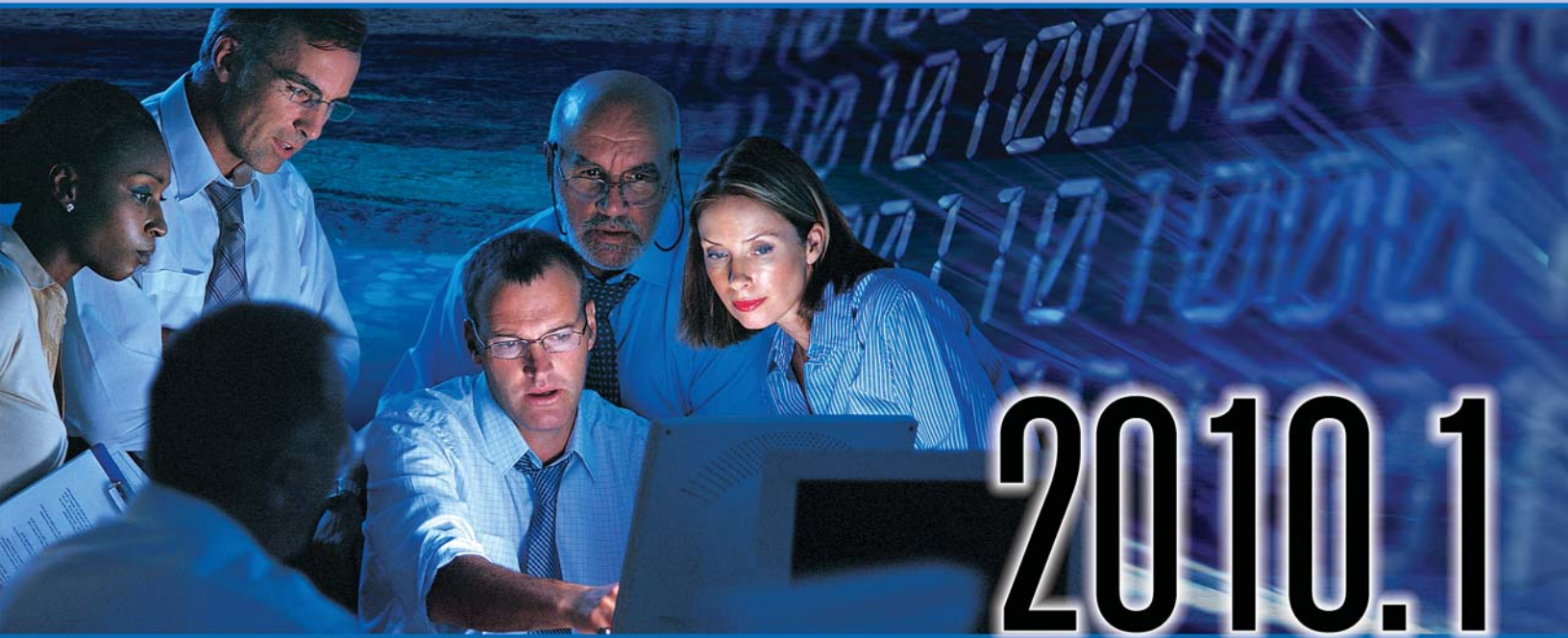


User's Manual



Diver-Office
Diver-Office Network

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Preface

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Obtaining Technical Support

To help us handle your technical support questions as quickly as possible, please have the following information ready before you call, or include it in a detailed technical support e-mail:

- A complete description of the problem including a summary of key strokes and program event (or a screen capture showing the error message, where applicable)
- Product name and version number
- Product serial number
- Computer make and model number
- Operating system and version number
- Total free RAM
- Number of free bytes on your hard disk
- Software installation directory
- Directory location for your current project files

You may send us your questions via e-mail, fax, or call one of our technical support specialists. Please allow up to two business days for a response.

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1 Introduction to Diver-Office

Diver-Office is a software package developed to read and program Diver groundwater dataloggers, download Diver monitoring data, and process and display Diver data. In combination with one or more Divers, Diver-Office constitutes a complete and flexible measurement system.

This user's manual may be used for both Diver-Office and Diver-Office Network. Features only available in Diver-Office Network are indicated

Diver-Office has the following key features:

- Easy-to-use, intuitive interface.
- Read/Program Diver dataloggers
- Start/Stop Diver dataloggers, with various start methods
- Calibrate CTD-Divers
- Import/Export monitoring data in multiple formats
- View time series data in a plot or tabular form
- Import LoggerDataManager 5.x databases
- Perform barometric compensation on water level data

This chapter will guide you through the installation and introduce you to the Diver-Office interface.

To download the latest version of Diver-Office, please visit the following SWS website:

http://www.swstechnology.com/equipment_product.php?ID=20

1.1 Installing Diver-Office

1.1.1 System Requirements

Diver-Office requires the following minimum system configuration:

- Pentium processor, 800 MHz
- 512 MB of RAM (1 GB recommended)
- 100 MB available hard drive space for installation. Additional space for database is required. Diver-Office supports databases up to 2 GB.
- One available USB port or one Serial COM port
- Windows XP (SP2 or later, 32 & 64-bit), Windows Vista Business (32 & 64-bit), Windows 7 (32 & 64bit)
- Screen resolution: 1024 x 768, color: 16 bits

The following software is required for integration with external field devices (Diver-Pocket, and Diver-Mate)

- Microsoft ActiveSync - **Windows XP only**
- Microsoft Windows Mobile Device Center - **Windows Vista only**

For more information on downloading this software, please visit the following link, and click on the **Product Details** tab:

http://www.swstechnology.com/software_product.php?ID=51

If you have any problems with your particular system configuration, please make sure that you followed the installation instructions precisely. If the problem is still unresolved, please contact your hardware experts or IT department.

1.1.2 List of Supported Devices

Reading Units

Diver-Office supports the following Reading Units:

Reading Unit RS232	AS 315
Reading Unit USB	AS 324
Diver USB Reading Unit	AS 330

Divers

Diver-Office supports the following Divers:

Cera-Diver	DI701 DI702 DI705 DI710
Mini-Diver	DI501 DI502 DI505 DI510
Micro-Diver	DI601 DI602 DI605 DI610
(M)TD-Diver	DI240 DI241 DI242 DI243 DI245
Baro-Diver	DI250 (TD-Style) DI500 (Mini-Style)
CTD-Diver (ceramic)	DI261 DI263 DI265
CTD-Diver (stainless steel)	DI218 DI219 DI221 DI222 DI223 DI224 DI227 DI225 DI226
TD-Diver	DI214 DI215 DI217 DI220
D-Diver	DI212 DI213

Interface Cables

Diver-Office supports the following Diver interface cables:

Direct Read Interface Cable	AS 325
PC Interface Boostercable	AS 326
DRC USB Interface Cable	AS 327
Direct Read Interface (short)	AS 328
FT-US232B EVALCABLE	HAD 211

Field Devices

Diver-Office supports the following Field Devices:

Diver-Pocket	v.4.0
Diver-Mate	v.3.0

1.1.3 Upgrading to Diver-Office

Diver-Office is fully compatible with projects created in the previous version of Diver-Office. To upgrade to Diver-Office, you must first uninstall the previous version (**Control Panel / Add/Remove Programs**), and then follow the instructions described in the following section.

1.1.4 Installation

Diver-Office Software

Diver-Office is distributed on CD-ROM, through our website, and on our FTP site. To download Diver-Office from our website, please visit www.swstechnology.com and navigate to the Diver-Office product page.

To install Diver-Office from a CD-ROM disk, please follow the directions below:

Note: If you wish to install Diver-Office on Windows Vista, you must first disable **User Account Control (UAC)**. To do so, follow the steps below:

- Click **Start/Control Panel**
 - In the search bar, type **UAC**.
 - The first result returned by the search will be *User Accounts – Turn User Account Control (UAC) on or off*. Click on it and then click **Continue**. The UAC window will open.
 - Deselect the option **Use User Account Control (UAC) to help protect your computer** and press the **OK** button.
 - Restart your computer before proceeding with the Diver-Office installation described below.
 - It is recommended that you leave UAC disabled when running Diver-Office.
1. Place the CD into your CD-ROM drive and the initial installation screen should load automatically. Once loaded, an installation interface with several different tabs will be presented.

If the installation screen does not load automatically,

- Open **Windows Explorer**, and navigate to the CD-ROM drive.
 - Double-click the **Diver-Office_Setup.MSI** to initiate the installation.
2. Please take the time to explore the installation interface, as there is information concerning other SWS products, our worldwide distributors, technical support, consulting, training, and how to contact us.
 3. On the initial Installation tab, you may choose from the following two buttons: Diver-Office Installation and Diver-Office User's Manual.
 4. The User's Manual button will display a PDF of the manual, which requires Adobe Acrobat Reader to view. If you do not have the Adobe Reader, a link has been created in the interface to download the appropriate software.

5. The Installation button will initiate the installation of Diver-Office on your computer. Diver-Office must be installed on your local hard disk in order to run. Follow the installation instructions, and read the on-screen instructions carefully.
6. Once the installation is complete, you will see the Diver-Office short-cut on your Desktop screen.

1.1.5 Uninstalling Diver-Office

There may be instances where you will need to uninstall (remove) Diver-Office from your system, *e.g.*, if the software is to be transferred to another computer, or you need to reinstall on the current computer. To uninstall Diver-Office,

- Locate the **Add/Remove Programs** option in Window's **Control Panel**
- Select **Diver-Office** as the program to be removed
- Follow the on-screen instructions.

Once you are finished, re-boot your computer to ensure all system files are updated.

1.1.6 Uninstalling Reading Unit Drivers

To uninstall the reading unit drivers, follow the instructions below:

1. Using **Windows Explorer**, navigate to the location where Diver-Office is installed. By default the directory is:
C:\Program Files\Diver-Office\Reading Unit Drivers\x32
2. In the **x32** folder, there will be a file called **FTDIUNIN.exe**. Double click on this file to start uninstalling the drivers.
3. You will be prompted with a warning message asking you to unplug your reading unit before proceeding. Please do so, and then click [**Continue**] to continue.
4. Click [**Finish**] to complete the uninstallation.

1.1.7 Your SQL Server Database

Microsoft SQL Server Express 2005 is installed on your computer during the main Diver-Office installation. This is the database engine that handles all of your stored Diver data. Upon installation, a new SQL Server instance and database is created on your computer. The default instance name and the database name is "DIVEROFFICE". The database file and log file, DIVEROFFICE.mdf and DIVEROFFICE.ldf, are saved in the following directory:

C:\Program Files\DiverOffice\DB

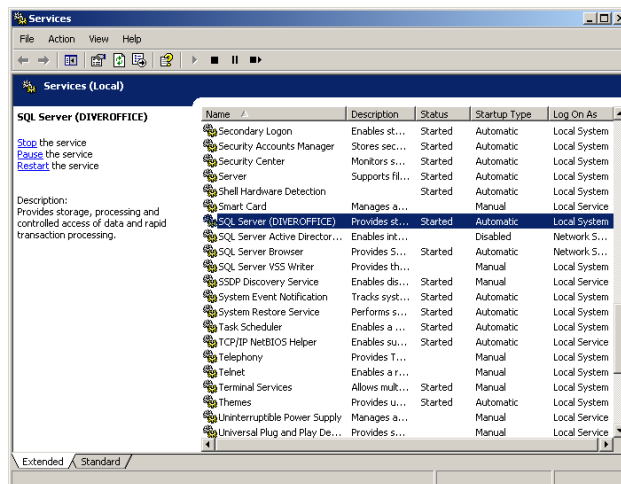
When you import or download data to your Diver-Office project, the DIVEROFFICE.mdf database file will grow in size, and vice versa.

Please note, Diver-Office can only operate with a "DIVEROFFICE" SQL Server instance name. If for any reason you need to reinstall your SQL Server instance using the standalone installation package (provided on the Diver-Office installation disk, and available for download free-of-charge from Microsoft's website), please be sure to specify "DIVEROFFICE" as the instance name in the advanced configuration options, during the SQL Server installation.

Ensuring that the DIVEROFFICE instance is running

In order for Diver-Office to access the SQL Server database, the DIVEROFFICE instance must be running. By default, the instance should always be running. However, if you are experiencing difficulties connecting to the database, you can check to see if the DIVEROFFICE instance is running. To do so, follow the steps below:

1. Click **Start > Control Panel**
2. Double-click **Administrative Tools**
3. Double-click **Services**. The services dialog will display.
4. Scroll down the list until you see **SQL Server (DIVEROFFICE)** under the name column.
5. Look under the Status column, and you should see “**Started**”.
6. If the status is **Stopped**, right-click and select **Start**, to start the service.



1.1.8 User Account Permissions

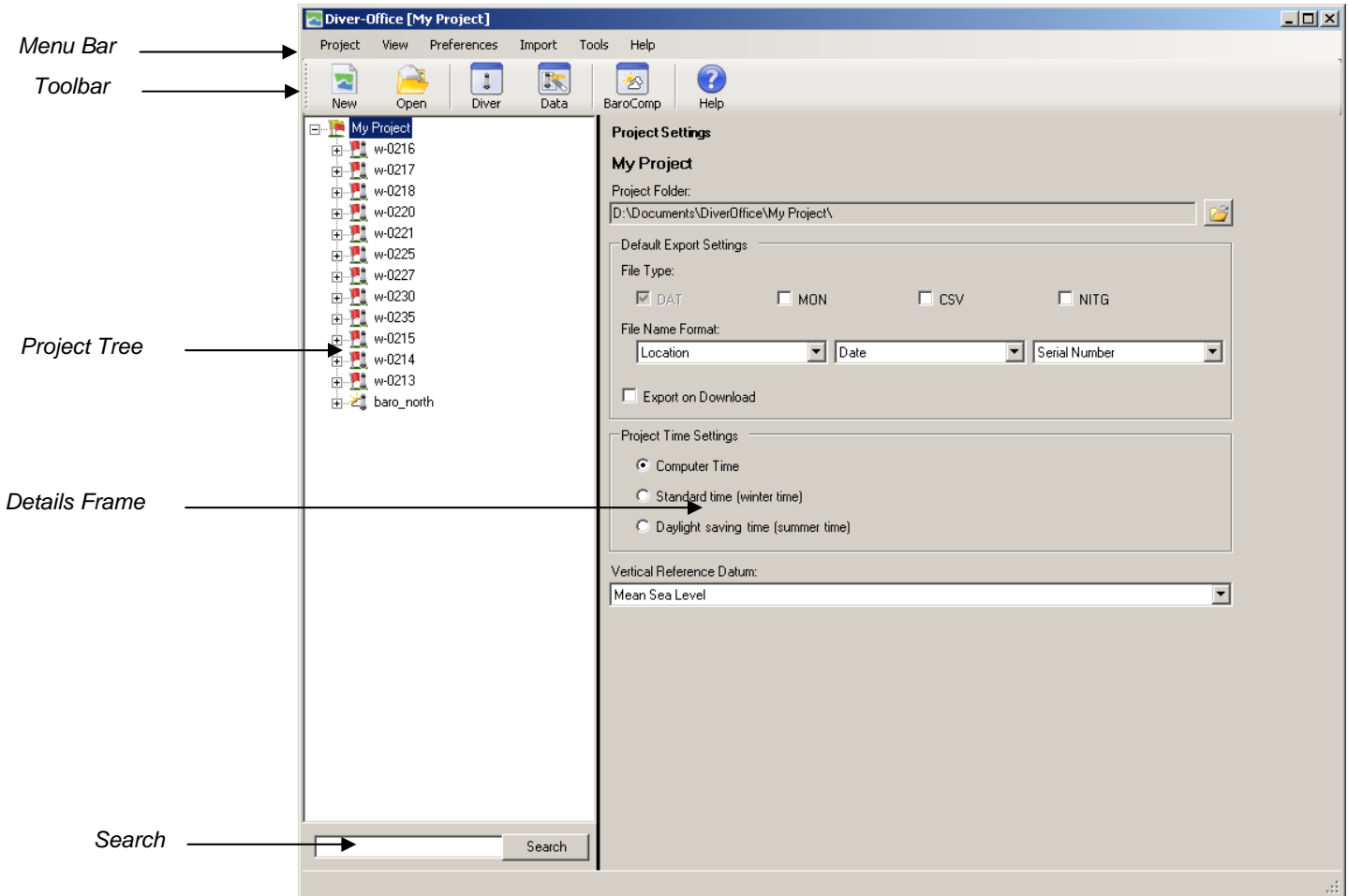
Restricted Windows users, *i.e.*, power users and guests, require access to certain folders, in order to run and operate Diver-Office. Administrators must grant restricted users full access to the following folders:

- The installation folder (default is C:\Program Files\Diver Office, or C:\ProgramFile\Diver Office Network)
- The project folder (default is C:\Users\[username]\Documents\DiverOffice)

Restricted users may also need proper SQL Server permissions to access the SQL Server database. Please contact your SQL server administrator for information on obtaining permissions for the database.

Window's Vista users, including those with administrator permissions, must also disable **User Account Control (UAC)** in the **Control Panel**, in order to run and operate Diver-Office. For information on how to disable UAC on Windows Vista, please refer to *Diver-Office Software on page 7*.

1.2 Diver-Office Interface Layout



A typical Diver-Office window is shown above. Each section is described below.

Menu Bar: Contains menu commands with access to the features that are available in Diver-Office.

Toolbar: Contains several short-cut buttons for the most frequently used Diver-Office features. Each button is described below.



New button creates a new project



Open button opens an existing project



Read Diver button opens the Diver settings dialog



Data button opens the **Data** dialog.



Barometric Compensation button opens the **Data** dialog.



Help button opens the Diver-Office help document.

Project Tree: A tree view listing all project monitoring points and their respective diver settings, time series data and manual measurements.

Details Frame: A context-sensitive window that changes depending on which level of the project tree is selected.

Search: Search for a monitoring point in the project tree by entering the name of the monitoring point and clicking the **[Search]** button.

1.3 Online Help

This manual is supplied to you in two forms: as a PDF document, and as an online help file. To view the online help version of this manual, select **Help > Contents**.

2 Using Diver-Office

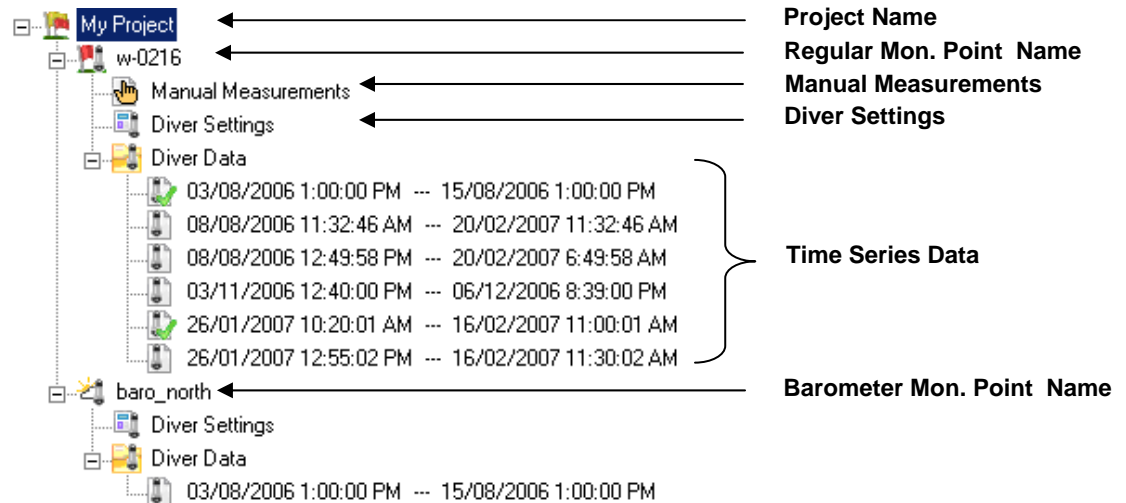
This chapter describes the features in Diver-Office that can be accessed through the project tree and the menu bar. The following content has been organized to coincide with the structure and layout of the Diver-Office interface. First, each level of the project tree is described in detail. Following this section, each item in the main menu is described.

In this chapter, you will find information on:

- Project Tree navigation
- Project settings
- Monitoring point settings
- Manual measurements
- Viewing data
- Importing/Exporting Diver data
- Filtering time series data.
- Setting Diver communication
- Creating user-defined pumping tests
- Setting default units

2.1 Navigating Diver-Office Using Project Tree

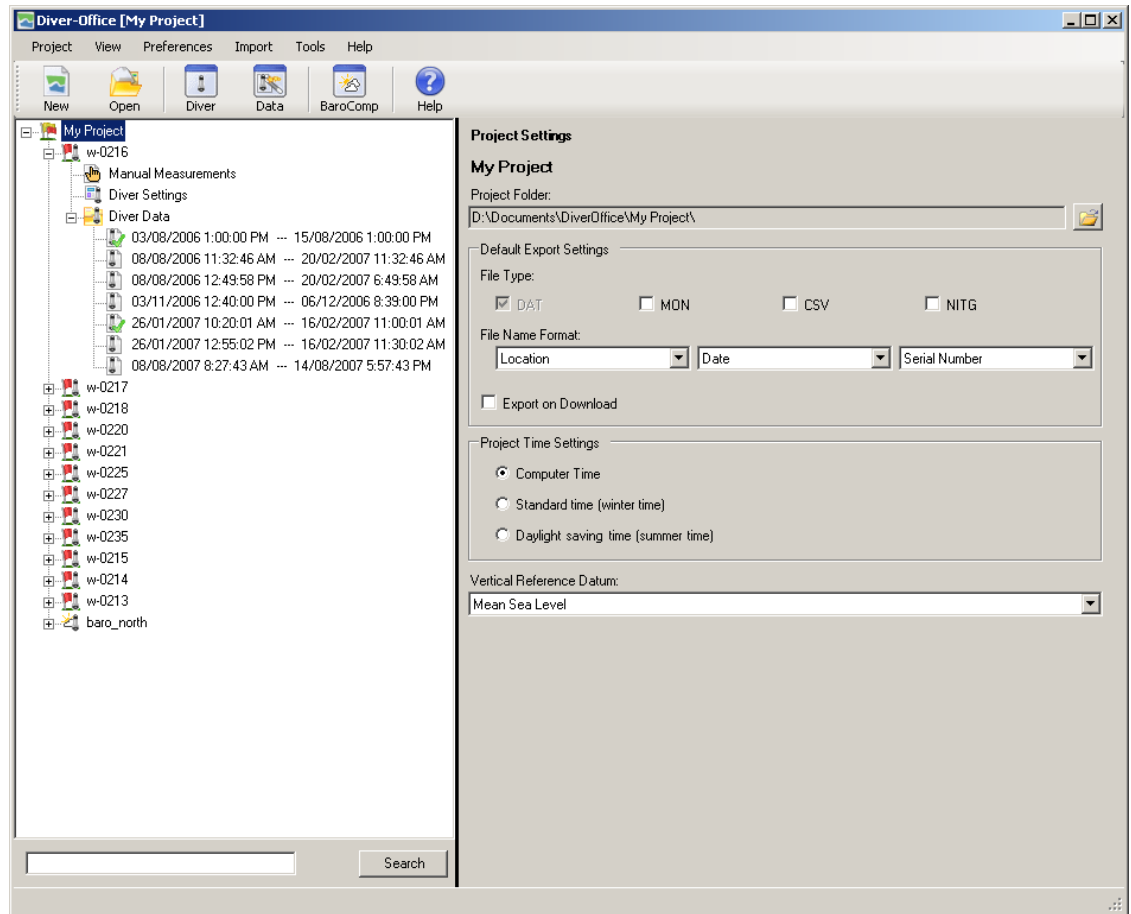
The **Project Tree** lists all of the monitoring points for the current project along with each monitoring point's manual measurements, diver settings and time series data. The basic structure of the project tree is shown below.



When a project tree item is selected, its corresponding information will be shown in the adjacent details frame. The following sections describe each tree item in more detail.

2.1.1 Project Settings


When the project tree root is selected (project name), the **Project Settings** will be shown in the adjacent details frame (shown below).



Here you can define the project settings for the current project. The available settings include:

Project Folder

The folder location where all time series data (*.MON, *.CSV and *.NITG) will be exported to. With every Diver download, a binary DAT file is created, and stored in a subfolder DAT of this location.

To change the location of the project folder, click the  **Open** button and specify a new location.

Default Export Settings

File Type: Select which file types to generate when exporting time series data. Each file type is described below:

DAT	A binary format exported with every Diver download.
MON	An ASCII file format supported by SWS software.
CSV	Comma Separated Values format, compatible with Microsoft Excel.
NITG	A standard database file format used in The Netherlands.

File Name Format: Specify the naming convention for exported time series files. 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 monitoring point 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 always include the timestamp in the filename.

Export on Download

Select this option to automatically export data whenever data is downloaded from a Diver.

Project Time Settings

For long term monitoring projects, the time of all the measurements must be aligned to a standard time to ensure that the sampling frequency is consistent when the time changes due to day light savings time. Specifying the project time in Diver-Office ensures that your Diver is always synchronized with the original Diver time and that no gaps or overlap occur in your data. You can choose from the following options:

Computer Time	The project time will always be the same as your computer time. This is how project time worked in previous versions of Diver-Office.
Winter Time (<i>Standard Time</i>)	The project time will always be synchronized with standard time, e.g., UTC + x, where x depends on the time zones in your region; day light savings will be ignored.
Summer Time (<i>Daylight Savings Time</i>)	The project time will always be synchronized with summer time, e.g., UTC + x – 1, where x depends on the time zone of your region; winter time will be ignored.

Most monitoring projects use standard time, ignoring day light savings time. In some rare cases, long-term monitoring is done using day-light savings time. Either time is acceptable, as long as it is maintained throughout the full duration of the monitoring project.

For short term projects or pumping tests, you will most likely use the computer time, as shifts in time due to day light savings are irrelevant.

Please note that in order for this feature to work, you must have the appropriate time zone selected in your computer's **Date and Time Settings**.

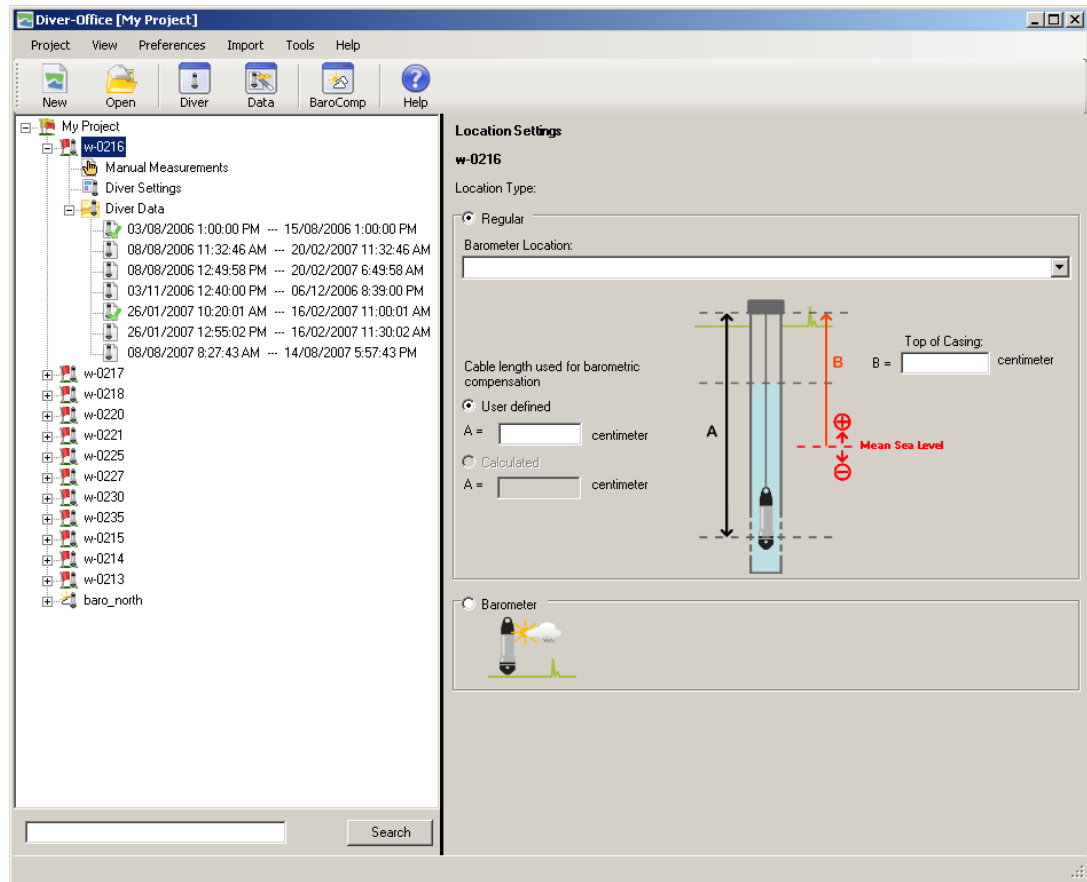
Vertical Reference Datum

The vertical reference datum used at monitoring points. Please note that this setting does not have any affect on barometric compensation calculations. If you do not know the name of your vertical reference datum please do not change the default (Mean Sea Level) setting.

2.1.2 Monitoring Point Settings

A **Monitoring Point** refers to a physical location that is associated with a Diver, *i.e.*, a specific well and a specific monitoring interval (a specific well screen). When a Diver is programmed, you can specify an appropriate monitoring point name. Monitoring point names are automatically added to the **Project Tree**, under the project name, when a Diver is programmed, or Diver data is downloaded.

When a monitoring point is selected from the **Project Tree**, *e.g.*, w0123 in the image below, the related settings will be shown in the adjacent details frame.



The location settings include the following:

Monitoring Point Type: Select between **Barometer** and **Regular**. A barometer monitoring point type contains sampled barometric time series data, whereas a regular monitoring point type contains groundwater time series data, *e.g.*, pressure, temperature and conductivity. The monitoring point type is represented by an icon in the **Project Tree**, as shown below:

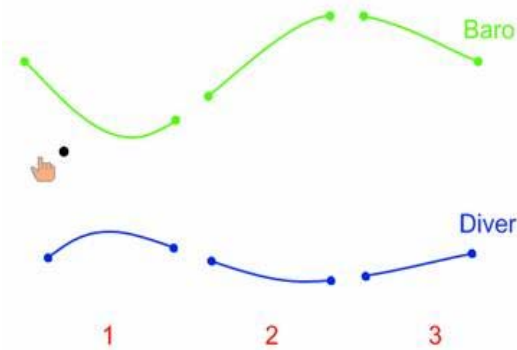
 **Barometer Monitoring Point**

 **Regular Monitoring Point**

If the monitoring point is a regular monitoring point type, then you must specify a corresponding barometer monitoring point before you can compensate its time series data. The combo box will contain all the monitoring points in the current project that have been set as a Barometer monitoring point type.

Depending on which barometric compensation method you wish to use, you may also need to specify a **cable length** and **top of casing** length. These values are represented schematically on the diagram as length **A** and **B**, respectively. Please see “Barometric Compensation Methods” on page 41 for more information on the requirements for barometric compensation.

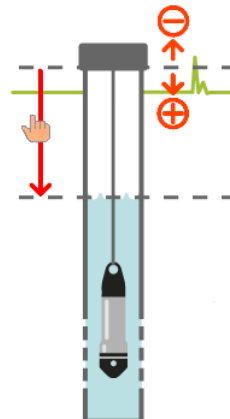
There are two options for cable length: **User Defined** and **Calculated**. The User Defined option allows you to specify a cable length to use in barometric compensation calculations. The calculated cable length option becomes available for a monitoring point only after you have performed barometric compensation on one of its time series (using the method, “with respect to TOC using manual measurements”). You can then select this option for subsequent barometric compensations without having to take a manual measurement each time. This option is very useful in situations where Diver data is collected wirelessly, *e.g.*, using Diver-Pocket, when manual measurements are rarely taken.



The diagram above illustrates the concept of using the calculated cable length option. The hand symbol represents a single manual measurement taken at a monitoring point at the beginning of a series of monitoring events. Each monitoring event is represented by a line segment at which point data is downloaded from the Diver and then compensated. After the first event, a cable length is automatically calculated by Diver-Office. When data from event 2 and 3 is downloaded, barometric compensation can then be performed using the calculated cable length generated during event 1.

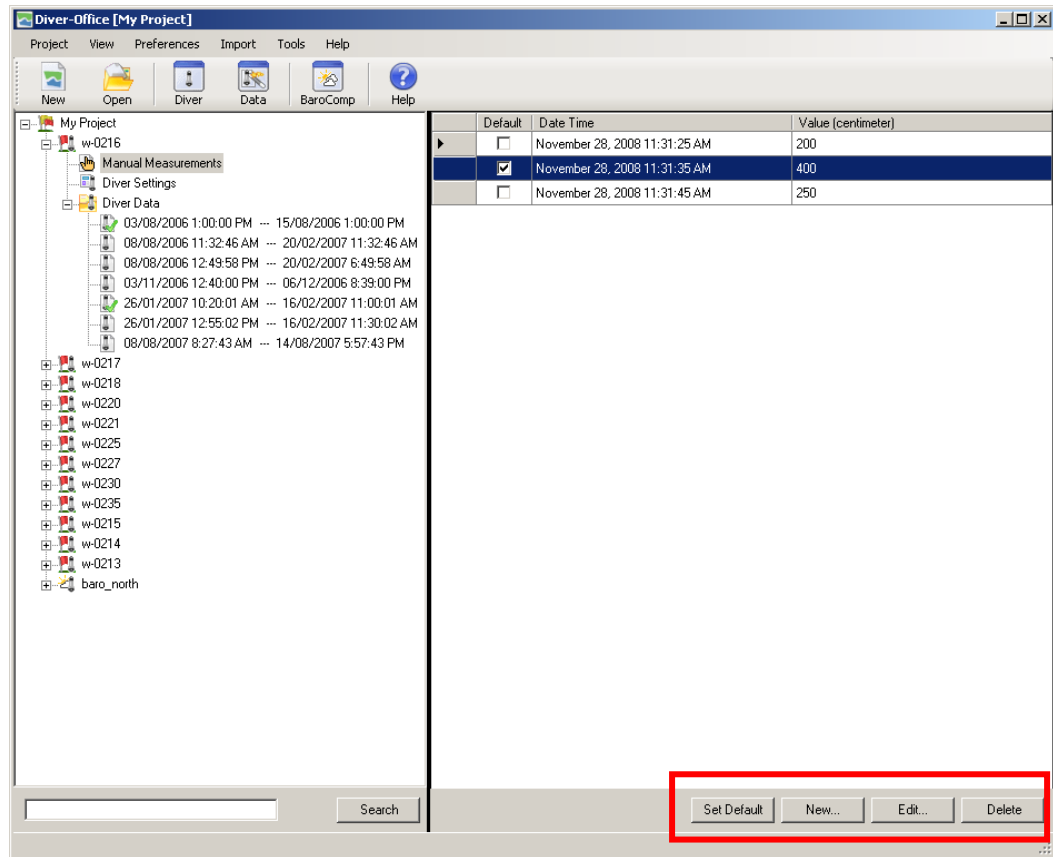
2.1.3 Manual Measurements

A **Manual Measurement** is the difference between the water level in a well and the top of casing, measured by an operator using a measuring tape (depicted in the diagram below).



Manual Measurements can be stored in Diver-Office, and then used for barometric compensation instead of cable lengths. For long-term monitoring projects spanning time changes due to day light savings, manual measurements should always be entered according to the specified project time. For example, if your project time runs on winter (standard) time, your manual measurement should be entered in standard time, ignoring daylight savings. This will ensure that your manual measurements are aligned with the internal Diver time.

When the **Manual Measurements** tree item is selected, the following screen will display.



The [**Set Default**] button allows you to specify which manual measurement to use in barometric compensation calculations. Simply select the desired manual measurement from the list, and then click the [**Set Default**] button. Alternatively, you can set the default manual measurement by clicking the appropriate check box under the **Default** column in the manual measurement list.

NOTE: The set default feature is only available in the network version of Diver-Office. For information on upgrading to the network version, please contact your SWS sales representative.

Click the [**New...**] button to add a new manual measurement to the monitoring point.

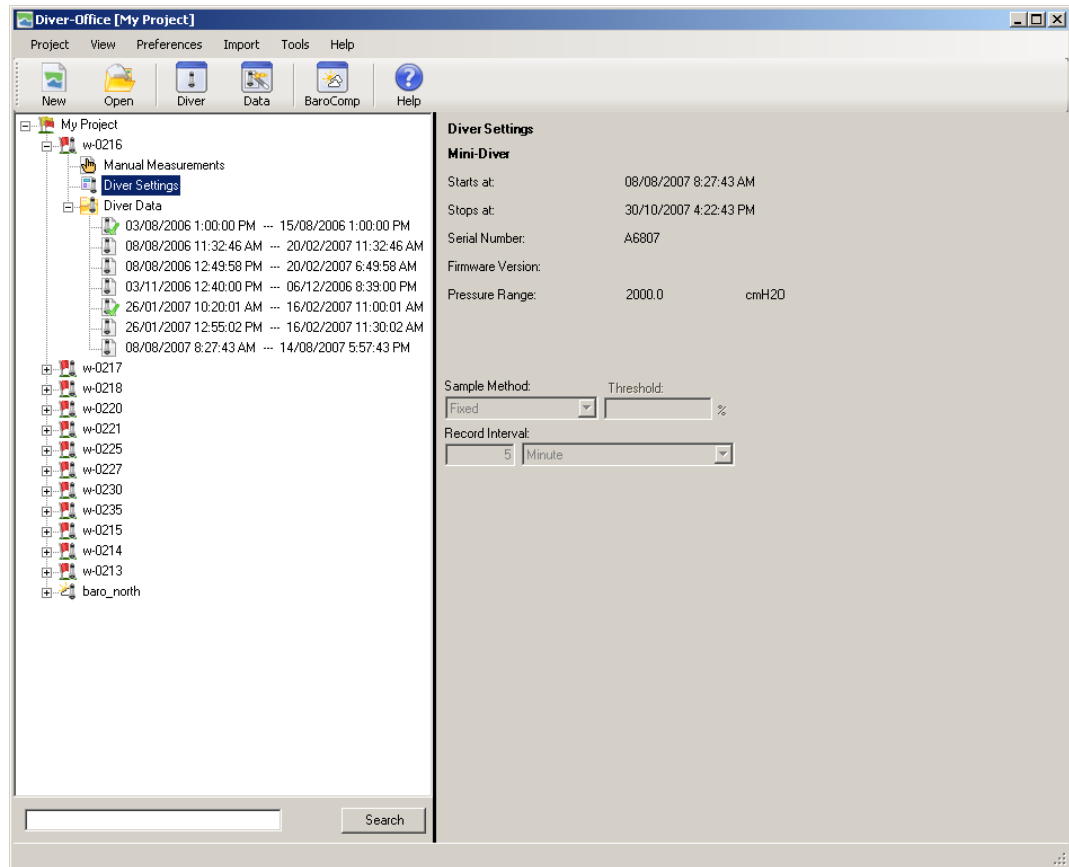
Click the [**Edit...**] button to edit an existing manual measurement.

To remove a manual measurement, simply select the manual measurement from the list and click the [**Delete**] button.

NOTE: Currently, Diver-Office does not support unit conversions for manual measurement values. If the unit for length is changed (**Preferences > Units...**), saved manual measurements will not be converted to the new length unit.

2.1.4 Diver Settings

The Diver Settings node displays the programmed settings for the current diver, for the selected monitoring point. To view the Diver settings, simply select the **Diver Settings** node and the settings will appear in the adjacent window.






The following settings are saved:

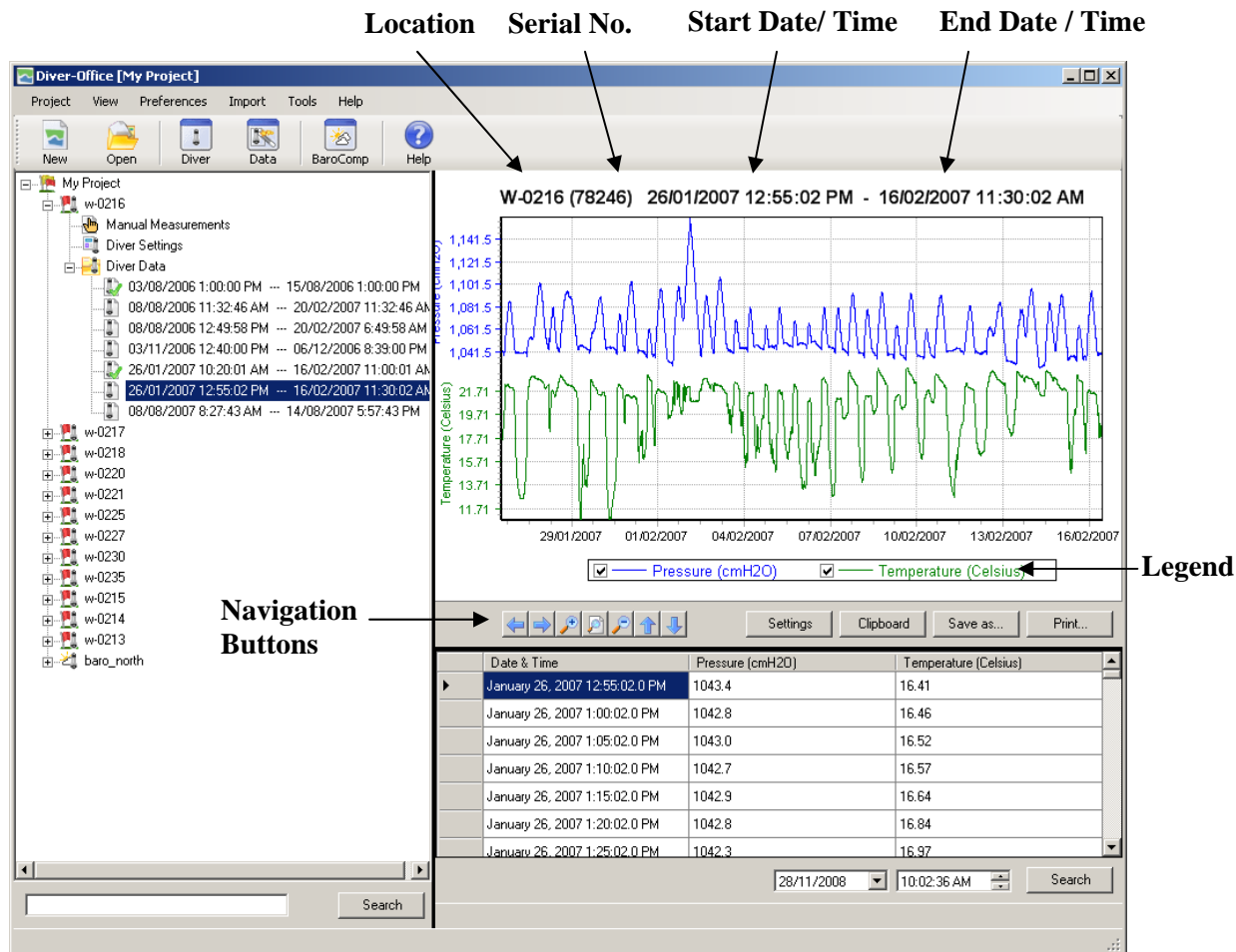
Starts at:	The time at which the Diver started
Stops at:	The time at which the Diver stops
Serial Number	The Diver's serial number
Firmware Version	The current firmware version of the Diver. This field is only updated when the Diver is started, not when Diver data is downloaded or imported.
Pressure Range	The pressure range
Sampling Method	The sampling method and sampling rate.

2.1.5 Time Series Data

In the tree view, the start and end time, and barometric compensation status is shown for each time series, for the selected monitoring point. The barometric compensation status can be either *compensated*, *partially compensated* or *uncompensated*. Each status is represented by an icon, as shown below:

	Uncompensated
	Partially Compensated
	Compensated

When a time series tree item is selected, the time series data will appear in both plot and table form (as shown below).



The buttons located below the plot allow you to navigate the time series data shown on the plot.

-  Move Left
-  Move Right
-  Zoom In
-  Reset Settings
-  Zoom Out
-  Move Up
-  Move Down

To **Search** for a particular point in the time series table, specify the date and time (located below the time series table) and click the **[Search]** button. If a match exists, Diver-Office will then highlight and focus on the time series point in the time series table.

Alternatively, you can click on a point in the time series plot and Diver-Office will highlight the corresponding record in the table below.

Clipboard

The [**Clipboard**] button allows you to copy the time series plot to your Windows clipboard. Once copied, you can paste the plot into third-party software such as Microsoft Word, Power Point, Paint etc.

Save As...

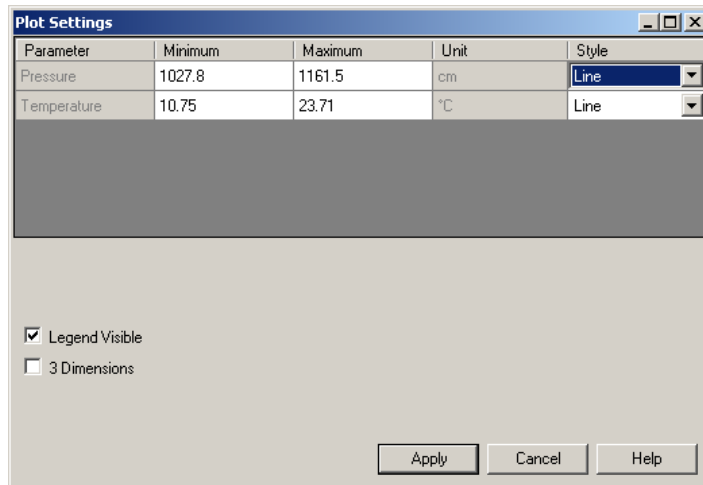
The [**Save As...**] button allows you to save the time series plot as a graphics file in Windows Metafile (*.WMF) or Enhanced Metafile (*.EMF) format.

Plot Settings

By default, the plot will show all the available parameters recorded for that particular Diver type. To show/hide parameters, simply click on the corresponding checkbox in the plot legend (shown below).



You can further modify the appearance of the plot by clicking on the [**Settings**] button.



For each parameter, choose between line and bar. You may show/hide the plot legend or show the plot in **3-Dimensions** by clicking on the appropriate checkbox.

The **Maximum** and **Minimum** fields are editable allowing you to modify the data range of the y-axis.

Click [**Apply**] to make the changes to the plot. The changes will apply to the graphs of all time series.

Printing Time Series Plots

To print a time series plot, simply click the [**Print**] button. The windows print dialog will open where you can specify the desired print settings.

2.2 Diver-Office Main Menu

2.2.1 Project

New... (CTRL+N)

Creates a new project in Diver-Office. Upon clicking, you will be prompted to enter a name for the new project. The project name must be unique and cannot contain the following special characters: \ / : * ? " < > |.

Open... (CTRL+O)

Opens an existing Diver-Office project. Upon clicking, select the desired project and click **Open**.

Delete (CTRL+D)

Deletes the current project. Upon clicking you will be prompted to confirm. Please note that once data is deleted, and can no longer be retrieved.

Settings (CTRL+S)

Shows the project settings for the current Diver-Office project. Please refer to “Project Settings” on page 12 for more information on project settings.

Exit (ALT+F4)

Closes Diver-Office.

2.2.2 View

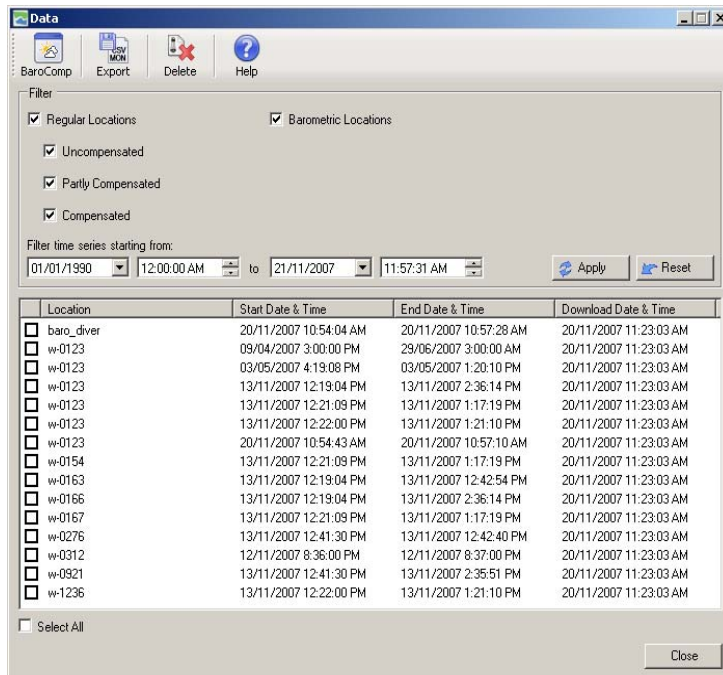
Diver (CTRL+R)

Opens the Diver dialog (shown below).

Please refer to “*Programming and Reading Divers*” on page 31 for more information on this dialog.

Data (CTRL+A)

This menu item will open the **Data** dialog (shown below).



The Data dialog contains a toolbar at the top. Below is a description of each toolbar button:



Barometric Compensation button opens the barometric compensation dialog from which you can perform barometric compensation on selected time series data.



Export Data button allows you to export selected time series data to MON, CSV and/or NITG file types.



Delete Data button allows you to delete selected time series data from the current project.



Help button opens the Diver-Office help document.

Filtering Time Series Data

By default, the Data dialog will populate all the time series data that exists in the current Diver-Office project. However, you can filter the time series data by monitoring point type, barometric compensation status and/or by start/download time.

To filter the time series data by barometric compensation status, enable/disable the checkbox(es) beside the desired barometric compensation status, *e.g.*, Uncompensated, Partly Compensated, and Compensated. For example, if you would only like to see all the time series that have been compensated, select the **Compensated** checkbox, and unselect the Uncompensated and Partly Compensated checkbox.

To filter the time series data by start/download time, specify the desired start and end time in the respective text boxes.

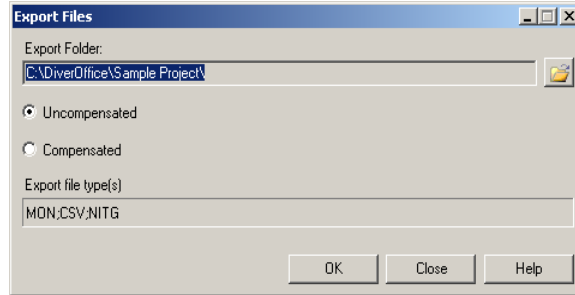
To apply the filter, click the **Apply** button.


All the time series data that satisfy the filter criteria will be displayed in the table below.

To reset the time and date filter criteria, click the **Reset** button.

Exporting Time Series Data

You can export time series data from the **Data** dialog by selecting the checkbox(es) beside the desired time series, and then clicking the **Export** button from the toolbar. The following dialog will display:



The **Export Folder** is the destination folder in which all exported data is stored on your computer. By default, the folder is set to the Diver-Office project folder. You can change the export folder by clicking on the **Open**  button and selecting a new destination folder. When data is exported, it is always saved in a corresponding subfolder, *e.g.*, MON, CSV and DAT, based on the exported file types.

You can export the time series data in either uncompensated form or compensated form, by selecting the appropriate option.

Click the **[Ok]** button to export the data. The data will be exported in the file formats specified in the Project Settings. Please see section “*Project Settings*” on page 12 for more information on setting the Default Export Settings.

Barometric Compensation

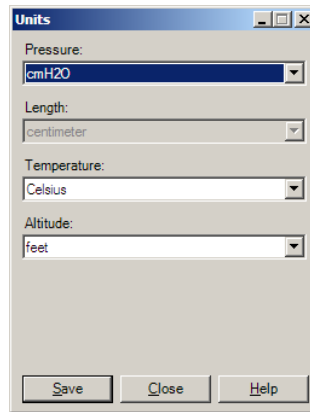
You can perform barometric compensation on selected time series data in the **Data** dialog. Simply select the checkbox(es) for the desired time series data and click the **BaroComp** button from the toolbar.

This will open the Barometric Compensation dialog. Please refer to Chapter 3: Barometric Compensation on page 41 for more information in compensating time series data.

2.2.3 Preferences

Units (CTRL+U)

Opens the default unit settings for the current Diver-Office project. The following dialog will display:

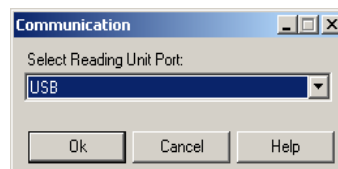


To change the units, simply select the desired units from the combo boxes and click the **[Save]** button.

Note: The **Length** unit always appears grayed-out and is dependent on the **Pressure** unit. For example, if the pressure unit is mH2O, the length unit will automatically change to meters.

Communication (CTRL+SHIFT+C)

Opens the Diver communication settings for the current Diver-Office project. The following dialog will display:

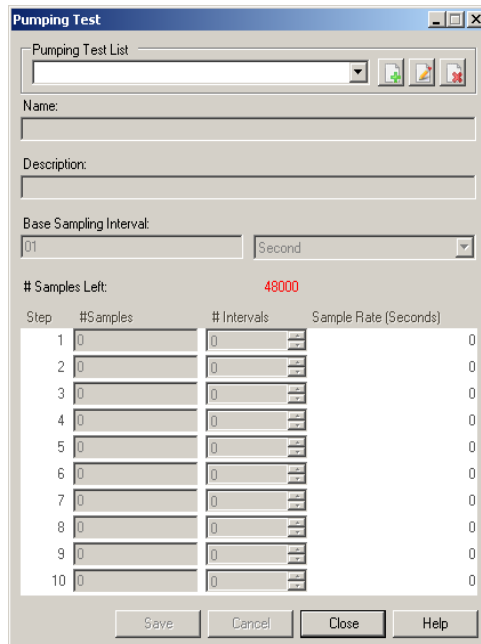


If you are using a USB Reading Unit/Interface Cable to communicate with Diver dataloggers, you must select USB as the reading unit port. If you are using a Diver that requires a serial port connection, *i.e.*, Flowman Diver, then you must select the appropriate COM port from the combo box.

Once selected, click **[Ok]** to apply the changes.

Pumping Test (CTRL+P)

Certain Divers can be programmed with a user-defined pumping test sample method. The basic principle of a pumping test is that the sample interval increases over time. Here you can create, edit and delete a user-defined pump test (only for Micro-Diver and Cera-Diver). Upon selecting, the following dialog will display:



To add a new pumping test, click the **Add New Pump Test** button. The fields below will become active.

Specify a **Name**, **Description** (optional), and **Base Sampling Interval**. Next, define the number of samples and number of intervals required for each step in your sampling method. Please note that the total number of samples must add up to the total memory of the Diver, or else you will be unable to save the sample method.

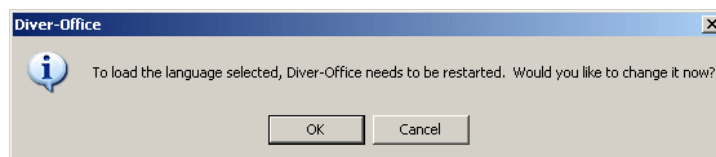
Once finished, click the **[Save]** button. The sample method will now be added to the list of sample methods in the Diver dialog.

To delete a pumping test sample method, select the method from the combo box and click the **Delete Selected Pump Test** button.

To edit a pumping test sample method, select the desired pump test from the dropdown list and click the **Edit** button.

Languages

This option allows you to change the Diver-Office language. Diver-Office supports various languages including: **English**, **Netherlands**, **Spanish**, **Portuguese** and **German**. Once you make a selection, you will be prompted with the following message:



Click **[Ok]** to restart Diver-Office and load the selected language.

Set Server Settings... (CTRL + G)

This option allows you to connect to a remote Diver-Office database in a network environment. In order to successfully connect to a remote database, the host computer/server needs to be configured to allow incoming remote SQL Server connections. This is typically done by a network system administrator. For more information on how to configure the host

computer for remote database access, please refer to the Quick Reference Guide “Configuring Diver-Office for Remote Database Access”, located on the Diver-Office installation CD.

NOTE: This feature is only available in the network version of Diver-Office. For information on upgrading to the network version, please contact your SWS sales representative.

When this menu item is selected, the following dialog box will appear on your screen:



To connect to a database, follow the steps below:

1. The **Server name** field lists all of the detected SQL Server databases on the network (including the default local Diver-Office database, e.g., [your computer name]/diveroffice). Select the desired database from the **Server name** combobox. If the desired database does not appear in the combobox, be sure that the computer hosting the database has been configured correctly (See “Configuring Diver-Office for Remote Database Access”, located in the Quick Reference Guides folder on the installation CD).
2. Once the database has been specified, select **Use SQL Server Authentication** or **Use Windows Authentication** option.
3. a) **Use SQL Server Authentication:** When you or the network system administrator configured the host computer for network access, a SQL Server login account should have been created for each user that requires remote access to the database. Enter your assigned **User Name** and **Password** in the appropriate fields.



- b) **Use Windows Authentication:** Skip to Step 4. No user name or password is required.
4. Click the [**Test Connection**] button to confirm that the specified information is valid. Diver-Office will show you a message indicating if the connection was successful or if it failed.
5. Finally, click the [**Ok**] button to connect to the remote database.

NOTE: You cannot backup or restore a database via a remote database connection. These tasks must be done on the computer on which the database is hosted.

When connecting back to your local Diver-Office database, select the appropriate database from the **Server name** combobox, e.g., [your computer name]\diveroffice, and select the **Use Windows Authentication** option for the log on method.

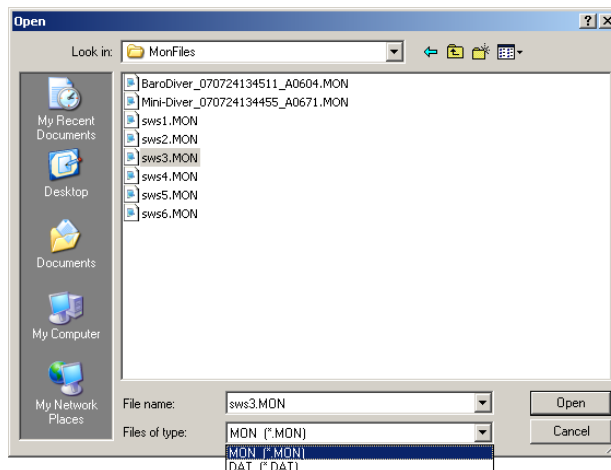
2.2.4 Import

There are several ways in which you can import Diver data into your Diver-Office project. You can import *.MON or *.DAT files, transfer data from field devices such as Diver-Pocket and Diver-Mate, and migrate data from LoggerDataManager 5.x databases.

Whenever data is imported, it is passed through Diver-Office's QA/QC filter which checks for erroneous data and maximum/minimum values in the data. For more information on the QA/QC filter, please skip ahead to section *Viewing the QA/QC Log on page 38*.

Diver Data (CTRL+E)

This option allows you to import Diver data into Diver-Office, from both MON and DAT file formats. When selected, the following dialog will display:



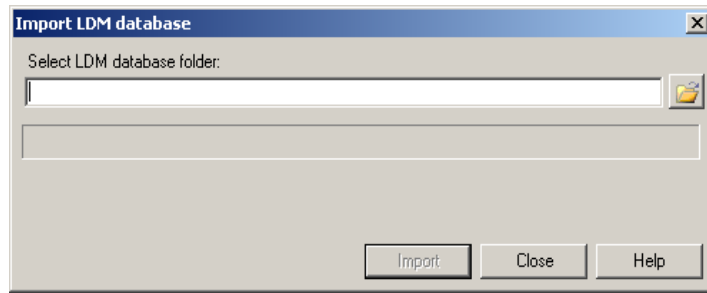
Here you can browse and select the desired data file(s) to import. You can make multiple selections by holding the CTRL key on your keyboard and clicking each file. Once selected, click the **[Open]** button to import the data into Diver-Office.


NOTE: Diver-Office supports MON files generated in LoggerDataManager version 4.0 and higher, Diver-Pocket, Diver-Office and DiverMate.

If the monitoring point name in the data file already exists in the Diver-Office project, the measurements will be added to that monitoring point. If the monitoring point in the data file does not exist in the Diver-Office project, it will be added to the Project Tree.

LDM Data (CTRL+L)

This option allows you to import data from a *LoggerDataManager 5* or higher databases into a Diver-Office project.



To import LDM data, click on the  **Open** button, and browse to the desired LDM database folder. By default this directory will be:

C:\Program Files\LDM\EXE

Select the **DB** folder, and click **[Ok]**.

After validating the LDM database, Diver-Office will transfer the data and import it into the current project. Please note that it is possible that some data in your LDM database may not be imported into Diver-Office. In this case, it is likely that these time series data were originally downloaded to LDM from Divers not supported by Diver-Office.

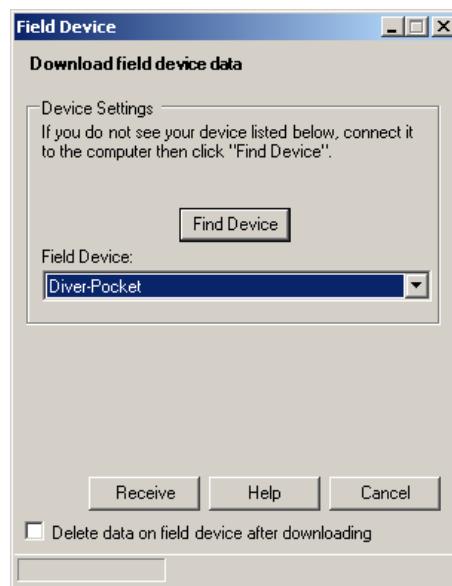
NOTE: This feature only supports databases from LDM version 5 and higher.

Import Diver-Pocket / Diver-Mate (CTRL + M)

This option allows you to import data directly from external field devices such as Diver-Pocket and Diver-Mate.

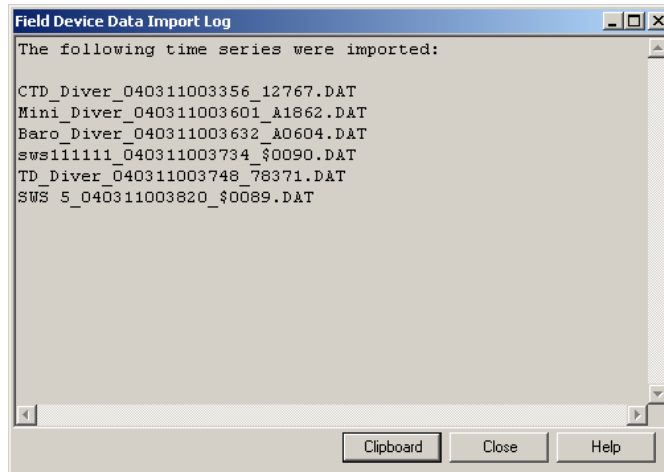
Note: For *Windows XP* operating systems, **ActiveSync** software must be installed on your computer to successfully import data into Diver-Office from Diver-Pocket. Please see the **System Requirements** section for information on how to download this software. For *Windows Vista* operating systems, **Windows Mobile Device Centre** software must be installed on your computer. The setup program for this software comes with Windows Vista, and is launched automatically when your Pocket-PC is connected to the computer for the first time.

When this menu option is selected, the following dialog will display:



To import data from a field device, follow the steps below:

6. Ensure the field device is connected to your computer through a USB port. If you are connecting to Diver-Pocket, ensure that the Pocket PC is sitting in its cradle.
7. If the connected device does not show automatically in the **Field Device** combo box, click the **[Find Device]** button.
8. Select the desired field device from the **Field Device** combo box.
9. (Optional) Select the empty checkbox beside **Delete data on field device after downloading**, to delete the data on the field device once the data has been imported into Diver-Office. Leave the check box empty to retain the data on the field device.
10. Click the **[Receive]** button to import the data into your Diver-Office project.
11. Once the import process has finished, a log window will display (shown below) listing the time series that were imported, and those that were not.



For more information on Diver-Pocket and Diver-Mate, please visit the following links:

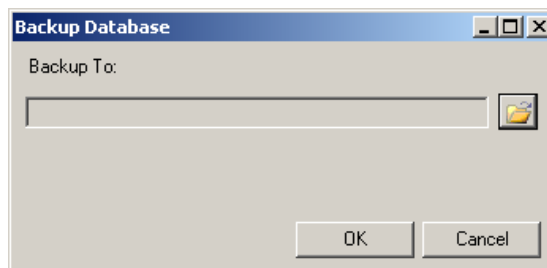
Diver-Pocket http://www.swstechnology.com/software_product.php?ID=49

Diver-Mate http://www.swstechnology.com/equipment_product.php?ID=15

2.2.5 Tools

Backup Database (CTRL + K)

Use this option to create a backup copy of the SQL Server database. A backup of the database can be helpful, in order to preserve data, or to detach and send the database to colleagues. When this option is selected, the following dialog will appear on your screen:



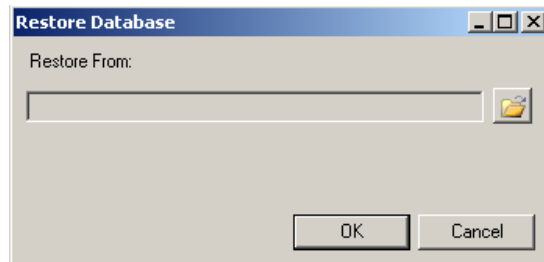
Click the  **Open** button, and specify a monitoring point and a name for the database file. It will be saved with the .BAK file extension.


NOTE: You cannot backup a database via a remote database connection. This task must be done on the computer on which the database is hosted.

NOTE: SQL Server does not permit saving the back up copy of the database to a mapped network drive; it can only be saved to a local drive.

Restore Database (CTRL + T)

Use this option to restore a Diver-Office database from a backup file (.BAK), in case of accidental data deletion, or loss due to mechanical failure. When this option is selected, the following dialog will appear on your screen:



Click the  **Open** button, and locate the desired backup file (.BAK). Once selected, click the **[Open]** button.

NOTE: You cannot restore a database via a remote database connection. This task must be done on the computer on which the database is hosted.

2.2.6 Help

Help (F1)

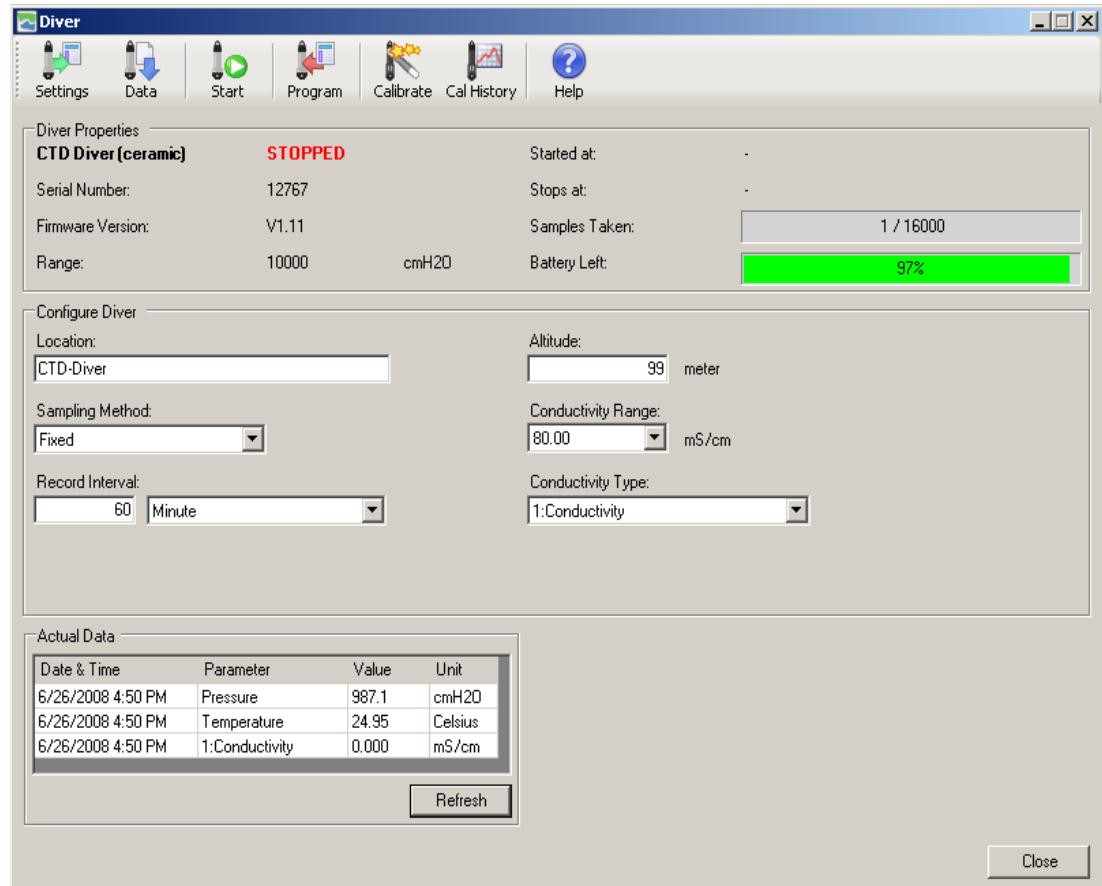
Displays the Diver-Office Online Help documentation.

About... (CTRL + B)

Displays the Diver-Office information dialog. This contains the version number and information on how to contact Schlumberger Water Services.

3 Programming and Reading Divers

The **Diver** dialog can be accessed by clicking **View** from the main menu and then selecting **Diver**, or by selecting the Diver button from the toolbar. Alternatively, you can press **CTRL + R** on your keyboard. Upon clicking, Diver-Office will attempt to read and display the settings of the connected Diver. The following dialog will show:



The **Diver** dialog (shown above) is the main interface in which you can communicate with Divers. From this dialog you can:

- Read Diver settings.
- Program Diver settings
- Start/Stop Divers
- Download Diver data into Diver-Office.
- Read actual data from connected Divers.
- Calibrate CTD-Diver

Each of these procedures is described in the following sections.


Please note that in order to communicate with Divers you have to select the appropriate communication method from **Preferences/Communication** dialog, and the Diver must be connected to the computer (see below).

3.1 Connecting to a Diver

The method used to connect Divers depends on the manner in which the Diver is installed in the borehole:

- Divers suspended in the borehole on a steel cable will need to be removed from the borehole prior to connection. The Diver is connected to the computer using a USB reading unit.
- Divers suspended on a DDC (Diver Data Cable) do not need to be removed from the borehole. Simply use an interface cable to connect the Diver to the computer.

3.2 Reading Diver Settings and Data

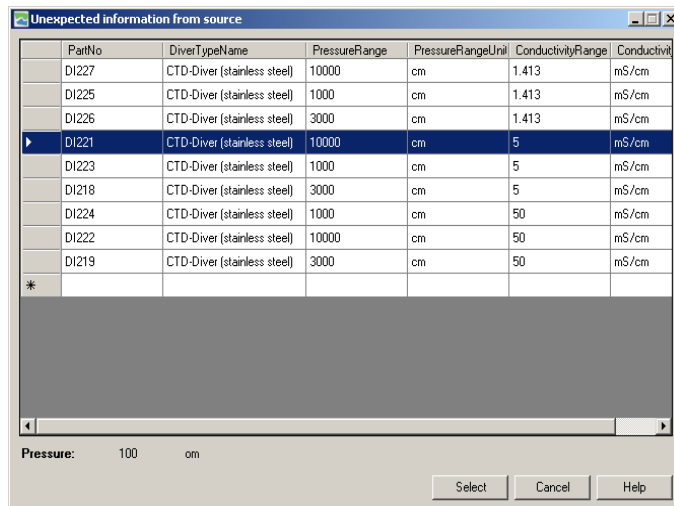
To read the settings from a Diver, simply click the  **Settings** button. The following settings will be returned:

Setting	Description
Diver Type	The type of Diver, <i>e.g.</i> Mini-Diver, Micro-Diver, CTD-Diver
Diver Status	The status of the Diver can either be STARTED or STOPPED . If you use future start or smart future start, the status can also be FUTURE START .
Started at	The time at which the Diver was started
Stops at	The time at which the Diver stops. Note: The calculated stop time is simply based on the specified record interval and does not take into account the battery life of the Diver. A stop time is only calculated for Divers programmed with the Fixed or Averaging sampling method.
Serial Number	The serial number of the Diver.
Memory Left	Displays the amount of memory left in the Diver as a progress bar
Battery Left	Displays the amount of battery power remaining in the Diver
Firmware Version	Firmware version of the Diver.
Range	The pressure range of the Diver.
Conductivity Range	The conductivity range of the Diver (<i>CTD-Diver only</i>).
Monitoring point	The assigned monitoring point for the Diver.
Sampling Method	The sampling method, <i>e.g.</i> , Fixed, Event Based, User Defined Pumping Test.
Sampling Interval	The time between two successive measurement readings
Record Interval	The time between two successive stored measurements
Altitude (if applicable)	The altitude above sea level

3.2.1 Invalid Diver Information

Other datalogger management software applications, such as Enviromon, allow you to modify the stored pressure range of certain Divers. However, it is important that the correct pressure range is read by Diver-Office because pressure calculations are based on this value. In other words, if an invalid pressure range is read, Diver-Office will not calculate the pressure values correctly. As such, each time Diver settings are read, Diver-Office automatically validates the pressure range to ensure that it matches the expected value for that Diver type.

If Diver-Office detects an invalid pressure range in the Diver, you will be prompted with the following dialog:




In the dialog above, the Diver being read has been programmed with a pressure range value of 100cm. Diver-Office has detected that this value is invalid, and requires that you make a selection from the list of Divers. Select the appropriate Diver from the list and click the **[Select]** button. Remember, the Diver part number is engraved on the casing of your Diver.

Diver-Office will then store the correct pressure range in the database for future reference.

If you accidentally choose the wrong Diver from the list, delete the Diver monitoring point from your project, and then read the Diver settings again. You will then be prompted with this dialog and you can select the correct Diver.

3.3 Programming Diver Settings

Once the settings have been read, you can modify and program the following Diver settings: **Monitoring Point**, **Sample Method**, **Sample Interval**, **Altitude** (if applicable) and **Conductivity Range** (if applicable). Each setting is described in more detail below.

Once you have defined the settings for the Diver, click the  **[Program]** button to save the settings to the Diver.

3.3.1 Monitoring Point

A monitoring point is a unique name given to a Diver and is usually associated with the physical location in which the Diver is deployed, *i.e.*, a specific well and a specific well screen. Since the monitoring point name will be used as part of the filename for exporting data, the name does not accept special characters that would lead to an invalid filename.

When programming a Diver you may select an existing monitoring point name from the **Monitoring Point** combobox, or specify a new name by typing the desired name.

3.3.2 Sample Method and Sample Interval

The Sample Method may be **Fixed**, **Event Based**, **Averaging (for the Micro-Diver and Cera-Diver only)** one of the predefined pumping test settings (**Setup A, B or C**), or **User Defined (for the Micro-Diver and Cera-Diver only)**. Each sampling method is described below:

Fixed

When this method is selected, the Diver will take and store samples in regular time intervals. The time interval must be specified in the **Record Interval** text box.

For example, with a 10-second fixed record interval, the Diver will take a measurement every 10 seconds on all channel settings and then store these values in internal memory, with the date and time.

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 parameter is conductivity.
- If no samples were stored for the past 250 samples.

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 **Sampling Interval**.

Predefined Pumping Tests

Diver-Office includes three convenient predefined pumping tests available from the Sampling Method dropdown list box for Divers that support this feature, *e.g.*, TD-Diver, Cera-Diver and Micro-Diver.

The specifications of these predefined sampling methods are as follows:

Pumping Test Setup A

Base Sample Rate: 0.5 seconds.

Step	Number of Samples	Number of Intervals
1	1200	1
2	5400	2
3	41400	10

Pumping Test Setup B

Base Sample Rate: 1 second

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

User Defined Pumping Test (Cera-Diver and Micro-Diver only)

If none of the predefined pump tests are suitable, you can define and select your own customized pumping test sampling method. To read more on how to create pumping tests, please *see Pumping Test on page 24* for more information.

Averaging Sample Method (Cera-Diver and Micro-Diver only)

When programmed with the Averaging Sample method, the Diver samples data at a specified “fast” rate (**Sampling Interval**) and then stores an average of these values at the specified averaging rate (**Record Interval**).

For example:

Record Interval: 1 hour

Sampling Interval: 1 Minute

When programmed and started with these settings, the Diver will *read* a sample every minute, and *record* an average of the samples every 1 hour.

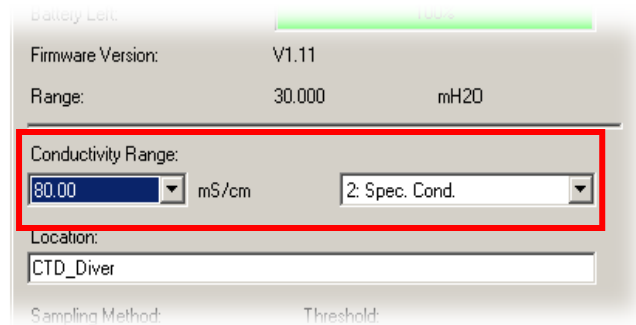
3.3.3 Altitude

Enter a value for the altitude above sea level of the location of the Diver. This only applies to the TD- and CTD-Divers. The value entered should be in the same units that are programmed in the Diver, *e.g.*, meters or feet. The value must lie within the following range:

- 300 m to 3,000 m (-984 ft to 9,842 ft)

3.3.4 Conductivity Range

For CTD-Diver DI-263, two additional fields will appear in the Monitoring Point settings when the diver settings are read (shown below).



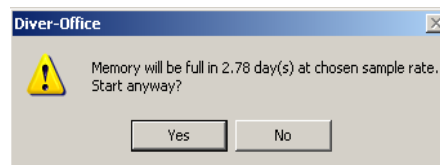
For the **Conductivity Range**, choose between 80.00 or 30.00 mS/cm. In the adjacent combo box, select between **1. Conductivity** or **2. Spec. Cond.** Please refer to your Diver manual for more information on these settings.

3.4 Starting a Diver

Before you can start a Diver, the settings must have been read and the Diver status must be STOPPED.

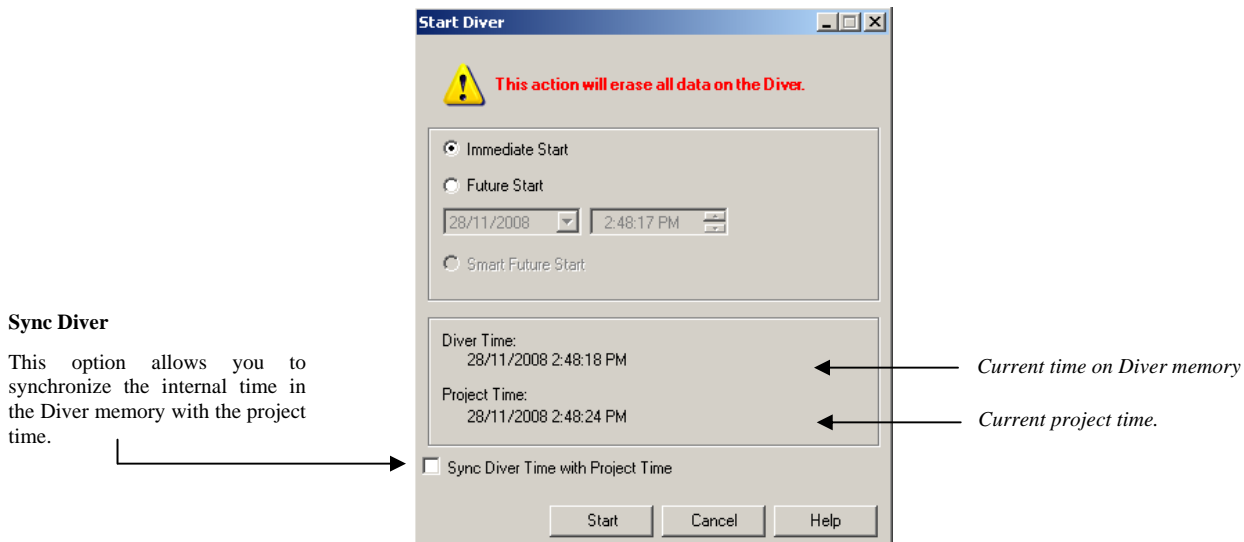
To start the Diver, click the  **Start** button from the toolbar.

Upon clicking, you may be prompted with a warning message indicating the estimated operating time until the Diver memory is full, at the chosen sample rate. An example is shown below:



If the given time estimate is suitable, click [**Yes**] to continue. Otherwise, click [**No**] to return to the Diver dialog where you can modify the sample interval.

Upon clicking [**Yes**], the **Start Diver** dialog will display (shown below):



Here you can select from the following three start methods:

Immediate Start

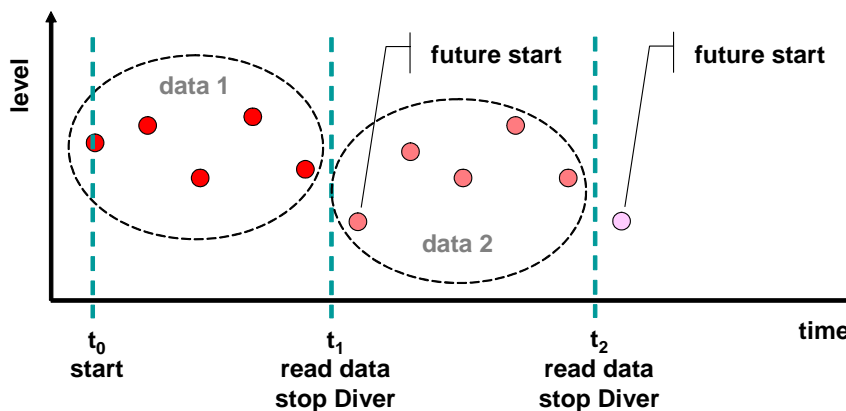
Select this option to start the Diver immediately. Upon clicking **[Start]**, the Diver will begin to take and record samples, as defined in the Diver settings.

Future Start

Select this option to start the Diver at a specified time in the future. Use the date and time boxes to enter the desired future start time.

Smart Future Start (SFS)

This option is useful in situations where you want to stop the Diver, download its data and then continue collecting data at the specified sample interval. In other words, this option allows you to download data in contiguous segments, while maintaining a consistent sample interval. SFS can be explained best through the diagram shown below.




At t_0 the Diver is started. At t_1 , the Diver is stopped and the data is downloaded. Upon restart, the Diver is started using the Smart Future Start time. At t_2 , the Diver is stopped again and the data is downloaded. Upon restart, the Diver is started using the Smart Future Start time, etc.


After selecting the desired start method, click the **[Start]** button to save the start settings to the Diver.

Note: Starting a Diver will erase all data on the Diver. Please be sure to download your data before starting the Diver.

3.5 Stopping a Diver

To stop a Diver you must first read the settings of the Diver, and then click the  **Stop** button. A confirmation screen will display to prevent accidental stopping of the Diver.

3.6 Downloading Diver Data

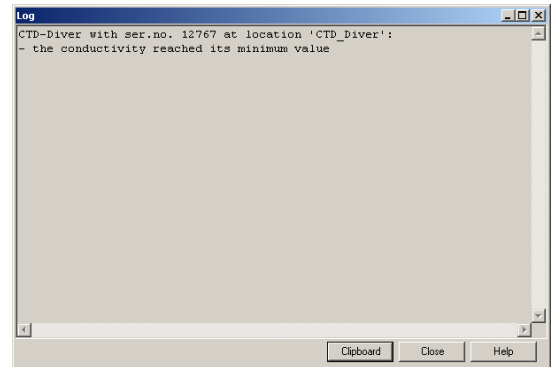
To download the data recorded by the Diver click the  **[Data]** button. During the data download the progress is indicated by a progress bar. Once the data has been downloaded it will be exported if this option is selected in the Project Settings. Subsequently, the program will jump to the tree view where the downloaded time series will be selected and a graph/table of the data will be shown.

Viewing the QA/QC Log

When data is downloaded or imported, Diver-Office performs a basic check for data that may be erroneous or corrupted. If erroneous data is detected, Diver-Office will list the time-series information and reason in the QA/QC log (shown below).

Some reasons for corrupted Diver data may include:

- The data includes **maximum** or **minimum** values, *e.g.*, for a CTD-Diver, if conductivity values are equal to the minimum values of zero this may suggest that the Diver wasn't properly submersed in water. If data is equal to the maximum this may suggest that the conductivity range is not suitable.
- The data is corrupted due to a low battery in the Diver.



Click the **[Clipboard]** button to copy the contents of the QA/QC log to the Windows Clipboard for pasting into other text-based software.

If you are experiencing difficulties with your Diver, please contact SWS technical support.

3.7 Actual Data

The **Actual Data** frame (shown below) allows you to view the Diver time and measurements in real time.

Date & Time	Parameter	Value	Unit
23/05/2008 4:19 PM	Pressure	997.0	cmH2O
23/05/2008 4:19 PM	Temperature	25.14	Celsius
23/05/2008 4:19 PM	2:Spec.cond.	0.000	mS/cm

Refresh

If the Diver is connected to Diver-Office, *e.g.*, through an interface cable or optical reading unit, click the **[Refresh]** button and Diver will take a sample and display the real time measurements in the table.


Note: Real time reading of Diver parameters is only supported for the following Divers: **CTD-Diver, Micro-Diver, Mini-Diver** and **Cera-Diver**. For all other Divers, Diver-Office will display the last measurement stored in the Diver's memory and not the real time values.

3.8 Calibrate CTD-Diver

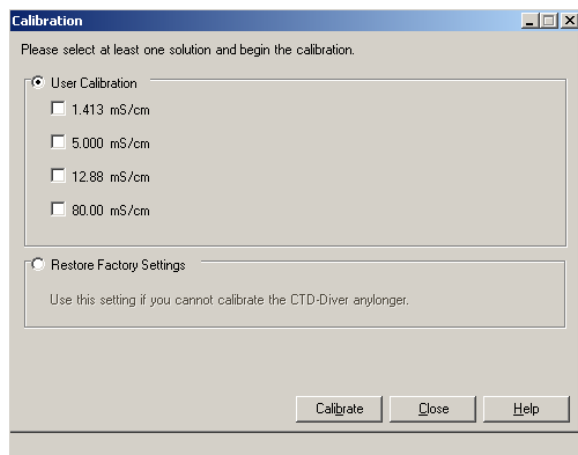
Diver-Office allows you to calibrate the ceramic CTD-Diver as well as retrieve the calibration history from the CTD-Diver. It is recommended that you regularly calibrate the CTD-Diver to ensure that it accurately measures conductivity. You can read more about the calibration in the product manual of the CTD-Diver.

It is extremely easy to calibrate a CTD-Diver with Diver-Office. You only need to place the CTD-Diver in a calibration solution with a standard conductivity. These solutions can be obtained from suppliers of laboratory equipment.

The ceramic CTD-Diver can be calibrated at a maximum of four points. The solutions should have a temperature between 5 °C(41 °F) and 30 °C(86 °F). It is advisable to place the fluid(s) in the room where the calibration is to take place long before actual calibration starts to allow the fluid temperature to stabilize.

To calibrate a CTD-Diver, click the  **Calibrate** button located in the **Diver** dialog toolbar. **Note:** This button will only become available if the Diver is recognized as a CTD-Diver.

Upon clicking, the following dialog will display:



The Calibration dialog box contains the following elements:

- Title bar: Calibration
- Instruction: Please select at least one solution and begin the calibration.
- Radio button: User Calibration
 - 1.413 mS/cm
 - 5.000 mS/cm
 - 12.88 mS/cm
 - 80.00 mS/cm
- Radio button: Restore Factory Settings
 - Use this setting if you cannot calibrate the CTD-Diver anylonger.
- Buttons: Calibrate, Close, Help

User Calibration

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

Click the **[Calibrate]** button to begin calibrating the CTD-Diver.

A message will appear stating that all data on the CTD-Diver will be erased by the calibration process. Click **[Yes]** to continue or click **[No]** to cancel.

You will be prompted to immerse the CTD-Diver in the selected solution. Click **[OK]** to continue. If you are using multiple solutions, you will be prompted to calibrate from lowest concentration to the highest concentration specified.

Diver-Office will then calibrate the CTD-Diver according to the specified solutions. If the calibration is successful, a confirmation message will appear. If the calibration fails,

- check to make sure you are using the appropriate calibration solution
- ensure that the Diver is connected securely to the Reading Unit
- ensure that the Diver's sensors are submerged in the solution

For more information on calibrating CTD-Divers, please consult the CTD-Diver product manual.


Restore Factory Settings

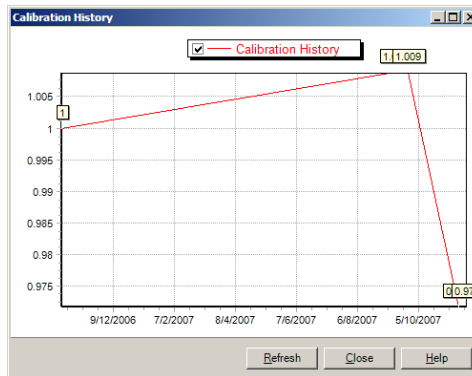
Select this option to manually reset the Diver calibration. This option can be useful if you are experiencing difficulties calibrating your CTD-Diver.

When this option is selected, click the **[Calibrate]** button to perform the reset.

3.9 Calibration History

Every time a CTD-Diver is calibrated, the calibration settings are saved to the Diver's internal memory.

To view the calibration history of a CTD-Diver, click on the  **Calibration History** button from the Diver dialog toolbar. The calibration history will be plotted on a graph, as shown below.



This feature is useful for monitoring changes in calibration over time which may aid in explaining significant variations in anomalies. **Note:** In order to view a CTD-Divers calibration history, the Diver must be connected to the reading unit/interface cable.

Zooming

Using the mouse, left-click and drag the cursor downwards to zoom into a point of interest on the graph. Release the left-button of the mouse to zoom into the defined area. To zoom back out, click the **[Refresh]** button.

4 Barometric Compensation

4.1 What is Barometric Compensation

A Diver measures the groundwater level with a highly accurate pressure sensor that measures an absolute pressure. This pressure is equal to the ‘weight’ of the water column above the measuring instrument plus the prevailing air pressure. Subtracting these air pressure measurements from the absolute pressure measurement ‘compensates’ for air pressure variations. This can be done quickly and easily using Diver-Office.

The barometric compensation process uses linear interpolation for air pressure values if they are not measured at the same time as the water level. The sampling interval of the barometer does not have to be the same as the Diver measurements it compensates. It only has to register the variations in the atmospheric pressure; a measurement with a fixed sampling speed of 1 per 30 minutes is usually good enough.

Divers measure the groundwater level with respect to the Diver itself, *i.e.*, the water column height above the Diver. However, Diver-Office allows you to express water levels with respect to an external reference, *e.g.*, vertical reference datum, top of well casing. The following section describes the three different barometric compensation methods, the barometric compensation procedure, and the compensation results.

Using a Baro-Diver

SWS manufactures a Baro-Diver that samples and records atmospheric pressure. This Diver can be located at various positions, for instance: in an Office, in the well (in the part where there is no water) or on a floating device such that the distance between the air-water interface and the Baro-Diver is always constant. The latter configuration will avoid large temperature variations in the Baro-Diver.

Usually only one Baro-Diver suffices for more than one Diver. The area where the Divers are deployed must have the same barometric pressure. This depends on the terrain (mountains and lakes can affect barometric pressure) and how large the deployment area is. Sometimes more than one Baro-Diver is used for one iso-barometric data, where one functions as a backup in case the other Baro-Diver fails.

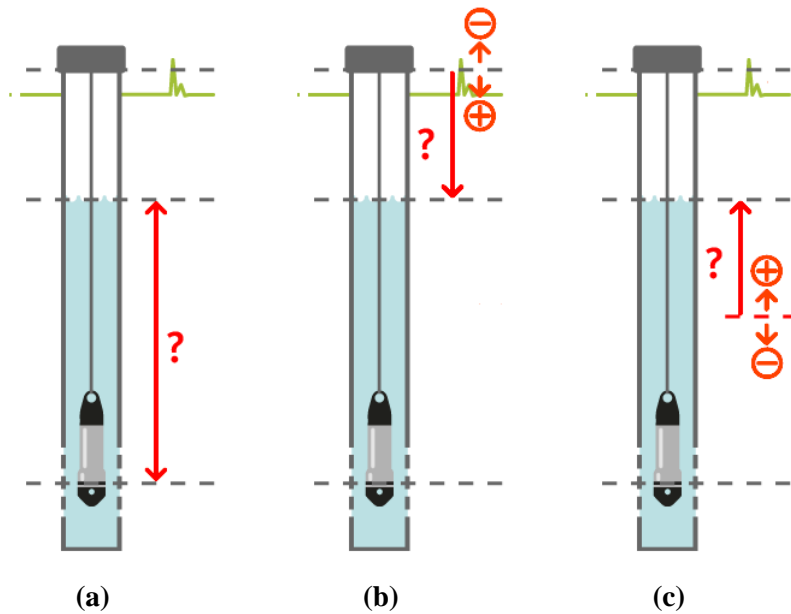
Baro-Diver data can be downloaded, and assigned to any Diver for barometric compensation. Please refer to “Monitoring Point Settings” on page 14 for information on how to assign a Baro-Diver monitoring point to a regular monitoring point.

4.2 Barometric Compensation Methods

Water levels can be compensated and expressed in the following three ways:

- The height of the water column above the Diver
- With respect to the top of well casing (ToC)
- With respect to a vertical reference datum

These three different options are depicted in the picture below. In the last two options either a cable length must be given or a manual measurement must be used.



The 3 supported Barometric Compensation methods.

NOTE: The direction of the plus and minus sign changes for the water column with respect to the vertical reference datum or the top of casing. If the water level is above the vertical reference datum it has a **positive** value. If the water level is below the top of casing it has a **positive** value. The same holds for the manual measurement. If the water level is above the top of casing the manual measurement has a negative value.

4.3 Setting Up Your Project

Depending on which barometric compensation method that you wish to use, you may have to provide additional location information before performing barometric compensation. For example, options (b) and (c) require that you either have performed manual measurements or that you have specified a cable length and a top of casing (ToC) measurement. The table below outlines the required parameters for each barometric compensation option.

Please refer to “*Monitoring Point Settings*” on page 14 for more information on defining a cable length and ToC measurement for a location. Also, refer to “*Manual Measurements*” on page 16 for more information on adding manual measurements for a location.

Parameter	Water Column	Vertical Reference Datum		Top of Casing	
		Cable Length	Manual Measurement	Cable Length	Manual Measurement
Barometer	•	•	•	•	•
Top of Casing		•	•		
Cable Length		•		•	
Manual Measurement			•		•
Vertical Reference Datum		•	•		

• = Required Parameter

For the barometer and the manual measurement, there are additional requirements with respect to the time series of the Diver that will be compensated:

- The barometer time series and the Diver time series must (partly) overlap
- If the manual measurement is used it must fall within the barometer time series and the Diver time series.

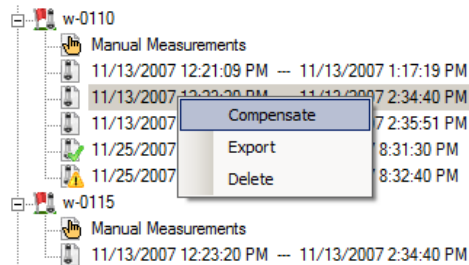
If these conditions are not met, the Barometric Compensation cannot be performed.

4.4 Compensating the Data

Barometric Compensation can be done in one of two ways: from the time series node in the project tree or from the data dialog.

From the Project Tree

To compensate time series data from the project tree, simply right-click on the desired time series, and select **Compensate** from the pop-up menu (shown below).

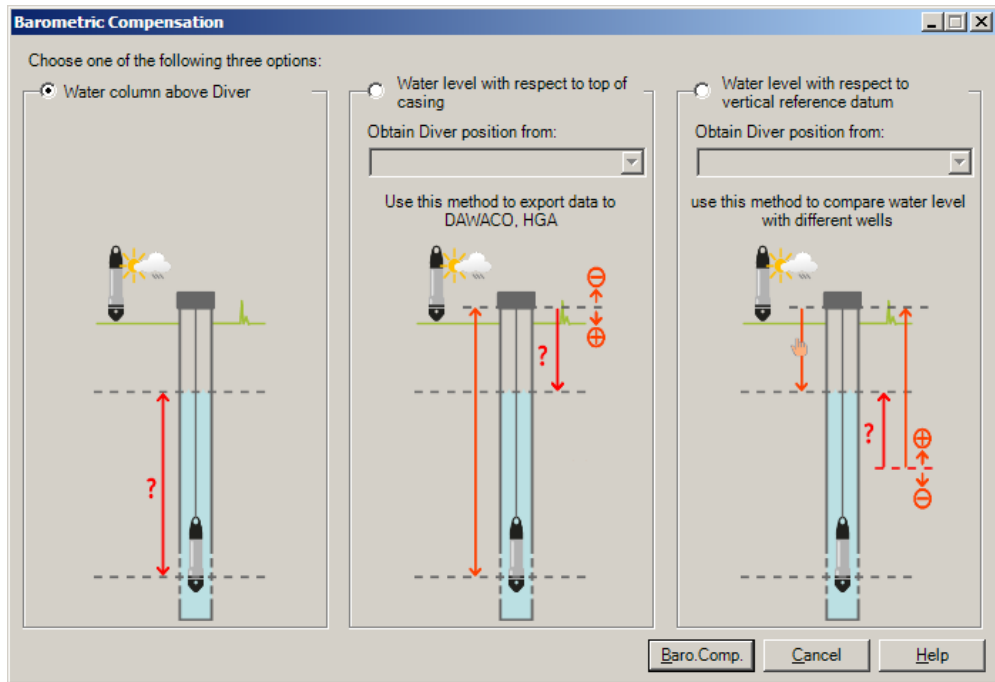


From the Data Dialog

To compensate time series data from the Data dialog,

- Go to **View / Data**, or press **CTRL + A** on your keyboard.
- Select the desired time series data from the table by selecting the corresponding checkbox(es).
- Click the **[Baro. Comp.]** button

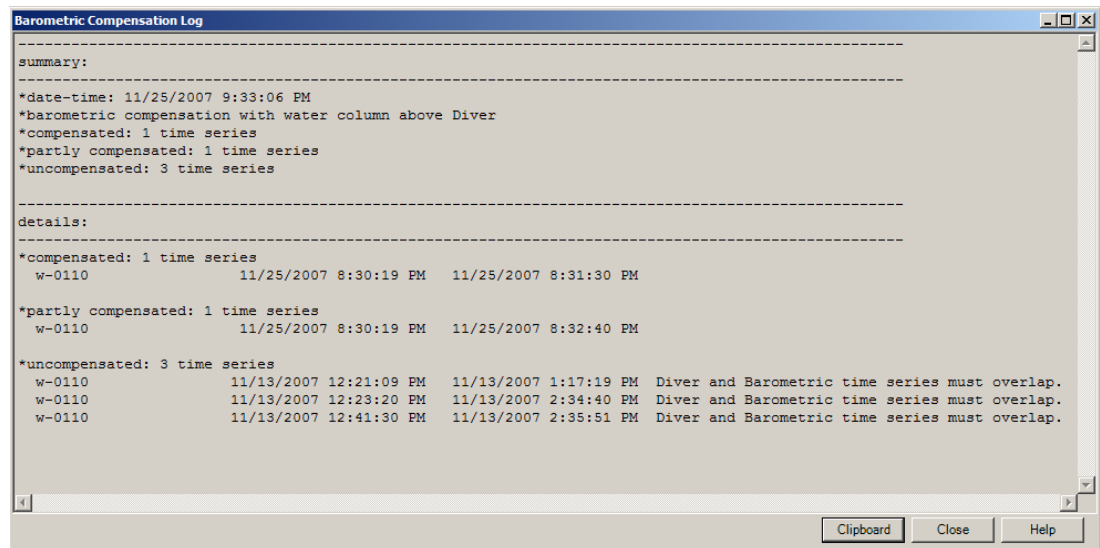
In both cases, the following Barometric Compensation dialog will open (shown below):



Here you can select the appropriate barometric compensation method. Once selected, click the [Baro. Comp.] button.

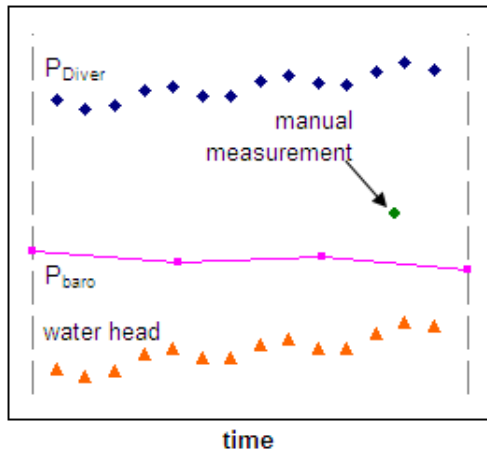
4.5 Barometric Compensation Results

The results of the barometric compensation are presented in a **Barometric Compensation Log**. This log will open whenever you attempt to compensate time series data. An example of the log is shown below.

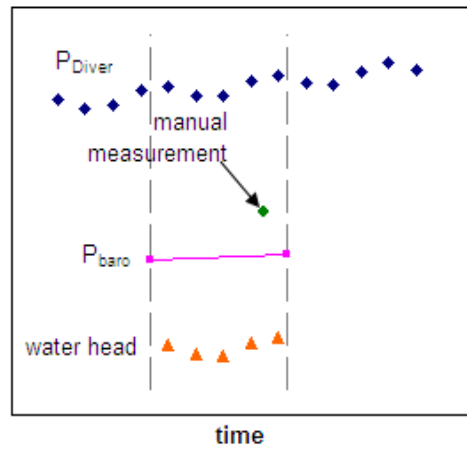


The barometric compensation log includes the date and time of the compensation, the compensation method used, and the results of the compensation, *i.e.*, compensated, partly compensated, uncompensated, for each of the selected time series.

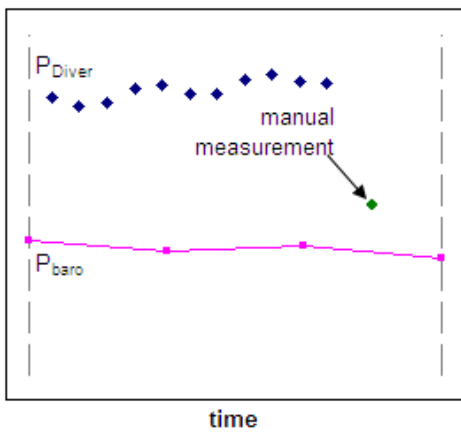
There are six possible outcome scenarios that can be displayed in the Barometric Compensation Log. These scenarios are depicted in the diagrams on the following page:



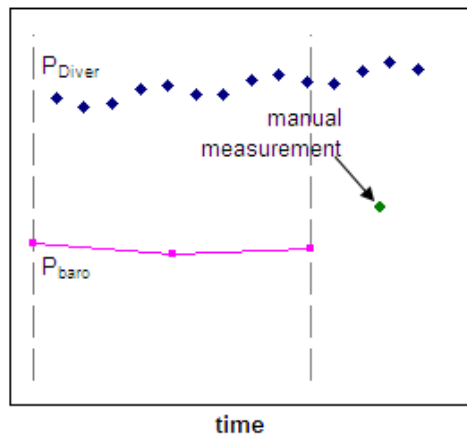
Compensated



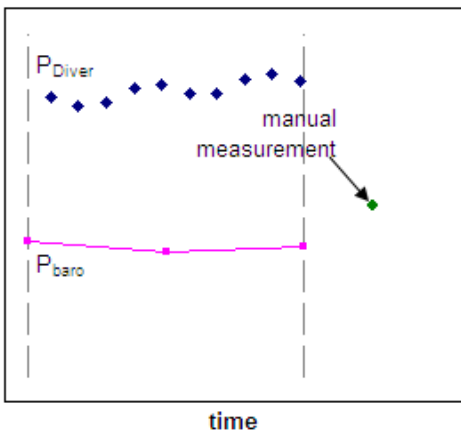
Partly compensated



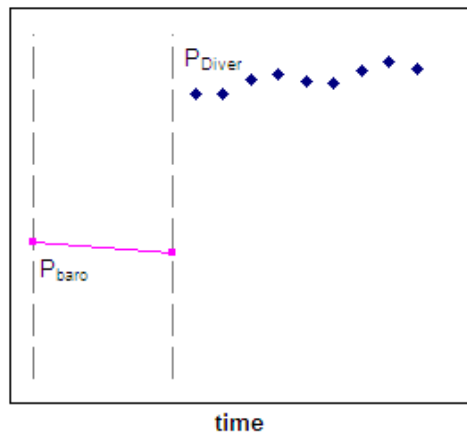
Uncompensated – manual measurement not in time span of time series



Uncompensated – manual measurement not in time span of barometer time series



Uncompensated – manual measurement not in time span of Diver time series and barometer time series



Uncompensated – no overlap of Diver time series and barometer time series

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