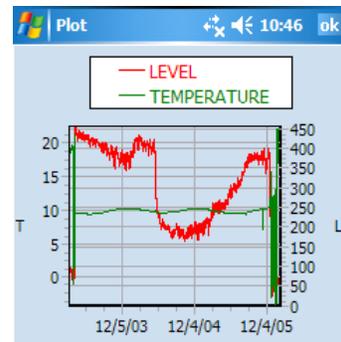
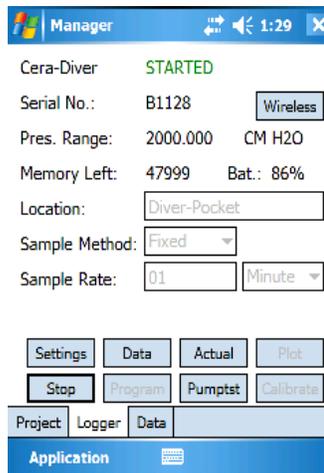
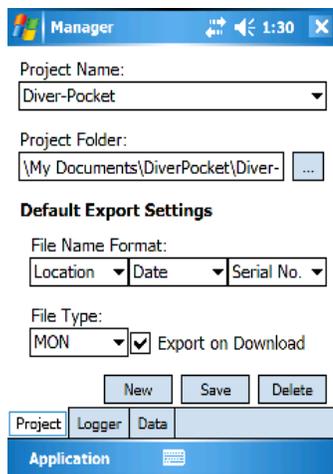


Diver-Pocket 3.0

User's Manual



Schlumberger Water Services
 Delftechpark 20
 Postbus 553
 2600 AN Delft
 The Netherlands
 +31 15 275 5000
 vanessen@slb.com
 www.water.slb.com

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Introduction

General

Diver-Pocket (formally known as Pocket-Diver) is a software package that can be used on a PocketPC for programming Diver dataloggers, reading stored measurements and exporting data. When used with a PocketPC, Diver-Pocket allows you to conveniently read and manage data in the field before exporting the data for further processing by other programs. In combination with one or more Diver dataloggers, Diver-Pocket constitutes a complete and flexible measurement system.

Diver-Pocket Reader and Manager

Diver-Pocket is available in two variants, namely;

- **Diver-Pocket Reader:** This variant only allows you to read data; Divers cannot be stopped, calibrated or programmed.
- **Diver-Pocket Manager:** In addition to being able to read data, this variant also includes the Diver programming facility which allows you to calibrate CTD-Divers, start and stop Divers, define pumping test, etc.

Note: This manual can be used for both the Diver-Pocket Reader and Diver-Pocket Manager. Please note that some features and functionality described in this manual are ONLY available in the Manager variant, i.e., programming divers, calibrating divers, stopping divers etc.

Either the Reader or the Manager version can be installed on a Pocket-PC. There are two installation packages:

- DiverPocket_Reader.exe
- DiverPocket_Manager.exe

A detailed description of the installation can be found in *Installing Diver-Pocket* (page 3).

Supported Divers

Diver-Pocket supports the following Diver data loggers:

- Cera-Diver (measures temperature and groundwater level)
- Mini-Diver (measures temperature and groundwater level)

- Micro-Diver (measures temperature and groundwater level)
- (M)TD-Diver (measures temperature and groundwater level)
- Baro-Diver (measures barometric pressure and temperature)
- CTD-Diver (measures conductivity, temperature and groundwater level)
- D-Diver (measures groundwater level)

Software and Hardware Requirements

Diver-Pocket requires the following hardware and software requirements:

PC Hardware Requirements:

- Microsoft Windows 2000 or XP
- Microsoft ActiveSync 3.6 or later must be installed (comes with PocketPC)

PocketPC (PDA) Requirements:

- Windows Mobile 2003 or Windows Mobile Version 5.0
- XScale or StrongArm Processor
- Pocket-PC is compatible with USB Host CF Card or RS232 CF Card (both RATO Systems Inc.)
- 64 MB of RAM or more

Wireless Requirements:

- Diver-DXD wireless data transceiver dongle
- Diver-DXT data transceiver

Please refer to your owner's manual to ensure that these requirements are satisfied.

CF card:

- <http://www.ratocsystems.com/english/products/subpages/cfu1u.html>
- <http://www.ratocsystems.com/english/products/CFU2U.html>

Diver-Pocket has been tested on the following Pocket-PCs:

- Dell X50 416MHz Windows Mobile 2003 2nd edition
- HP iPAQ 2110 312MHz Windows Mobile 2003 2nd edition
- Dell X51 520MHz Windows Mobile 5



- Dell X51v 624MHz Windows Mobile 5
- HP iPAQ 2490 520MHz Windows Mobile 5
- HP iPAQ 2790 624MHz Windows Mobile 5

with a USB and RS232 reading unit (and both CF cards).

Installing Diver-Pocket

Installation of Diver-Pocket with USB/RS232 Reading Unit

As outlined in the hardware requirements, Diver-Pocket requires a USB Host CF card or a RS232 CF card in order to read data from the Diver. This card must be properly installed according to the manufacturer's instructions. The driver for the USB Host/RS232 CF card is delivered with the hardware, but is not included in the Diver-Pocket installation. The latest version of the USB Host/RS232 CF driver can be downloaded from the manufacturer's site:

<http://www.ratocsystems.com/>

To install Diver-Pocket on your Pocket-PC, follow the steps below:

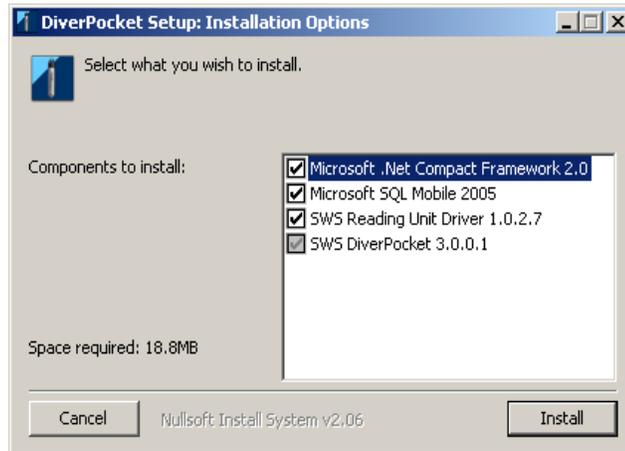
1. Before you start the installation of Diver-Pocket, make sure that the driver for the USB Host card is installed on your Pocket-PC.

For additional guidance with this step, please visit our online installation guide at the following address:

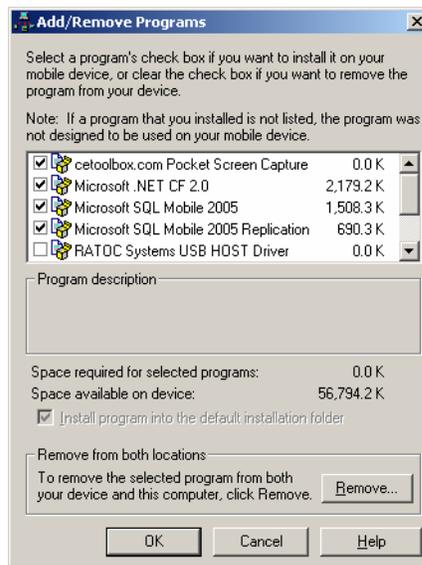
<http://www.waterloohydrogeologic.com/equipment/pocket-diver/ratoc-driver.htm>

2. Make sure that the USB Host card is **not** plugged into your Pocket-PC. Please remove the card if it is plugged into your Pocket-PC.
3. Place your Pocket-PC into the cradle and verify that the cradle is connected to your desktop PC.
4. Insert the Diver-Pocket CD into your CD-ROM Drive. The SWS installation CD Navigator should automatically launch. If the CD Navigator does not launch automatically, open Windows Explorer, navigate the CD-ROM to the Diver-Pocket folder, and double click on either **DiverPocket_Manager.exe** or **DiverPocket_Reader.exe**.
5. To begin installing your software, click on either the **Install Manager** button or the **Install Reader** button.
6. Accept the default settings and select the following:
 - Microsoft .Net Compact Framework 2.0
 - Microsoft SQL Mobile 2005
 - SWS Reading Unit Driver
 - SWS Diver-Pocket.

Click **Install** to start the installation.

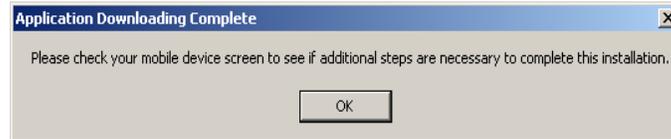


ActiveSync might display a dialog box with a list of programs that will be installed on your Pocket-PC. Programs that will be installed are marked with a grey checkbox.



This screen does not always appear.

The Diver-Pocket installation will copy the required files to your Pocket-PC. Once the installation is complete, you will be prompted to verify whether additional steps are necessary (as show below).



If you are running Windows Mobile 2003 Second Edition, you might find the following message on the screen of your Pocket-PC:

The program you have installed may not display properly because it was designed for a previous version of Windows Mobile.

This message may be ignored. Tap **OK** to continue. .

6. A message will appear on your desktop PC confirming that the program has been successfully installed.
7. Insert the USB Host/RS232 CF card to your Pocket-PC and connect the reading unit to the USB Host/RS232 CF card.
8. Proceed to *Getting Started with* (page 8).

Upgrade Diver-Pocket from version 2.0.0/2.1.0.0/2.1.1.0/2.1.2.0 to 3.0.0.2

If you already have a previous version of Diver-Pocket (Pocket-Diver 2.0/2.1.0.0/2.1.1.0/2.1.2.0) installed and you want to upgrade to 3.0.0.2 during the installation, uncheck Microsoft .Net Compact Framework 2.0 and Microsoft SQL Mobile 2005 options to speed up the installation. After installing Diver-Pocket 3.0.0.1, the previous version of Diver-Pocket (Pocket-Diver 2.x) may still exist on the PocketPC. You can safely remove the previous version through the **Remove Programs** dialog in Windows Settings.

Quick Installation Guide

- Remove the USB Host/RS232 CF card from the Pocket-PC.
- Install USB Host/RS232 CF card driver (latest drivers can be found on <http://www.ratocsystems.com/>).
- Run DiverPocket_Reader.exe or DiverPocket_Manager.exe.
- Plug in the USB Host/RS232 CF card.
- Connect the reading unit.

Getting Started with Diver-Pocket

This chapter will guide you through the basic steps to setup a project, acquire data from Divers and display data on your screen. The following chapters contain more details on specific topics and include *Managing Projects*, and *Managing Diver Data*.

Launching Diver-Pocket

After a successful installation, Diver-Pocket can be launched by tapping the **Windows logo** in the upper-left corner of the Pocket-PC screen.

From the pop-up menu, tap **Programs**. Finally, tap the **Diver-Pocket** icon.

Diver-Pocket Tabs

There are three different screens (tabs) in Diver-Pocket: Project, Logger and Data.

- The main tabs will have an “**X**” button located in the top-right corner. This button will *Hide/Minimize* (does not exit the program) the application and the application will remain active in the background.
- All sub-tabs will have an “**OK**” button located at the top-right corner. This button will *Close* the application without saving.
- If information needs to be saved, a “**Save**” button will be displayed. .

Creating a Project

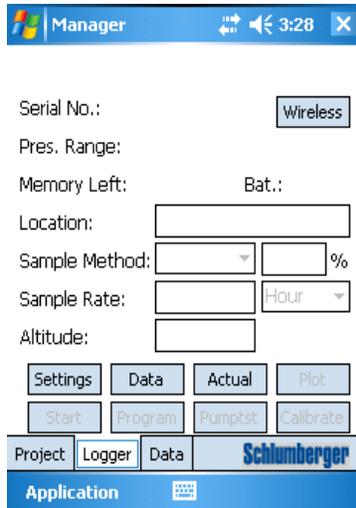


When starting Diver-Pocket for the first time, a message will inform you that the current database is empty and a new project needs to be created. Tap **OK** to proceed.

Enter a **Project Name** and tap the **OK** button

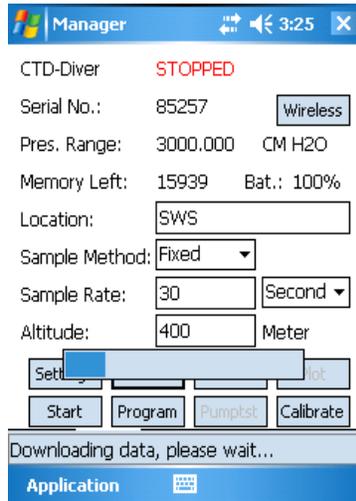
Confirm the default project settings by tapping the **Save** button.

Reading Diver Data



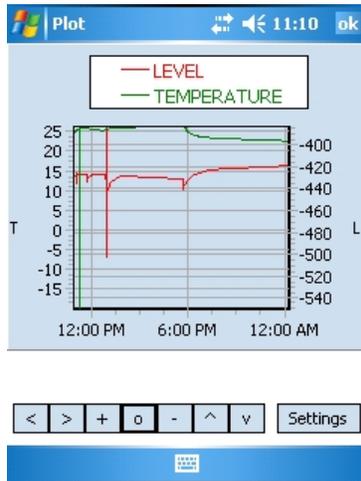
Tap the **Logger** tab at the bottom of the screen. A screen containing empty fields will be displayed (as shown to the left).

Make sure a Diver is placed in the USB Reading Unit and that the USB Reading Unit or DDC interface cable is connected to your Pocket-PC.



Tap the **Data** button to download the settings and data from the Diver. A progress bar indicates the status of the download process. The fields (e.g. Location, Sample Method, Sample Rate) should now contain the Diver information.

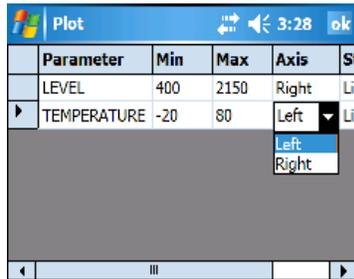
Plotting Data



Tap the **Plot** button to view the downloaded data as a time series plot.

Within the plot screen, you can navigate the time-series graph by using the zoom and pan tools.

Tap the **Settings** button to display information about the plotted parameters or to change the display settings.



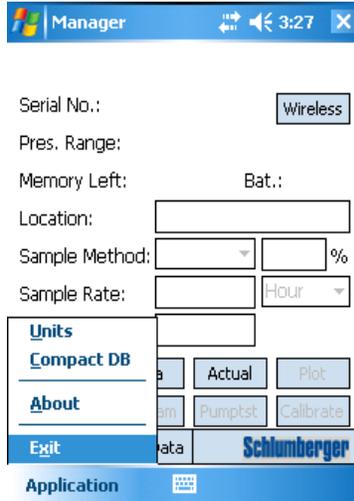
If your Diver measures two parameters, assign the second parameter to the right axis. By doing so, the two parameters, each having a different range, will be shown on a different axis leading to a better resolution of both curves.

Tap **Apply** to close the plot screen.



You have now successfully downloaded data from a Diver and visualized the data in a time-series plot.

Hiding & Exiting Diver-Pocket



You can hide (minimize) Diver-Pocket by tapping the **X** in the upper-right corner.

The program is not stopped and is still running in the background.

To completely close Diver-Pocket, tap **Application** and then **Exit**.

The Basics

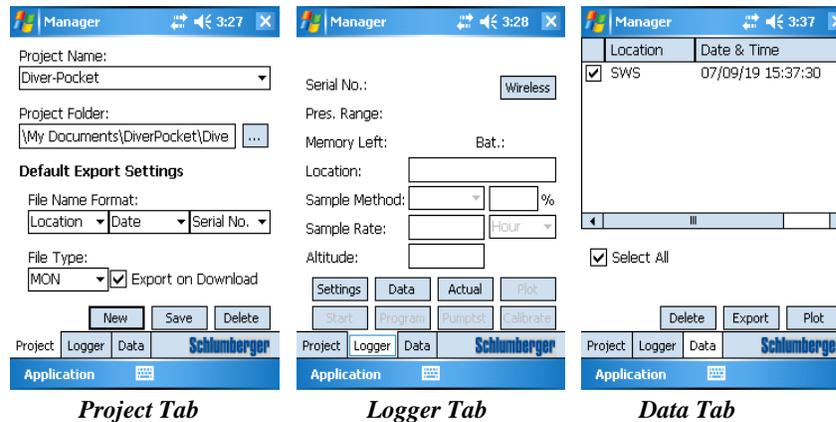
There are three different screens or tabs in Diver-Pocket (as shown below).

- The main tabs will have an “**X**” button located in the top-right corner. If selected, this button will only *Hide/Minimize* (does not exit the program) the application.
- All sub-tabs will have an “**OK**” button located at the top-right corner. If selected, this button will *Close* the application without saving.
- If information needs to be saved, a “**Save**” button will be displayed.

The first tab is the **Project** tab. At this screen you can define the project name, the project folder and the export settings. For more details on this topic, refer to *Managing Projects (page 12)*.

The middle tab is the **Logger** tab. This screen is used for reading and programming Divers. For more details refer to *(page 15)*.

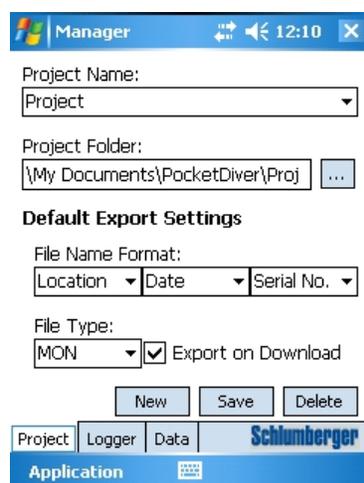
The third tab is the **Data** tab. Here you can plot and export data. For more details, refer to *Managing Diver Data (page 25)*.



Managing Projects

In Diver-Pocket, a project combines data from multiple Divers, belonging to the same monitoring project. Each project can have its own default settings as defined by the user. As shown in the image below, each project requires a default project folder, an associated file name format and a file type for exporting data. When starting Diver-Pocket for the first time, you will be prompted to create a new project before proceeding.

Editing and Opening an Existing Project



The screenshot shows the 'Manager' window of the Diver-Pocket application. It features a title bar with the application name, a maximize button, a volume icon, and a clock showing 12:10. The main content area includes a 'Project Name' dropdown menu set to 'Project', a 'Project Folder' text field containing '\My Documents\PocketDiver\Proj' with a browse button (...), and a 'Default Export Settings' section. This section contains a 'File Name Format' field with three dropdown menus: 'Location', 'Date', and 'Serial No.', and a 'File Type' dropdown menu set to 'MON'. There is also a checked checkbox for 'Export on Download'. At the bottom of the settings area are three buttons: 'New', 'Save', and 'Delete'. The application's navigation bar at the very bottom shows 'Project' selected, with other options 'Logger' and 'Data'. The 'Schlumberger' logo is visible in the bottom right corner of the application window.

Tap the **Project** tab to display the project settings. The project settings include the following fields:

The **Project Name** cannot be changed once the project has been created. Select an existing project from the **Project Name** drop-down box. If the current project has not been saved, you will be prompted to confirm the changes.

Project Folder: This is the location where the exported (.dat, .mon and .csv) data files will be stored. With every Diver download, a binary .dat file will be created by default. The .mon or .csv files can be created automatically by setting the default export flag (see below) or manually from the **Data** tab.

All created .dat, .mon and .csv files use the **File Name Format** settings. This allows you to associate a filename with three strings (serial number of Diver, location of Diver and timestamp of download). If the timestamp is not included as part of the filename (e.g. only serial number plus location name are included in name format), then a **_1, _2** etc. extension will be added to each file in

order to make the filename unique.

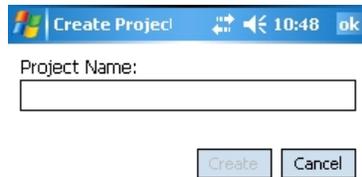
NOTE: It is good practice to include the timestamp in the filename.

File Type: This defines the type of files that are created when data is exported either manually or automatically.

If the **Export on Download** checkbox is checked, a file is exported automatically with every Diver download. If the Pocket-PC's memory is limited or if the additional export is too time consuming, you may export the same files manually from the database at a later point in time.

Tap the **Save** button to save the settings of the current project.

Creating a New Project



Tap the **Project** tab.

Tap the **New** button. The screen shown on the left will appear.

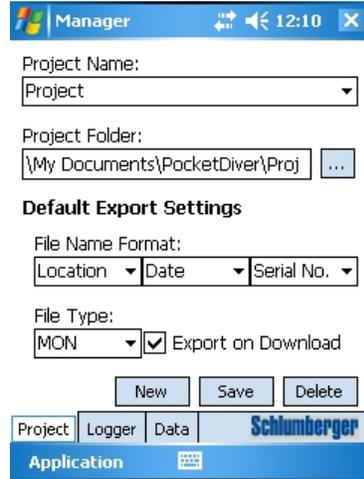
Enter a project name. **NOTE:** Do not use special characters (e.g. /:*?<>|) as the project name is the default name for the project folder.

Tap the **OK** button.

If necessary, modify the settings on the project screen as described in *Editing and Opening an Existing Project* (page 12).



Deleting an Existing Project



The screenshot shows the 'Manager' application window. At the top, there is a title bar with 'Manager', a refresh icon, a back arrow, and the time '12:10'. Below the title bar, there are two input fields: 'Project Name:' with a dropdown menu showing 'Project', and 'Project Folder:' with a text box containing '\\My Documents\\PocketDiver\\Proj' and a browse button '...'. Underneath is the 'Default Export Settings' section, which includes 'File Name Format:' with three dropdown menus (Location, Date, Serial No.), and 'File Type:' with a dropdown menu showing 'MON' and a checked checkbox for 'Export on Download'. At the bottom of the settings are three buttons: 'New', 'Save', and 'Delete'. Below the settings is a navigation bar with tabs for 'Project', 'Logger', and 'Data', and the 'Schlumberger' logo. At the very bottom is an 'Application' bar with a keyboard icon.

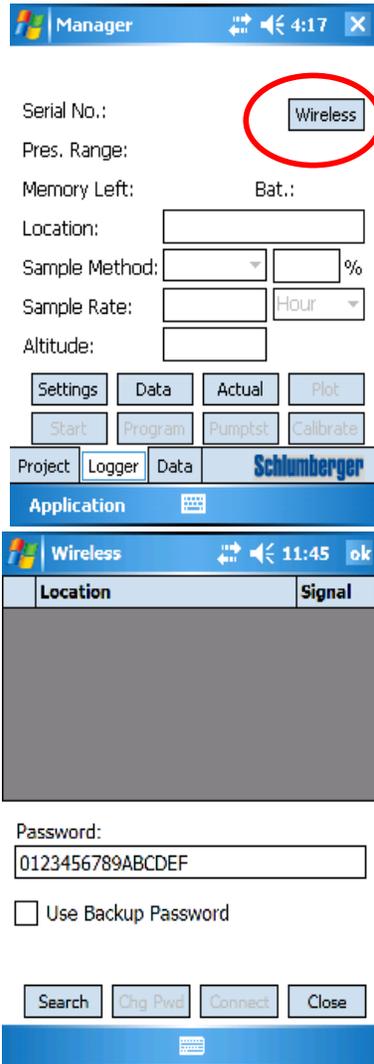
Tap the **Project** tab.

Tap the **Delete** button to delete the current project and all related records in the database. The project folder will not be deleted automatically. Please use the **Windows Mobile** file explorer to delete the project folder from your Pocket-PC.

Connecting to Diver-NETZ

Diver-Pocket v.3.0 allows you to read and program Divers from a remote location in the field, using a wireless connection. To use this feature, a *Diver-DXD dongle* must be connected to your Pocket-PC and a *Diver-DXT cable* must be attached to each diver.

Setting up a Wireless Connection



From the **Logger** tab, tap the **Wireless** button to setup a wireless diver connection.

Note: Diver-Pocket will become unstable if you unplug the Wireless dongle while operating in Wireless mode. Please be sure to exit Diver-Pocket before you remove the Wireless dongle.

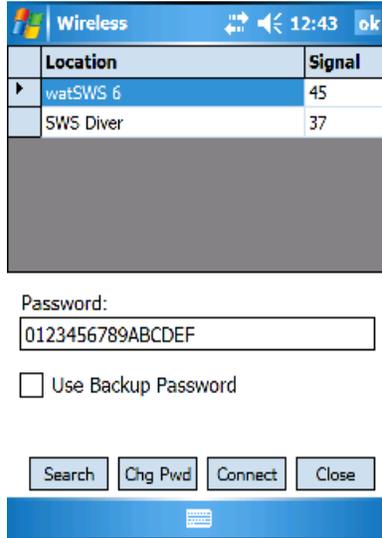
In order to ensure that your diver data remains secure and private, each Diver is assigned a password so that only you can retrieve its data.

By default, each diver is registered with the following password until you choose to change it:

0123456789ABCDEF

In the event that a diver password is lost, you can select the **Use Backup Password** checkbox and retrieve the Diver using its built-in serial number (located on the diver).

Specify the Diver(s) password and tap



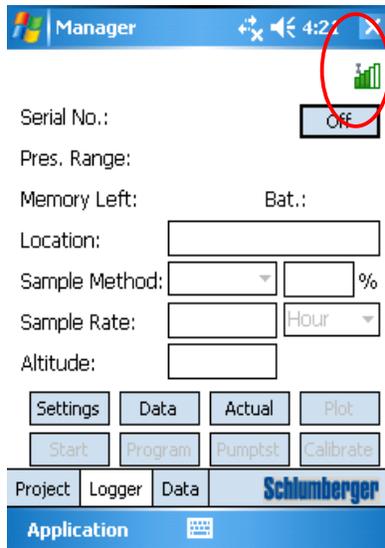
Search to scan for available divers.

Diver-Pocket will search for active divers within a range of 150 meters.

Note: The range will change depending on the environment in which the data collection is performed (e.g. environments with more topographical obstructions will decrease the potential range). The location of the Diver-DXT will also affect the range.

It may take up to 30 seconds to locate a Diver. When a Diver is found, it is listed in the table under **Location**. The corresponding value listed in the **Signal** column represents the strength of the signal (0 –100).

To connect to a Diver, select a Diver from the table, and tap **Connect**.

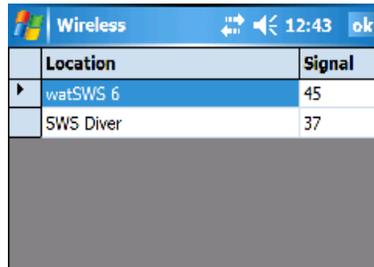


Now that you have connected to a diver, you can proceed to read and program diver settings, and download diver data.

The green status bars  in the top-right corner allows you to monitor the strength of your wireless connection while you work with wireless Divers. The number of green bars increases as the signal strength increases, and vice versa.

To disable a connection, tap the **Off** button.

Changing Wireless Diver Password



Location	Signal
watSWS 6	45
SWS Diver	37

To change a Diver password, select a Diver from the location table and tap the **Chg Pwd** button.

Password:

Use Backup Password



SWS 7

Please type in a new password:

Re-enter Password:

This window allows you to change the Radio password for the selected diver. After the password has been changed, the Diver will be disconnected from the network, and you must reconnect using the new password.

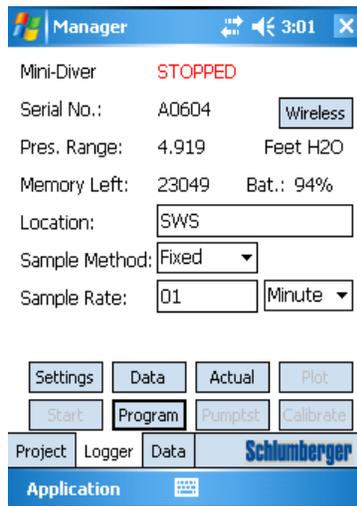
At the **Change Radio Password** screen, enter a new password for the wireless Diver. You must confirm the new password by entering it again.

Finally, tap the **Change** button to save the new password. If successful, a message will display confirming that the password has been changed. The Diver will then disconnect from the current network, and you will need to reconnect using the new password.

Please refer to the **Diver-DXT installation manual** for more information on how to change the password.

Reading and Programming the Diver

Reading Data and Settings from the Diver



Tap the **Logger** tab to:

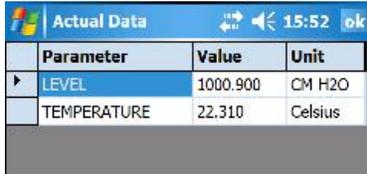
- read Diver data,
- program the Diver,
- start and stop the Diver.

Tap the **Settings** button to download the settings from the connected Diver.

Tap the **Data** button to retrieve the data from the connected Diver. The download process includes:

- Downloading the data to a binary .dat file. This is an image of the Diver memory and is stored in a sub folder (DAT) of the project folder. The download time is approximately five minutes for the entire Diver memory (48,000 readings).
- Saving the data from the .dat file to the database. This step takes less than ten seconds to complete.
- If specified in the project settings, the data may be automatically exported to a *.MON or *.CSV text file. For a full Diver memory, this step takes approximately one to two minutes to complete.

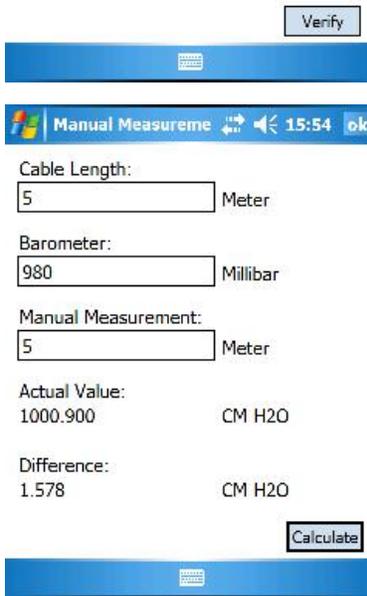
Reading Actual Data from the Diver



Parameter	Value	Unit
LEVEL	1000.900	CM H2O
TEMPERATURE	22.310	Celsius

Tap the **Actual** button to load the last value for each measured parameter.
NOTE: These values are only displayed and not saved to the database.

Tap **Verify** to enter a measurement manually and compare it to a measurement taken with the Diver.



Verify

Manual Measureme 15:54

Cable Length: Meter

Barometer: Millibar

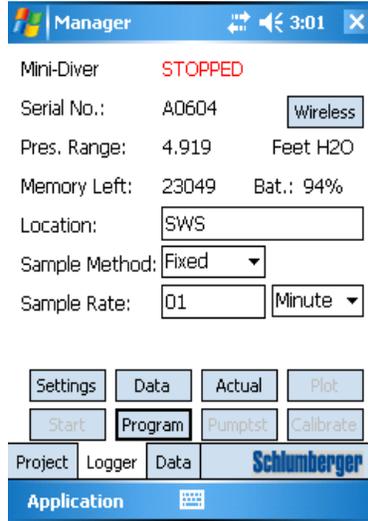
Manual Measurement: Meter

Actual Value: 1000.900 CM H2O

Difference: 1.578 CM H2O

Calculate

Programming the Diver



The screenshot shows the 'Manager' window of the Diver-Pocket software. The status of the Mini-Diver is 'STOPPED'. The Serial No. is A0604, and there is a 'Wireless' button. The pressure range is 4.919 Feet H2O. Memory left is 23049 and battery is at 94%. The location is set to 'SWS'. The sample method is 'Fixed' and the sample rate is '01 Minute'. At the bottom, there are several navigation buttons: Settings, Data, Actual, Plot, Start, Program, Pumpstst, Calibrate, Project, Logger, Data, and the Schlumberger logo. The 'Application' bar is at the very bottom.

Diver-Pocket allows the programming of the following settings: **Location, Sample Method, Sample Rate, and Altitude.**

To change any of these settings, manually enter the desired values. Once the new values have been entered, tap **Program**.

To confirm that the new settings have been programmed, tap **Settings**. The fields should appear blank for a moment before displaying the newly defined settings.

Location

The Diver location is an identifier that may be specified by the user on the Logger tab. This is usually required if a Diver is assigned to a new location.

NOTE: It is highly recommended that you assign a unique name to each Diver location. Also, since the Location name will be used as part of the filename for exporting data, the Location name does not accept special characters that would lead to an invalid filename (e.g. \ / : * ? * < > |)

Sample Method and Sample Rate

The **Sample Method** may be one of the following:

- **Fixed**
- **Event-based**
- One of the predefined pumping test settings (**Setup A, B, or C**),
- or **User Defined**.

Fixed

A fixed sample method will acquire and store data at regular time intervals. Select a unit from the **Sample Rate** drop-down box (e.g. Hour, Minute, Second, 0.5 Second) and enter an associated time value in the adjacent box.

Example

With a 10-second sample rate, the CTD-Diver takes a measurement every 10 seconds on all channels settings and stores this value in its internal memory. The maximum number of measurements is 16,000. In this case, the internal memory will be full after 1 day, 20 hours, 26 minutes and 30 seconds. The Diver stops taking measurements when the memory is full.

NOTE: A CTD-measurement will be stored as a record with the data: **date + time + level + temperature + conductivity**. All measurements are imported together as one series in Diver-Pocket.

Event based

When you select this method, the Diver compares each sample to the last stored sample and calculates a difference. A new sample is only stored when the difference exceeds a specified percentage from the last stored sample on the leading parameter. Generally, the leading parameter is pressure. For the *CTD-Diver* the leading parameters is conductivity.

If you select this method, the **Variation** field will be displayed. In the field **Variation**, specify the appropriate difference threshold. Enter this difference as a percentage of the total range of the Diver. The percentage must lie between 0.1% and 25%. Also, you must specify a **Sample Rate**

Example

Suppose you entered a variation of 2.5 % for a CTD-Diver with an 80 mS/cm measuring range and a sample rate of 30 minutes. The CTD-Diver will then take a measurement every thirty minutes and compare it with the last stored conductivity value. It will only store a new measurement:

- if the conductivity differs by 2 mS/cm (i.e. 2.5 % of 80 mS/cm) or more from the last stored conductivity value, or
- if the conductivity did not differ by at least 2 mS/cm in the last 250 measurements.

Conductivity is the leading parameter for the CTD-Diver. Therefore, changes in water depth will not affect the storage of measurements.

NOTE: Energy is expended when a sample is acquired, even when the sample is not stored in memory. Therefore, this method may deplete battery resources before the Diver memory can be completely filled. .

You can minimize this problem by specifying a modest sample rate.

Predefined Pumping Tests

Diver-Pocket includes three convenient predefined pumping tests available from the **Sample Method** drop-down box. This method is only available for Divers that support this feature.

The specifications of these predefined sample methods are as follows:

Pumping Test Setup A

Base Sample Rate: 0.5 seconds

Step	Number of samples	#Intervals
1	1200	1
2	5400	2
3	41400	10

Pumping Test Setup B

Base Sample Rate: 1 second

Step	Number of samples	#Intervals
1	600	1
2	1080	5
3	5400	10
4	40920	30



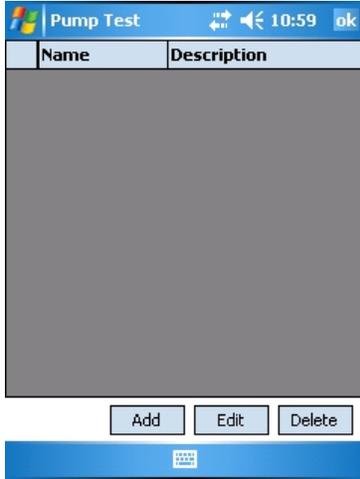
Pumping Test Setup C

Base Sample Rate: 5 seconds

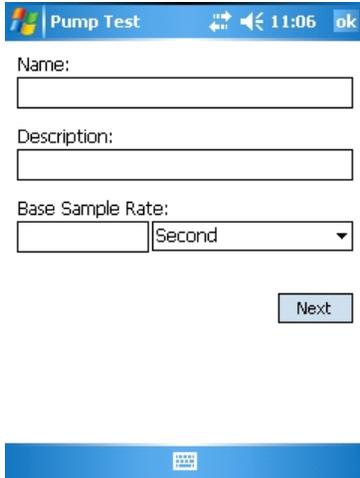
Step	Number of samples	#Intervals
1	120	1
2	270	4
3	900	12
4	1800	60
5	44910	240

User Defined Pumping Test

You may also define your own pumping test sample method by tapping the **Pumptst** button and specifying the necessary details:



Tap the **Pumptst** button to display the **User Defined Sample Method** screen.



Tap the **Add** button and a new dialog box will appear. Specify a name, description (optional), and a base sample rate. Once these fields are completed, tap the **Next** button to continue.

Please Define Step: 11:08 ok

#Samples Left: 0 Save

Step	#Samples	#Intervals	Sample Rate
1	12000	2	12 Minutes
2	14000	4	24 Minutes
3	10000	2	12 Minutes
4	12000	1	6 Minutes
5	0	0	0 Minutes
6	0	0	0 Minutes
7	0	0	0 Minutes
8	0	0	0 Minutes
9	0	0	0 Minutes
10	0	0	0 Minutes

In the **Define Step** dialog , you must enter the number of samples and the number of intervals for your sample method (as shown to the left).

Tap the **Save** button to save the method. A pop up message will appear confirming the method has been saved.

Tap **Ok** to return to the previous dialog and then **Ok** again to return to the main **Pump Test** dialog.

NOTE: In order to save the sample method, the total number of samples must equal the total memory of the connected Diver.

Manager 3:32 X

CTD-Diver **STOPPED**

Serial No.: 85257 Wireless

Pres. Range: 3000.000 CM H2O

Memory Left: 15939 Bat.: 100%

Location: SWS

Sample Method: Fixed

Sample Rate: 30 Second

Altitude: 400 Meter

Settings Data Actual Plot

Start Program Pumpst Calibrate

Project Logger Data Schlumberger

Application

Altitude

Specify the altitude above sea level for the location of the Diver. The value entered will be in the units that are programmed in the Diver. (i.e. meters or feet). The ranges are:

- -300 m to 3,000 m
- -1,000 ft to 10,000 ft

Note: Altitude is only available for CTD-Divers including DI240-DI245, DI209-DI220.

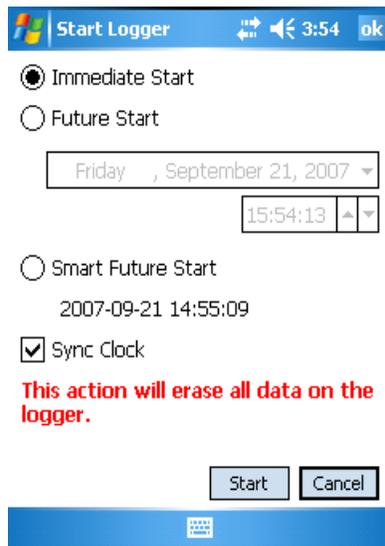
Stopping a Diver

In order to stop a Diver, the settings must have been read and the status must be “started”.

Tap the **Stop** button. A confirmation screen will be displayed to prevent accidental stopping of the Diver. Tap **Yes** to stop the Diver or tap **No** to prevent the Diver from being stopped.

Starting a Diver

Before you start a Diver, make sure that you have programmed the Diver using the **Program** button. After tapping **Program**, the fields will momentarily appear blank before displaying the settings. Verify that the settings are correct.



To start a Diver, tap the **Start** button to display the **Start Logger** dialog box.

Select **Immediate Start** to start the Diver immediately, or select **Future Start** to specify a future start-time.

Smart Future Start automatically restarts the Diver at the next required sample time based on the original start-time and the sample interval. You may also choose to synchronize the Diver’s internal clock with your handheld device by checking the **Sync Clock** box. .

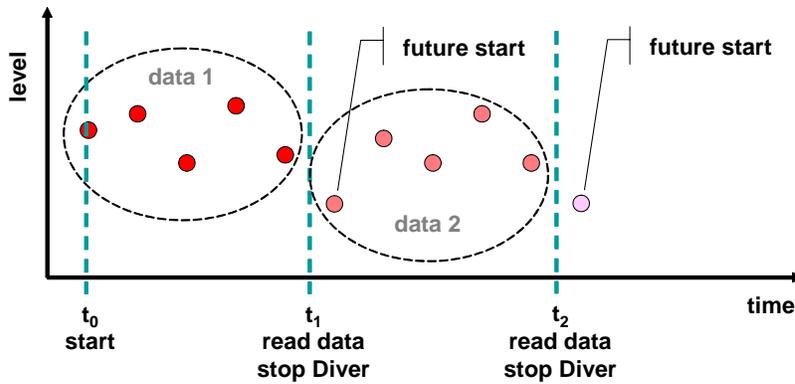
ATTENTION:

All data in the Diver memory will be erased and irretrievable once the Diver is started. Be sure to download this data before proceeding.

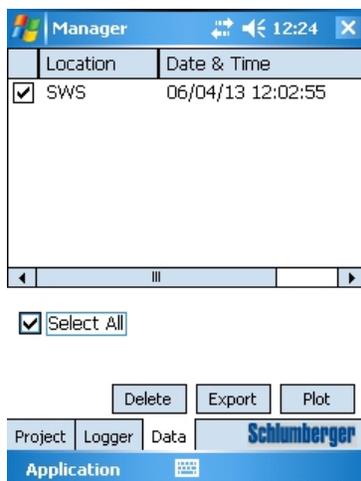
Smart Future Start

The **Smart Future Start** option provides optimal use of Diver memory, download speeds and data management. The Smart Future Start option can be explained best by the picture depicted below. Suppose the Diver was started at t_0

and data was collected. At t_1 , the Diver is stopped and *data 1* is read. The Smart Future Start time is given and the Diver proceeds to sample as if it was not stopped. At t_2 , *data 2* is collected, the Diver is stopped and the Smart Future Start time is given. *Data 2* can then be linked to *data 1* in the Logger Data Manager. To ensure that timed data is accurate, the Smart Future Start can be synchronized with the Pocket-PC clock by checking the **Sync Clock** box.



Managing Diver Data



Tap the **Data** tab. You will see a list of all downloaded time series of the current project.

Every Diver download is saved to the database as a time series. A time series is defined by the location, a timestamp of the download time, and a unique Diver serial number. You may select one or several time series.

Tap the **Export** button to export all selected time series to text files, e.g., *.MON, *.CSV. This will create one file for each selected record in the project folder. Remember, the file format, name, and target path (Project Folder) are defined in the project settings on the **Project** tab.

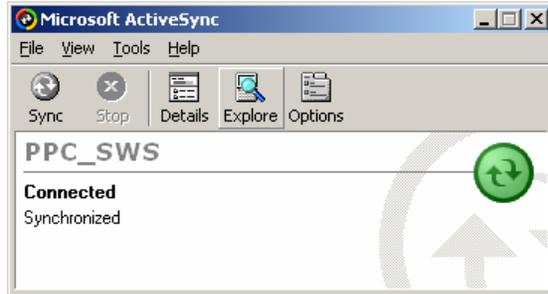
Tap the **Delete** button to delete the selected records from this project.

NOTE: After you delete a record, apply the **Compact Database** command from the **Application** menu. This will shrink the database file and save space on the Pocket-PC.

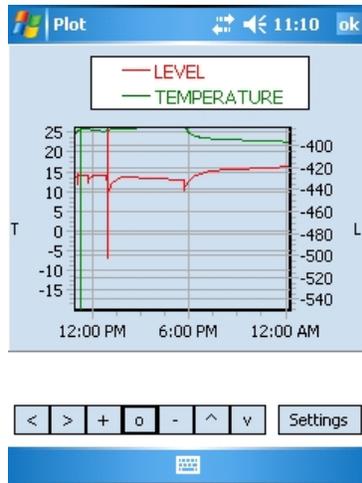
Tap the **Plot** button to display the selected record in a time series. Note that this command is only available when only one record is selected.

Exporting Data to a PC

To transfer data from the Pocket-PC to your Desktop PC, connect the Pocket-PC to the PC and start Microsoft ActiveSync (if not automatically started). Click the **Explore** button to browse the contents of the Pocket-PC (as shown below). You can transfer files to your PC by using **Copy/Paste** or **Drag/Drop**.



Time Series Plots



There are two ways to display downloaded data in a time series plot:

- Tap the **Logger** tab and tap **Data** to download data from the Diver. As the download is finished, the plot button will become active. Tap the **Plot** button. This will display the downloaded data.
- Tap the **Data** tab. Select a record from the stored list. Tap the **Plot** button to display the downloaded data.

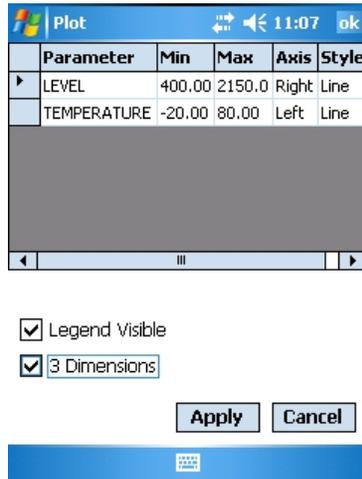
To enhance the plotting speed, Diver-Pocket will resample the data whenever a time series plot is made. **NOTE:** Only values that are different by 0.1% will be displayed.

The data for all the available parameters will be displayed. To hide a parameter, tap on its name in the legend. Tap it again to unhide it.

You may use the following navigation buttons to view a selection of the plot in more detail:

-  move left
-  More right
-  Zoom in
-  Reset default settings
-  Zoom out
-  move up
-  move down

Plot Settings



Tap the **Settings** button to display the parameter settings (as shown to the side).

The grid in the upper part of the screen displays the parameters that are available in the plotted time series. The minimum and maximum values are read from the Diver settings and cannot be changed. However, you may assign parameters to individual axis to improve the vertical resolution of the plotted parameters. The last column of this grid allows you to define how the data is represented on the plot (e.g. lines or bars).

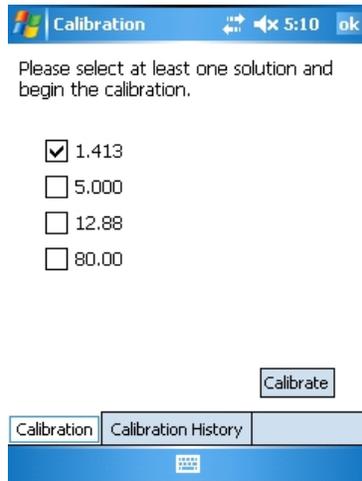
Check the **Legend Visible** box to make the plot legend visible.

The **3 Dimensions** option allows you to give your plot a 3D or 2D appearance.

CTD-Diver Calibration

Diver-Pocket features the ability to calibrate the ceramic CTD-Divers as well as retrieve the calibration history from the CTD-Diver. It is necessary to regularly calibrate the CTD-Divers to ensure accuracy and reliability.

Calibration



The ceramic CTD-Diver can be calibrated at a maximum of four points. The solution must have a temperature between 5 °C (41 °F) and 30 °C (86 °F). **NOTE:** It is advisable to place the fluid(s) in the room where the calibration is to take place before the actual calibration starts to allow the fluid temperature to stabilize. Once the fluid temperature has stabilized, you can proceed to calibrate the Diver.

Connect the CTD-Diver to the Pocket-PC and immerse the CTD-Diver in the solution.

Tap the **Logger** tab and then tap the **Settings** button to read the settings from the Diver.

Once the Diver is recognized as a CTD-Diver, the **Calibrate** button will become active.

Next, tap the **Calibrate** button to open the *Calibration* wizard.

Select the check box(es) next to the appropriate solution(s) that will be used to calibrate the Diver.

Tap the **Calibrate** button to begin calibrating the CTD-Diver.

A message will appear stating that all data on the CTD-Diver will be erased,



tap **Yes** to continue or **No** to cancel.

A message will appear to immerse the CTD-Diver in the selected solution. Tap **Ok** to continue.

Diver-Pocket will then calibrate the CTD-Diver according to the specified solutions. If the calibration was successful, a message will appear. Tap **Ok** to continue.

Calibration History



Diver-Pocket is also capable of reading and displaying the calibration history from CTD-Divers. Each time a CTD-Diver is calibrated, the settings are saved to the CTD-Diver's internal memory. This feature is useful for monitoring changes in calibration over time which may aid in explaining significant variations or anomalies in data.

Ensure the CTD-Diver is connected to Pocket-PC.

Tap the **Logger** tab, and then tap the **Settings** button to read the settings from the Diver.

Once the Diver is recognized as a CTD-Diver, the **Calibrate** button will be made available.

Tap the **Calibrate** button to open the *Calibration* wizard.

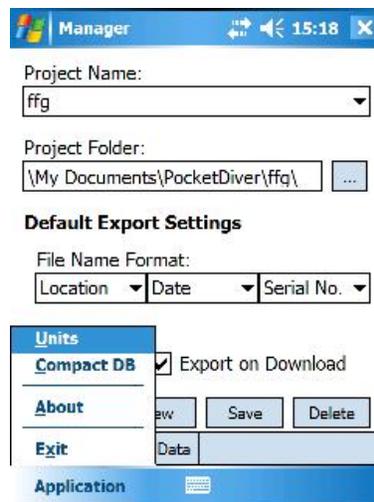
Tap the **Calibration History** tab at the bottom of the screen (as shown to the left).

The *Calibration* history will be displayed as a plot.

Application Settings

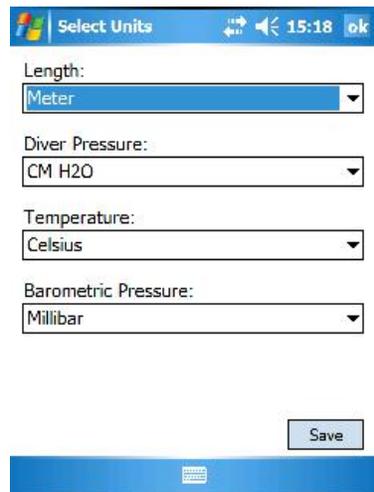
You can modify the default application settings in Diver-Pocket by accessing the **Application** button (as shown below).

Changing the Units



Click on **Units** to change the default units.

Changing the Units (Detail)

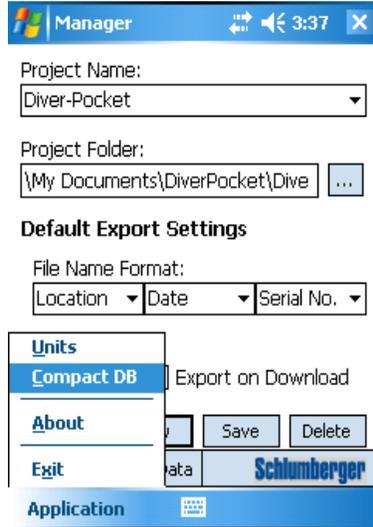


From the drop-down menus, specify a unit for each parameter (Length, Diver Pressure, Temperature, Barometric Pressure).

Click “Save” to save the changes. The settings will apply to the entire Application and export files.

NOTE: The “Barometric Pressure” units are only used in “Actual” form, please refer to the [“Reading Actual Data from the Logger”](#)

Compressing the Database



Please recall that deleting any data in the database does not shrink the size of the database. Tap **Application** in the menu bar and then tap **Compact DB** to compact the database (as shown to the side).

Troubleshooting

Interruption in Communication

Diver-Pocket will inform you with a message if the communication between the computer and the Diver is disturbed (e.g. when there is no Diver connected).

You can confirm the message, take action to solve the problem and then try again. Communication may be disturbed for the following reasons:

- The USB Reading Unit is not properly connected to the Pocket-PC.
Action: Ensure the USB Reading Unit or RS232 Reading Unit is connected to the Pocket-PC.
- Diver-Pocket tried to communicate with the Diver just as it was taking a measurement.
Action: Confirm the message and try again.
- The Diver is not properly connected to the USB Reading Unit or RS232 Reading Unit.
Action: Ensure that the optical connectors on both the Diver and the USB Reading Unit are clean. If not, you can clean them with a soft cloth.
- The Pocket-PC shows a message that an unknown device was found.
Action: see bullet points below.

If the actions outlined above do not resolve the communication problem, proceed as follows:

- Exit the Diver-Pocket program using menu **Application → Exit**
- Unplug the USB Host CF card
- Disconnect the USB Host CF card from the USB Reading Unit
- Plug in the USB Host CF card
- Connect the USB Reading Unit to the Pocket-PC
- Wait 5 seconds
- Start the Diver-Pocket program and tap the **Read** button

If these actions do also not solve the issue, try a **Soft Reset** of the Pocket-PC as described in the product Pocket-PC manual.

Pocket-PC Power Management Issues

Default settings on most Pocket-PCs automatically shut off if there is no user activity for a set length of time, typically 3 to 5 minutes. This can cause the Pocket-PC to shut off and disrupt the download process. To avoid this problem, the **Power Settings** must be changed on the Pocket-PC. In Windows Mobile, these settings can be accessed in the following manner:

Tap **Start** menu > **Settings** > **System** tab at bottom of **Settings** window
> **Power** icon > **Advanced** tab

At this screen, there will be a check box which can turn the power save feature on or off. It is recommended that this feature is disabled when working with large datasets to avoid download disruption.