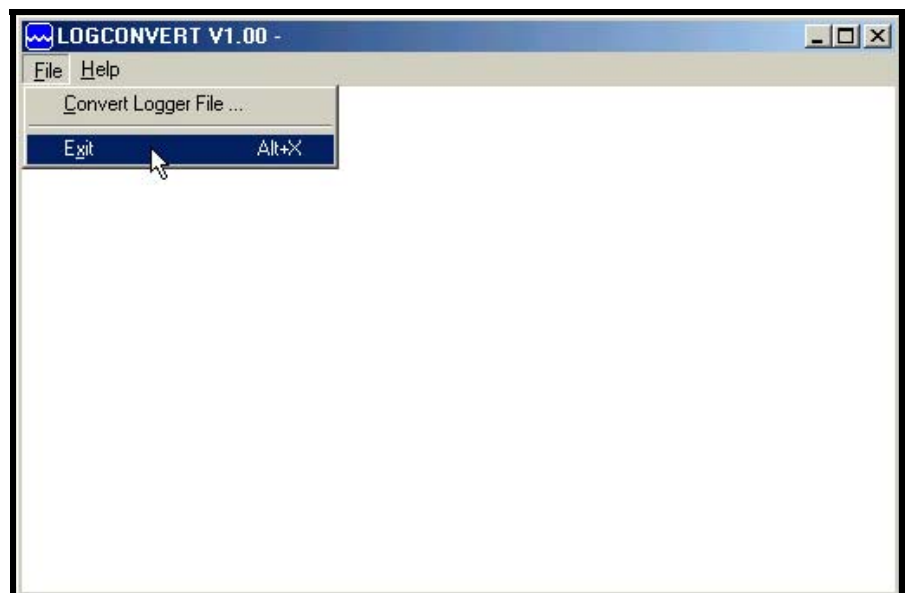
*See **Get History Data**, page 23

Click the **OK** button in the **Global Water Info** dialog box. The dialog box indicates the file saved in the previous step.



To convert additional Palm database files, click **File** → **Convert Logger File ...**, and repeat the conversion procedures*.

To exit Global Logger Converter, click **File** → **Exit**.



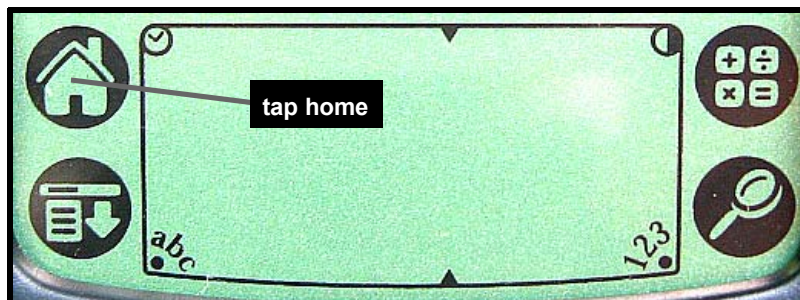
*See **Importing Data to PC**, page 35 – 37

Spreadsheet programs such as Excel* can open comma separated value files. Excel displays datalogger readings in **Date/Time** and reading unit (**feet** in this example) columns.

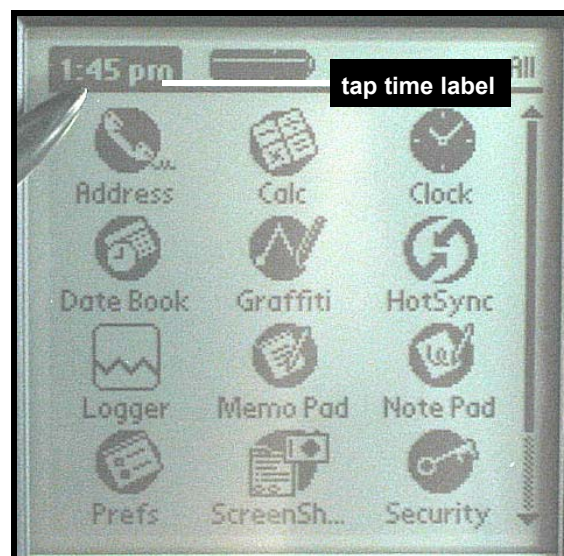
	A	B
1	Global Water	
2	Date / Time	feet
3	4/30/2002 13:05	3.05
4	4/30/2002 16:05	3.05
5	4/30/2002 19:05	3.05
6	4/30/2002 22:05	3.05
7	5/1/2002 1:05	3.04
8	5/1/2002 4:05	3.04
9	5/1/2002 7:05	3.04
10	5/1/2002 10:04	3.04

Deleting Readings from Palm Device

To delete Global Water database files from the Palm device, go to the home screen by tapping the **Home** button. **Note that deleting one Global Water database file causes all such database files to be erased. Furthermore, performing a HotSync operation after deleting database files from the Palm device will delete parallel database files in the PC's HotSync directory.** It will not affect other Palm database files or applications. In order to avoid data loss, save a copy of those Global Water database files that need to be preserved to a PC directory other than the HotSync directory.

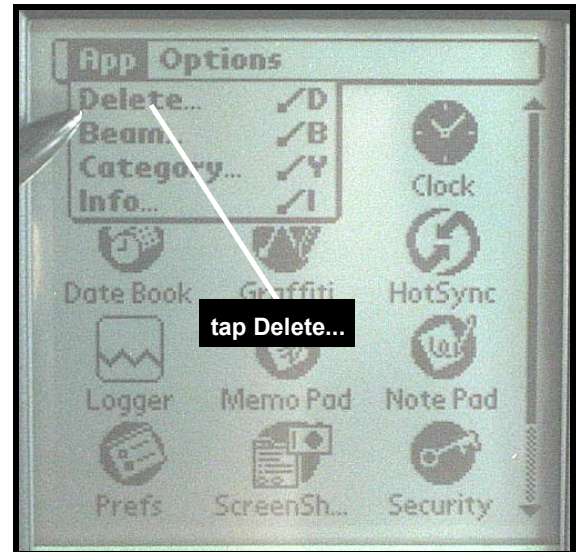


Open the home screen menu by tapping the **Menu** icon or by tapping the time label at the top of the home screen.



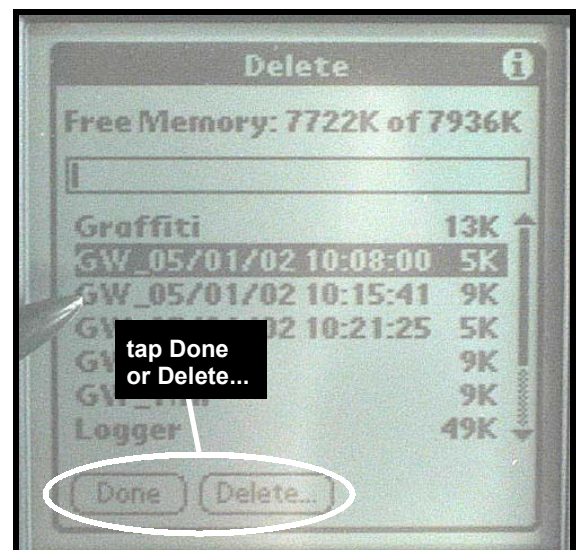
*Windows Excel™ is a registered trademark of the Microsoft Corporation

Tap **Delete...** in the **App** menu to access the **Delete** screen. The **Delete** screen lists the database file and applications the user may delete.

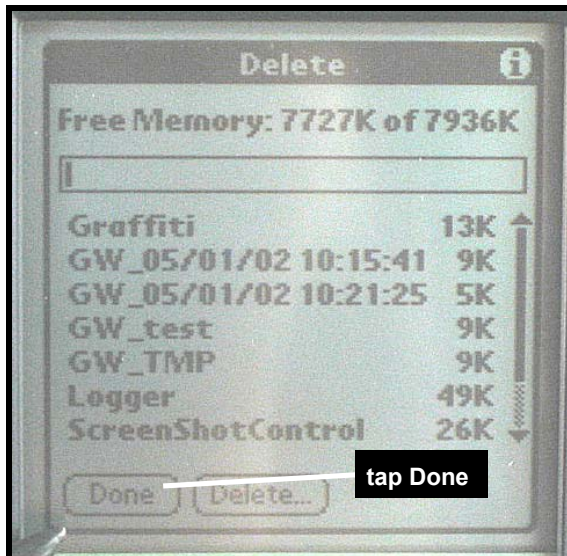
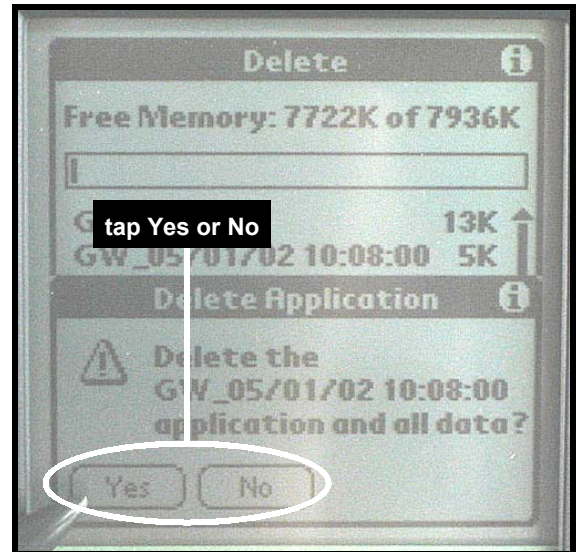


Tap a Global Water database file to delete. The default format of Global Water database files is **GW_<date> <time>** (i.e. **GW_05/01/02 10:08:00**).

Tap the **Delete...** button to delete the file or the **Done** button to exit the **Delete** screen. Recall that deleting one Global Water database file deletes all such files.



Tap the **Yes** button in the **Delete Application** dialog box to delete the Global Water database or the **No** button to cancel the delete operation.



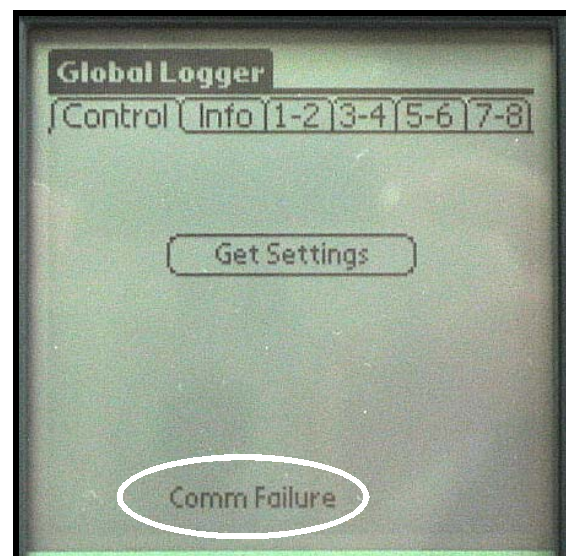
Tap the **Done** button to exit the **Delete** screen.

Troubleshooting

4

Comm Failure

If the **Control** screen displays **Comm Failure** at the bottom of the screen, reattach the adaptor cable*.



After the adaptor cable is attached correctly, tap the **Get Settings** button. If **Comm Failure** continues to display, replace the datalogger battery and tap the **Get Settings** button. Refer to the datalogger manual for battery replacement instructions. If **Comm Failure** continues to display, continue reading the troubleshooting section.

Global Logger Not Working Correctly

Follow all troubleshooting tips in the datalogger manual.

*See **Hardware Connection**, page 14 – 16

Palm Device Freezes

If your Palm device freezes you may need to reset the unit. Before continuing, turn off the unit if possible. For Palm m105 devices, flip the unit over and insert the end of a paperclip (or a similar instrument) into the hole labeled **RESET**. Push the paperclip into the hole until feeling a slight “click.” Other Palm devices can be reset in a similar fashion. For additional reset operations, refer to the Palm manual.



Deleted Global Water Database Files

Deleting one Global Water database file deletes all such file on the Palm device*. Furthermore, a HotSync operation deletes all parallel files on the PC. This bug will be fixed in a future version of the software.

Other Issues

- Call Global Water for tech support: 800-876-1172 or 916-638-3429 (many problems can be solved over the phone). Fax: 916-638-3270 or Email: globalw@globalw.com. When calling for tech support, please have the following information ready;
 1. Model number
 2. Unit serial number
 3. P.O. number the equipment was purchased on.
 4. Our sales number or the invoice number.
 5. Repair instructions and/or specific problems relating to the product.

Be prepared to describe the problem you are experiencing including specific details of the application, installation, and any additional pertinent information.

- In the event that the equipment needs to be returned to the factory for any reason, please call to obtain an RMA number (Return Material Authorization). Do not return items without an RMA number displayed on the outside of the package.

Include a written statement describing the problems.

Send the package with shipping prepaid to our factory address. Insure your shipment, since Global Water's warranty does not cover damage incurred during transit.

*See *Deleting Readings from the Palm Device*, pages 38 – 40

Warranty

5

Global Water Instrumentation, Inc. warrants that its products are free from defects in material and workmanship under normal use and service for a period of one year from date of shipment from the factory. Global Water's obligations under this warranty are limited to, at Global Water's option: (I) replacing or (II) repairing; any products determined to be defective. In no case shall Global Water's liability exceed the products original purchase price. This warranty does not apply to any equipment that has been repaired or altered, except by Global Water Instrumentation, Inc., or which has been subject to misuse, negligence or accident. It is expressly agreed that this warranty will be in lieu of all warranties of fitness and in lieu of the warranty of merchantability.

The warranty begins on the date of the invoice.



A

Appendix A: Worksheets

Calibrating the Bar Graph to Higher or Lower Range

With some sensors it is either impractical or unfeasible to reach the full-scale or lower scale of its range. This will not affect the actual reading of the datalogger but it will cause the bar graph to work incorrectly.

Here are the equations for finding new limits on the bar graph. First take the two coordinates that were found during calibration*.

(High EU _____, High Raw _____) and
(Low EU _____, Low Raw _____).

Now calculate the slope using this equation:

$$m = (\text{High Raw} - \text{Low Raw}) / (\text{High EU} - \text{Low EU})$$
$$m = \underline{\hspace{2cm}}$$

Next find the y-intercept:

$$b = \text{High Raw} - (m * \text{High EU})$$
$$b = \underline{\hspace{2cm}}$$

Now you can calculate the new “Raw” value for any Engineering Unit.

$$\text{New Raw} = (m * \text{New EU}) + b$$
$$\text{New Raw} = \underline{\hspace{2cm}}$$

Finally, enter these new “Raw” values into your datalogger and verify the readings are correct*.

*See Analog Channel Setup, page 33

Calibrating Level Sensors for Depth to Water Readings

Note, that to take depth to water readings, the bar graph must be calibrated to the full scale of the sensor. Follow the worksheet **Calibrating Bar Graph to Higher or Lower Ranges***.

The first step is to find the Total Depth of the sensor. This is the distance from the end of your sensor to your datum. (Cable lengths from the factory are not exact. You may need to measure for precise distances.)

Total Depth = _____

Next, find the maximum Sensor Depth (range of the sensor). In the **Calibration**** section of the software, you can find this value by using the following equation:

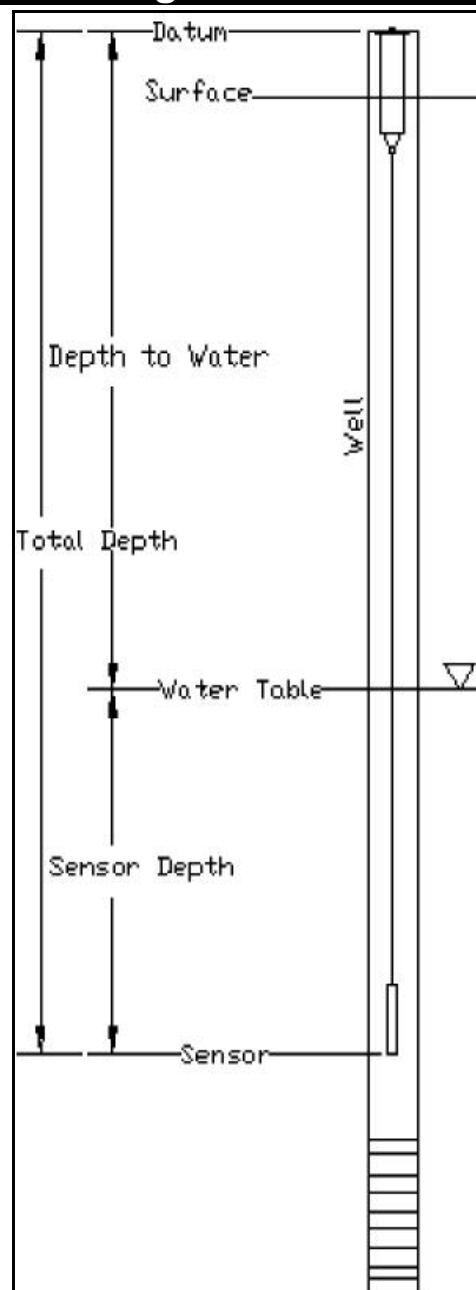
Sensor Depth = | High EU _____ - Low EU _____ |
Sensor Depth = _____

Now you can find your new Engineering Units using these steps:

New Low EU = Total Depth
New Low EU = _____

New High EU = Total Depth – Sensor Depth
New High EU = _____

Finally, enter these New EU values into your datalogger and verify the readings are correct**.



* See Appendix A: Worksheets, page 43

**See Analog Channel Setup, page 33