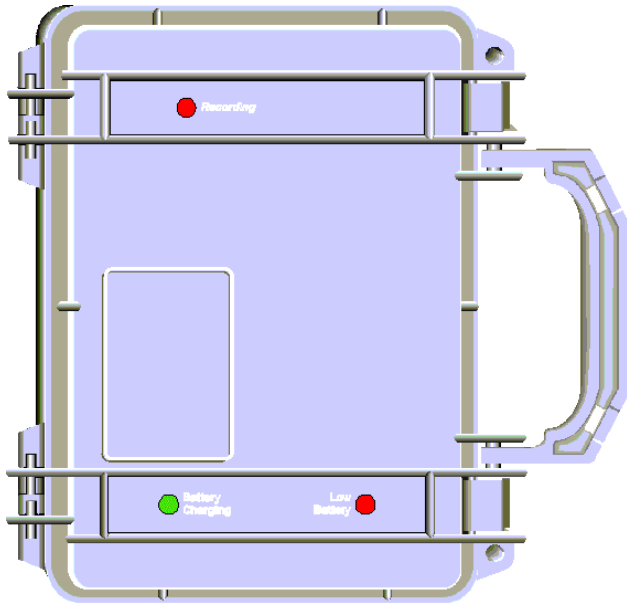




Northwood Power
Instruments Inc.



*Silent Partner SPHD*TM

True RMS Current/Voltage Logger

***Silent Partner SPHD™* User's Guide**

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Introduction to *Silent Partner SPHD*

The *Silent Partner SPHD* by Northwood Power Instruments Inc. represents the leading edge in low cost current and voltage recording. The design of the *Silent Partner SPHD* draws on Northwood's experience of over a decade in the field of solid-state recording. High reliability surface mount components and state of the art technology make the *Silent Partner SPHD* the most dependable, low cost, True RMS logger available.

The *Silent Partner SPHD* is an ideal recorder where small size and portability are required. Durability and ease of operation are built in. The software is full featured and easy to use and understand.

Features

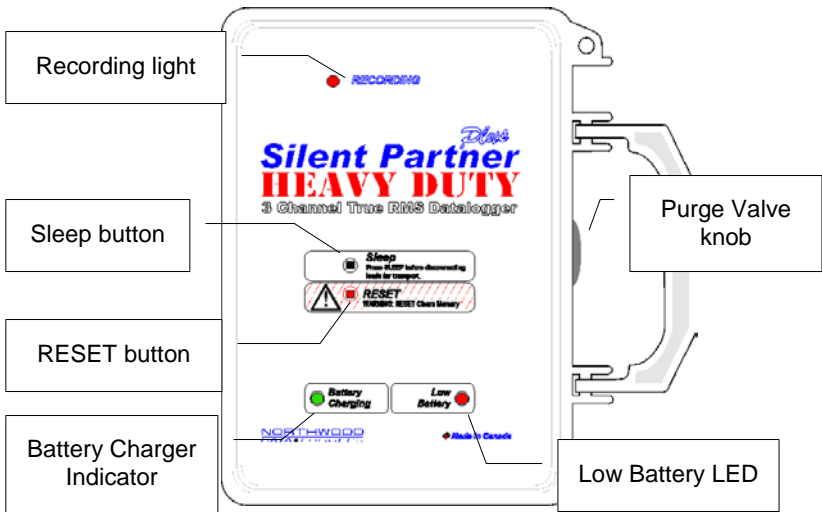
- | | |
|--------------------------|--|
| ✓ True RMS Measurements. | ✓ Measure voltage or current on any channel. |
| ✓ 12 Bit Resolutions. | ✓ Powered by internal battery and adaptor. |
| ✓ $\pm 0.25\%$ Accuracy. | ✓ Downloads with Silent Partner software. |
| ✓ Longer battery life. | ✓ Heavy duty case. |

Sample Applications

Because the *Silent Partner SPHD* uses a 12-bit A/D converter, it can be used to monitor many devices where accuracy is important. Some possible applications:

- Energy Studies
- Machinery and motor analysis
- HVAC studies
- Electrical Utilities
- Peak shaving and Load Management

The Logger - Inside Front Cover



Battery Charger Indicator:

When the Battery Charged light is ON it indicates that the battery is charging. When the Battery Charge light is OFF it indicates that the battery is not fully charged.

Low Battery LED:

When the Low Battery light is Blinking it indicates that the battery is LOW and need to be fully charged. When the Low Battery light is OFF it indicates that the battery is fully charged.

Recording light:

The Recording light blinks while **Silent Partner SPHD** is logging.

Sleep button:

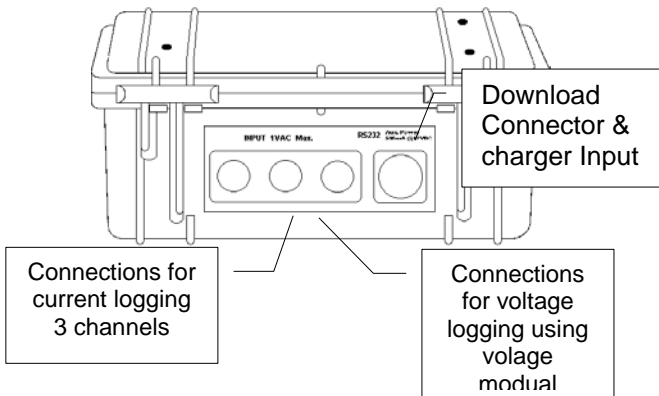
The Sleep button is a recessed control. Press the Sleep button before disconnecting or transporting **Silent Partner SPHD** to stop the logging function and power down the logger to standby mode. This minimizes the risk of data loss and prevents the logger from recording 0 data levels after it has been disconnected.

RESET button:

The RESET button is a recessed control. Press RESET after transporting the logger to the survey site and connecting it. Resetting clears the logger's memory, clears the Under Voltage/Over Voltage and Over Current event detection lights, and begins a new survey.

Because resetting clears the logger's memory, make sure to download any logged data before pressing RESET.

The Logger - Connectors



Current and Voltage logging:

There are 3 labelled connections for Current/Voltage logging. These labels correspond to the Ch1, Ch2 and Ch3 labels that appear in dialog boxes.

Silent Partner PowerPack and Windows®

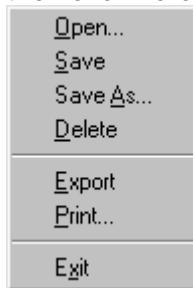
Silent Partner PowerPack is a Windows-based application so you will find the interface familiar. It employs the same menu structure and screen navigation as other Windows programs. Simply make selections using a mouse, or from the keyboard by pressing the underlined letter of the command you wish to select. Dimmed menu items are unavailable.

Silent Partner also uses Windows file management functions.

To do this....

- select a previously stored survey ⇨
- save a survey with its current name ⇨
- save a survey with a new name ⇨
- delete an existing survey ⇨
- export a survey in Lotus.WK1 format ⇨
- print the current report or change print setup ⇨
- exit **Silent Partner PowerPack** software ⇨

click **F**ile then click here.



For additional information on using Windows refer to your Windows documentation or on-line Help.

Important Safety Notice

Although this device is designed to be as safe as possible, safety in use is the responsibility of the operator who must be suitably qualified and / or authorized.

- The device should not be brought into contact with any surface water, as the unit is not hermetically sealed, and ingress of water could damage the electronics as well as causing a potential shock hazard.
- Never work alone with high voltage circuits. Make certain that a qualified observer is watchful and aware of your intentions.
- When installing the device near high voltage circuits, connections should be made to the circuits while the power is off.
- NEVER exceed the maximum input to the logger of 1-volt RMS. Doing so could result in personal injury and or damage to the logger.

Quick Start

This section provides an overview to help you get started quickly. Please read through the remainder of this manual for important information on the correct setup and use of the **Silent Partner SPHD** logger and **Silent Partner PowerPack** software.

Preparing to Log:

1. Install **Silent Partner PowerPack** software.
2. Start **Silent Partner PowerPack** software.
3. Connect the **Silent Partner SPHD** logger at the PC serial port.
4. Select the logger type and serial port, set the time and date, and specify the data logging parameters.
(**S**etup, **L**ogger **S**erial **P**ort), (**L**ogger, **S**et **T**ime and **D**ate)
(**L**ogger, **C**hange **P**arameters)
5. Disconnect the logger from the PC.
6. Connect the logger to the load you wish to monitor.
7. **RESET** the logger to begin your survey.

After Your Survey:

1. Disconnect the logger from the load and connect it to the PC.
2. Start **Silent Partner PowerPack** and download the data.
(**L**ogger, **D**ownload **S**P **D**ata)
3. Setup the Power, Costing or Pulse calculations.
(**S**etup, **R**ange/**P**ower), (**S**etup, **R**ange/**P**ower),
(**S**etup, **P**ulse **R**ate **P**eriod)
4. Select a display group.
(**S**etup, **M**easurement **S**cale)
5. Select a report type.
(**V**iew, *report type*)
6. Tailor the report's appearance to suit your needs.
(**S**etup, **D**isplay/**P**rint **O**ptions)
7. Print the report and save the file.

Installing Silent Partner PowerPack Software

System Requirements:

Windows 3.1 or greater
VGA display (colour recommended)
COM1, 2, 3, or 4 (serial communications port)
Hard disk with 1 megabyte free

Before you can use your *Silent Partner* logger, you need to install the software. Your computer must be IBM compatible, running Windows version 3.1 or better, with a VGA display (colour strongly recommended), and a hard disk or network drive with at least 1 megabyte of free space. Although not essential, a mouse makes using the *Silent Partner* software much easier and faster. You should be familiar with running applications in Windows.

To install the software:

- Make sure that your computer is running Windows.
- Insert the *Silent Partner* distribution disk in drive A:.
- Select Program Manager (click the **Start** button in Windows).
- Select Run from the File menu (click Run in Windows).
- In the Command Line dialog, type "**A:\SETUP**".

Setup will ask if you want to change the default names for the Data Directory and the Export Directory. These are the directories where downloaded data and export data are stored. After you click on OK, Setup will begin installing the software to your hard drive. A program group called *Silent Partner* will be created containing the *Silent Partner* icon. As with any Windows application, the *Silent Partner* software is run by double clicking the icon with the mouse. Now that the software installation is complete, you can begin using your *Silent Partner* right away.

Logger Hookup

- If you have not already done so, you should install the software and set the *Silent Partner SPHD*' internal clock to the correct time, number of channels and storage rate.
- Test the *Silent Partner SPHD* before you install it. Press the recessed RESET switch using a pen (see below). If the device is running properly, the red LED should flash for 1 second, then blink every other second.



- Place the *Silent Partner SPHD* in the area to be logged.
- Press the RESET switch to clear memory begin a new survey. The LED will flash for 1 second to indicate a reset, and then it will begin recording. The LED will blink approximately every other second to confirm that you are logging. The LED will stop blinking when the end of memory is reached if wraparound memory mode is disabled.
- When your survey is complete, press the SLEEP button to put the logger in low power mode and disconnect the logger.

If you press RESET and then hook up the logger, you may end up recording some zeros at the beginning of the survey. To avoid this, hookup the logger *first*, then press RESET. Similarly if you want to avoid zeroes at the end of the survey, make sure you press the SLEEP button before disconnecting the logger.

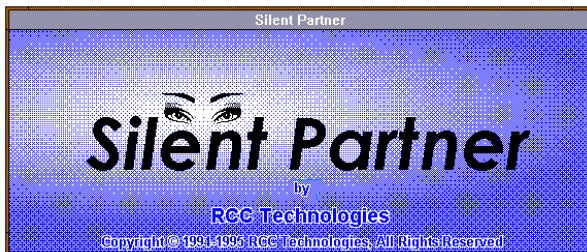
Using *Silent Partner* Software

There are several options that can be set up to control how graphs are displayed, the directories that *Silent Partner* uses, etc. For details on these option settings, please refer to the section entitled **Setup** (page 277).

A Short Note About the Time and Date Format:

The time and date format in the various reports will appear in the format you have selected in the *International Settings* section of Windows Control Panel. For instance, if you setup Windows to use 24 hours time format, *Silent Partner* will display all times in military or 24 hour format.

After double clicking the *Silent Partner* icon, the opening screen will appear.



After a few seconds, the title screen will disappear and the main title bar will appear.



The main menu is divided into five sub-menus; File, View, Logger, Setup and Help. Notice that there is one letter underlined in each command (the F in File, the V in View, etc.). This allows users without a mouse to invoke commands using the keyboard by depressing the ALT key and the underlined letter. This is a feature common to all Windows applications, and can be used for any of the commands in the *Silent Partner* software.

If a selection in a menu is dimmed out or you can't select it, it means that that particular choice is not available to you. This may be due the fact that there is no data loaded (e.g. trying to View a graph when you have not loaded or downloaded any data yet), or it may be a feature only available to a different type of *Silent Partner* logger.

A summary of each menu and its associated functions follows.

Each main menu has an associated drop down menu that allows you to execute a particular function. Below is a brief description of each menu and all of its related functions.

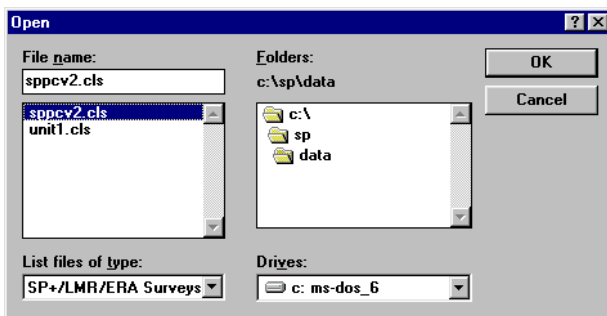
File

The File menu groups all of the functions required to manipulate *Silent Partner* data files.



Open

Retrieves a previously stored survey file. Selecting Open will display the file selection dialog box:



To retrieve a file, double click on the file name from the pick list or enter the file name in the file name box and click on OK. Note that all *Silent Partner SPHD* files use .CLS as their extension. If the file

you wish to retrieve is not in the current directory, you can select a different directory using the directory tree list, or by entering the directory name. The default directory is the directory specified in the **Setup** section of the program (see page 277 for more details).

Save

Saves changes to the survey you have been working on. This function is useful if you have downloaded a file but opted not to save it at the time of downloading, or if you have changed the summary information or notes and want to update the survey file. The survey is re-saved under the original file name if it was saved before; otherwise you are prompted for a file name. To save a changed file under a different name, use the **Save As** function. When you choose **Save**, the survey remains loaded so you can continue working with it if you wish.

Save As

Saves a new or existing survey. You can name a new survey or save an existing survey under a new name. The original survey remains unchanged. When you choose Save As, the survey remains loaded so you can continue working with it if you wish.

Delete

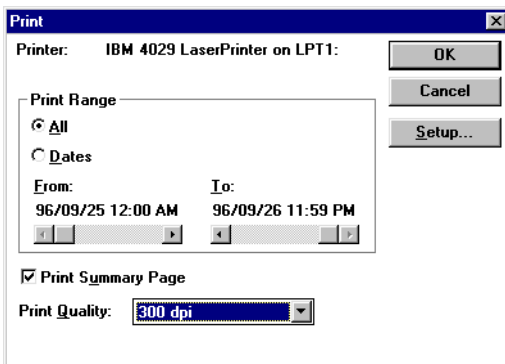
Deletes a survey file. The file select dialog will appear to allow you select which file to delete.

Export

Translates the current survey into Lotus WK1 format. The time and date of each measurement is exported, along with the reading. This feature allows you to transfer your data into spreadsheet and graphics programs to create custom reports.

Print

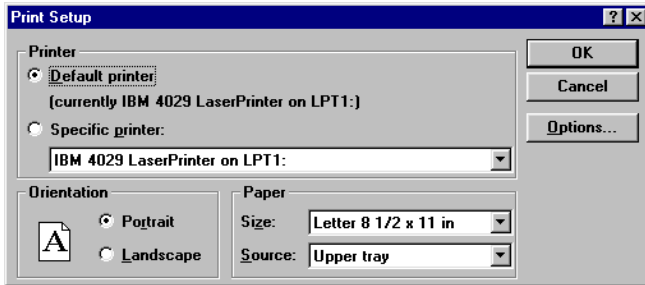
Prints out the report that is currently on the screen. You can also choose which printer to use, and setup certain features of your printer.



The top of the Print dialog box will tell you which printer is currently selected. The Print Range section allows you to define the days that are included in the printout. For example, you could print one or two days of graphs from a 30-day survey (this can save a lot of paper). To change the date range, select the **Dates** selector. Choose the starting and ending dates using the sliders below the **From** and **To** headings. You can also select whether or not to print a summary report with each printout. The summary report contains statistical information, user notes and the start and stop times of the logger.

Note: The statistics printed are based on the selected print range, not the entire logging period.

Clicking the Setup button will allow you to choose which printer to use, and to change certain options for the printer.



The Default Printer is the primary printer as specified by the Printers section in Windows Control Panel. If you want to print to another printer, select the **Specific Printer** selector. You will then be presented with a list of the available printers installed in Windows. If the printer you want to use is not on the list, you must load the appropriate Windows driver. For information on installing Windows drivers, please consult your Windows manual.

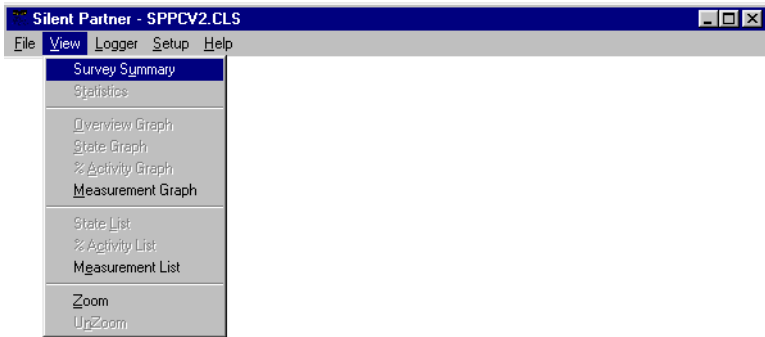
Clicking the Options button will allow you change the operational setup of your printer. Here you can change printer options such as print darkness, resolution, orientation, etc. The options available will vary depending on the printer you have. Please note that the summary page always prints out in portrait mode.

Exit

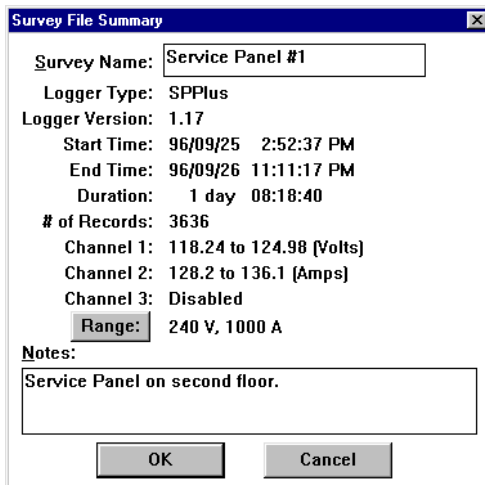
Quits the program.

View

The View menu allows you to select how to display your data.



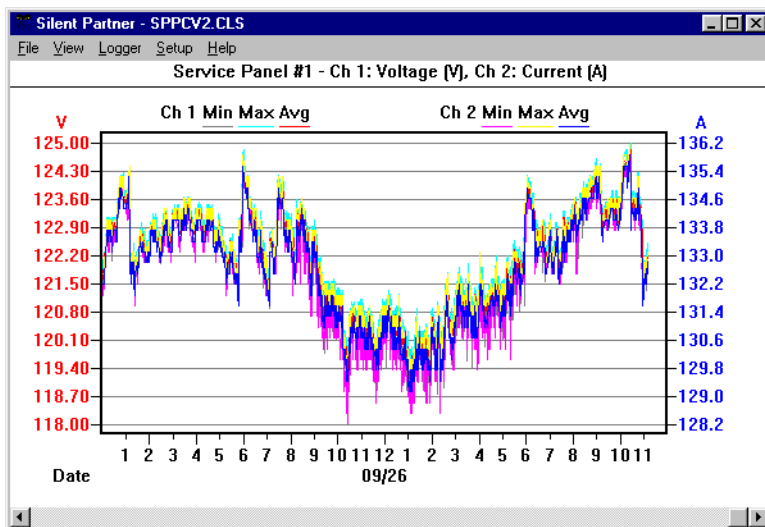
Survey Summary



Displays summary information and notes about the current survey. This information is useful for finding out how long the *Silent Partner* was actually logging, when it was started, when it stopped logging,

and the range for each channel. You can also enter in a survey title, notes, or other descriptive text to identify your report. Selecting the Range button allows you to select the appropriate CT and/or PT range. This value is normally set and sent to the logger during the setup process.

Measurement Graph



Displays a graph of each measurement according to time. The number of days along the bottom of the graph is set using the **Graph Length** selector in the **Graph Options** menu (see page 298 for more details).

The scale on the Y-axis can be changed using the **Measurement Scale** function in the **Setup** menu (see page 277 for more information). The Y-axis can also be zoomed or unzoomed via the **View** menu (page 166).

The graph can be scrolled horizontally by clicking the mouse on the scroll bar at the bottom. It can also be scrolled using the keyboard:

- ← and → move the graph forward or backward by one period.
- **Home** will return the display to the beginning of the survey.
- **End** will advance the display to the end of the survey.
- **Page Up** and **Page Down** advance the graph by one full period. For instance, if you are viewing a 7-day graph and press **Page Down**, the next 7 days will be displayed.

Measurement List

Item	Date	Time	Ch 1 Volts			Ch 2 Amps		
			Min	Max	Avg	Min	Max	Avg
1	96/09/25	2:52:37 PM	120.44	121.17	120.95	131.0	131.6	131.3
2	96/09/25	2:53:09 PM	120.66	121.17	120.95	131.3	131.6	131.3
3	96/09/25	2:53:41 PM	120.15	121.47	121.17	131.3	131.9	131.6
4	96/09/25	2:54:13 PM	120.00	121.47	120.95	131.3	132.2	131.3
5	96/09/25	2:54:45 PM	120.88	121.39	121.17	131.3	132.2	131.6
6	96/09/25	2:55:17 PM	120.95	121.47	121.25	131.6	132.2	131.9
7	96/09/25	2:55:49 PM	120.88	121.47	121.10	131.6	131.9	131.6
8	96/09/25	2:56:21 PM	120.95	121.32	121.10	131.3	131.9	131.6
9	96/09/25	2:56:53 PM	120.81	121.54	121.17	131.3	131.9	131.6
10	96/09/25	2:57:25 PM	120.81	121.47	121.17	131.3	132.2	131.6
11	96/09/25	2:57:57 PM	121.10	121.47	121.25	131.3	131.9	131.6
12	96/09/25	2:58:29 PM	121.17	121.54	121.32	131.3	131.9	131.6
13	96/09/25	2:59:01 PM	121.10	121.61	121.39	131.6	132.5	131.9
14	96/09/25	2:59:33 PM	121.10	121.98	121.47	131.6	132.5	131.9
15	96/09/25	3:00:05 PM	121.61	121.98	121.68	132.2	132.5	132.2
16	96/09/25	3:00:37 PM	121.39	121.68	121.47	131.9	132.2	131.9
17	96/09/25	3:01:09 PM	121.17	121.61	121.47	131.6	132.2	131.9
18	96/09/25	3:01:41 PM	121.03	121.54	121.25	130.6	132.2	131.6

The measurement list is a listing of the actual readings and the time and date on which they occurred. This list represents the same data as the Measurement Graph, only in numerical form.

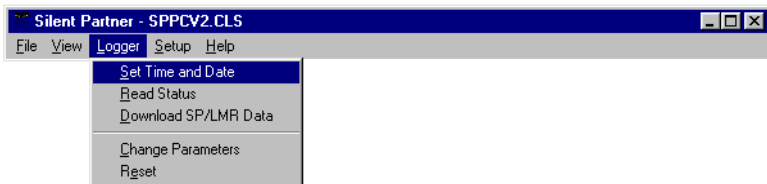
The list can be scrolled vertically by clicking the mouse on the scroll bar on the right hand side. The list can also be scrolled using the keyboard:

- ↑ and ↓ moves the list up or down one item.
- **Page Up** and **Page Down** will move the list up or down by one page.
- **Home** will move to the beginning of the list.
- **End** will move to the end of the list.

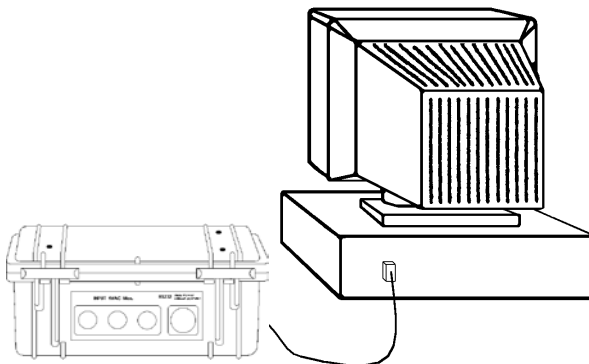
Zoom

Zoom allows you see more resolution (detail) when viewing graphs. In the unzoomed mode, the Y - axis will be scaled from the lowest to the highest value in the logger's range. For example, if you had a *Silent Partner SPHD* that was configured for 1000 amp CT's, the unzoomed Y-axis would be scaled from 0 to the full-scale value (in this case, 1000 amps). If you select Zoom, the software will scan the data to obtain the highest and lowest values recorded. These two values will then be used as the upper and lower Y-axis values.

Logger



Before executing any of the following commands, the *Silent Partner* must be connected to the correct serial port. Serial ports are usually found on the back of the PC, and are always either a male 9 pin connector.



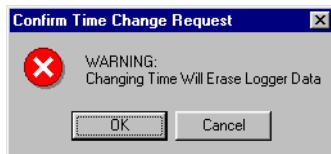
If your computer has more than one serial port, make sure you connect to the same port that you specified in Setup. If you are not sure which port you are connected to, you can have *Silent Partner* find that out for you. For details on selecting or searching for serial ports, Please refer to the section in **Setup** called **Logger Serial Port** on page 27 for more details.

Set Time and Date

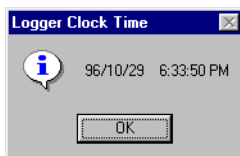
Synchronizes the *Silent Partner's* internal clock to the time and date of the computer's clock, clears memory and resets the logger.

After selecting this function, *Silent Partner* will stop to confirm that you really want to clear the logger.

REMEMBER - SETTING THE TIME CLEARS THE LOGGER'S MEMORY !

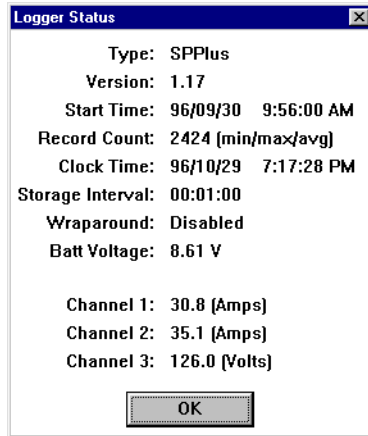


Selecting Cancel will abort the operation. Selecting OK will set the logger time to the computer's time and clear the memory.



Since the PC's time is sent to the logger, it is important to make sure that your computer's time and date are correct.

Read Status

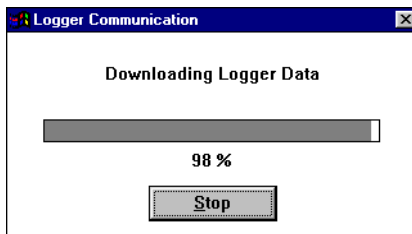


Displays operational information about the logger such as logger type, firmware revision, record count, clock time, present reading for each channel, channel configuration, battery voltage, and whether Wraparound recording is enabled. This is a useful function for verifying that the logger is operating properly and communicating with the PC.

Download Data

Retrieves all of the data from the *Silent Partner SPHD*. Note that downloading does ***not*** destroy the data, so the logger can be downloaded as often as you want. Before downloading, connect the *Silent Partner SPHD* to the download cable, and then connect the cable to the back of your computer. Please note that communications ports on most PC's are 9 pin or 25 pin male connectors. If your port uses a 25-pin connector, you may need to use a 25 to 9 pin adapter (available at most computer stores or from Northwood). After selecting **Download Data**, *Silent Partner* will inform you that it is initiating communications with the logger.

As the data is transferred, you will see a completion gauge telling you how the download is progressing.



After downloading, a short message is displayed about the amount of data transferred. Next you will be prompted to fill in the summary information screen. This screen allows you to enter in a survey title as well as several lines of notes. The notes section is often used to record such items as site details, the logger serial number, contact names, addresses, etc.

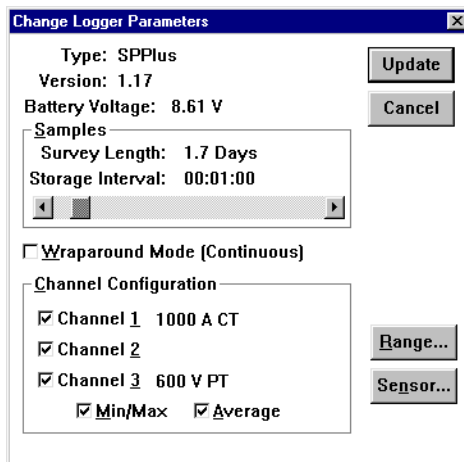
Pressing the **RANGE** button will allow you to examine the current range scaling for each channel.

When the information is filled in to your liking, pressing the OK button brings up the file save dialog where you can enter a file name. The extension for all *Silent Partner SPHD* files is .CLS, and this is automatically appended to all file names. If you don't want to save the file or you want to look at the data first, you can press the Cancel button. You can save the data at any time later using the **Save** option in the **File** menu.

After pressing the OK or CANCEL button, the screen will clear and the Measurement Graph will be displayed. You can view your data in graphical or tabular form by choosing one of the display types from the **View** menu. For further information on display types, please see the section regarding the **View** menu on page 166.

Change Parameters

Change Parameters allows you to configure how the logger will operate.



Samples

By moving the slider, you can set how often the logger will store a reading. Readings can be stored anywhere from once every 32 seconds to once every 15 minutes, in increments of 1 minute. When you move the slider, the values for the Storage Interval and the Survey Length will automatically change. As you increase the Storage Interval, the Survey Length also increases.

Wraparound Mode

Checking the Wraparound Mode box causes the logger to replace the oldest data with the newest reading when the end of memory is reached. This feature is useful for making sure you always have the most current data. If an **X** does not appear in the Wraparound box, the logger will stop recording when memory is full and enter SLEEP mode to conserve power.

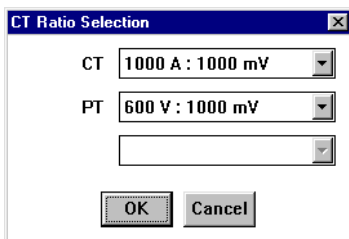
Channel Configuration

Checking or unchecking each box allows you to enable or disable recording for individual channels. Disabling channels allows you use the memory allocated to the disabled channels to record longer surveys. Beside the check box is the currently selected channel sensor and range for each channel. If there is no text beside the channel name, the channel is configured the same as the channel above it. To change the sensor or range, see below.

Min/Max and Average

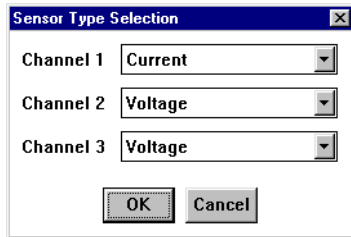
Checking or unchecking the Min/Max or Average boxes allows you to choose which values the logger stores. Minimum values are the lowest reading collected by the logger during the storage interval, and Maximums represent the highest reading collected during the storage interval. The Average value represents the mathematical average of all of the readings taken during the storage interval.

Range



Pressing the Range button allows you to select from a list of preconfigured CT or PT ranges. Note that only one range can be set for each data type. For example, if you were recording two currents and one voltage, you would be able to select one range for current and one range for voltage.

Sensor



Pressing the Sensor button allows you to define what type of input each channel is to have. Presently, the *Silent Partner SPHD* supports voltage and current inputs.

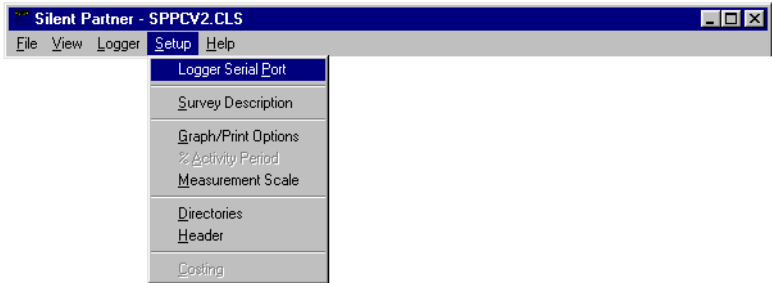
Update

Click on this button when you wish to send the new parameters to your logger.

UPDATING PARAMETERS WILL RESET THE LOGGER AND CLEAR MEMORY!

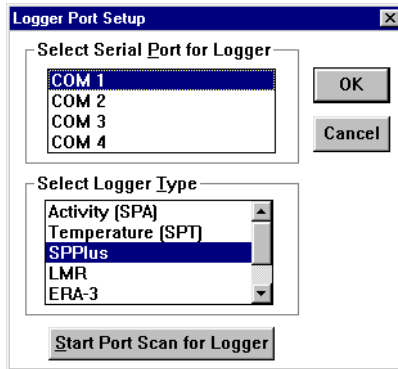
Please be certain this is what you want to do before clicking on Update. Click **Cancel** if you decide not to change any of the logging parameters. Please note that the software checks the battery voltage before sending the new configuration. If the battery voltage is below 8.0 volts, a warning is displayed suggesting that you charge the battery.

Setup



The Setup menu allows you to specify how graphs and tables will appear, where data is stored, and other operational options of the program.

Logger Serial Port



Allows you to select which communications port the *Silent Partner* is connected to. If you experience problems communicating with the logger, make sure you have selected the correct port.

If you don't know which port your *Silent Partner* is connected to, you can use the **Scan Ports for Logger** feature. Selecting this

feature initiates an automated search all of the installed serial ports for the presence of a *Silent Partner* logger.

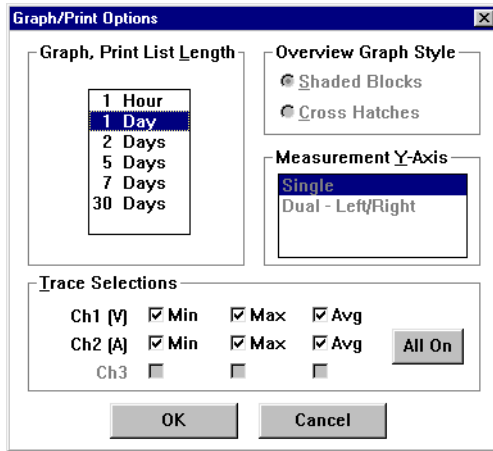
To search for the correct serial port, follow this procedure:

- Select **SPPlus** in the **Select Logger Type** box.
- Plug the *Silent Partner* download cable into the back of the PC. Serial ports are always either a 9 pin male DB9 connector or, on older computers, a male 25 pin DB25. Connect the other end (male 3.5 mm. stereo plug) to the *Silent Partner* logger.
- Click on the **Start Port Scan for Logger** button.
- The software will begin to search all of the available serial ports installed on your computer for the presence of a *Silent Partner SPHD* logger. A dialog box informs you which port is being tested, and whether or not a logger has been found.
- If the software reports that a logger was found, that serial port will be selected as the download port when you press OK.
- If the software does not find a logger, try moving the download cable to another connector at the back of the computer. If you still cannot communicate with the *Silent Partner*, there may be a problem with your computer's communications interface.

Survey Description

Allows you to edit or change the survey file summary notes. For a complete description of the survey summary, please refer to the **View** menu (page 166).

Graph Options



Graph, Print List Length

Allows you to select the period displayed on the X - axis (bottom) of the measurement graph.

Overview Graph Style

The overview graph is only available for SPA activity loggers and is not used with the *Silent Partner SPHD*.

Measurement Y-Axis

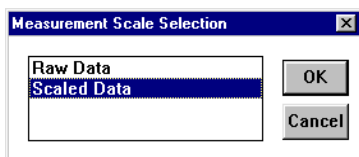
Silent Partner allows you to select the number of Y - axis scales to use when recording two or three channels. If you select **Single**, all channels will be plotted against a single scale, located on the left-hand side of the graph. This is useful when you are trying to compare two similar trends against the same scale. If you select **Dual - Left/Right**, channel 1 will be plotted against the scale on the left-hand side of the graph and channels 2 and 3 will be plotted against the scale on the right hand side. Multiple scales are useful when the readings on each channel are significantly different.

Trace Selections

Trace Selections allows you to show or hide individual traces on the graphs. Checking the box beside the trace name will cause the trace to be plotted, whereas clearing the check box will hide the trace. This feature is handy for removing screen clutter, especially if you have recorded min, max and average values for all three channels. If the trace names for a particular channel are dimmed out, the channel was not recorded and therefore can't display any data.

Pressing the All On button will select all traces for display.

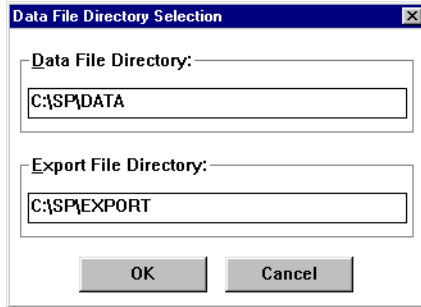
Measurement Scale



The measurement scale allows the user to select the units of measurement for the logger readings:

- **Raw Data** is the actual sampled data stored by the logger with no scaling or engineering units applied.
- **Scaled Data** displays the data with the correct scaling and units as specified when the logger was initialized (see section on Change Parameters on page 24).

Directories



Specifies where survey files and export files are located. The **Data File Directory** is the directory that *Silent Partner* will store all downloaded data. It is also the default directory from which files are retrieved. The **Export File Directory** is the directory where files created using the **Export** function (in the **File** menu) are stored.

Hheader

Header setup allows you to customize your printed reports by incorporating a company logo or graphic, as well as two lines for company address, report author, etc.

Use Header For:

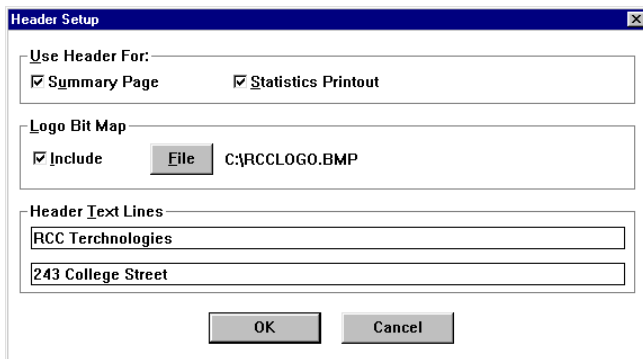
Determines what pages will include the header info.

Logo Bit Map

You can include a bit map file in your printouts by pressing the File button and selecting the file name. *Silent Partner* will load the bit map file at the top left of the printed page. Please note that there is no scaling performed, so if the graphic appears too big or too small, you must change the file using a paint program. The software allows you to load any .BMP or .DIB bit map files.

Hheader Text Lines

This section allows the entry of 2 additional lines of text that will appear at the top of each report, just underneath the logo file. These lines are also useful if you do not have a logo file to display.



Help

About



The About function displays the sign-on screen and current version number of the *Silent Partner* software.

Hardware Specifications

	<i>Specification</i>	<i>Notes</i>
Max. Channels	Three	Selectable storage for 1, 2, or 3 channel operation.
Range	0 - 1 VAC input. Actual current range depends on CT used.	True RMS for 50/60 Hz. operation.
External Connections	Aux. power, download. and three 1 VAC inputs.	
Sensor Type	External CT's or external voltage module.	
Sampling Rate	2 to 4 seconds.	Set via Silent Partner software.
Storage Rate	32 seconds to 15 minutes.	Set via Silent Partner software.
Parameters Stored	Avg, Min/Max, or Min/Max/Avg.	Set via Silent Partner software.
Samples per Average	16 at 32 second storage. 256 at 15 minute storage.	Set automatically, depending on storage rate.
Memory	64K, non-volatile RAM.	Memory size must be specified when ordered.
Memory Treatment	Stop when full, or wrap.	Set via Silent Partner software.
Storage Capacity	43,632 readings for 1 channel, avg. only (32K). 7,272 readings for 1 channel, min/max/avg (32K).	Storage available depends on memory size, number of channels and storage mode.
Indicators	Flashing LEDs when logging / Low on Battery.	
Power	Internal battery and/or adapter.	6V Battery
Battery Life	At least 7 days (can also operate from external adapter).	
Communications	RS232, support for remote setup.	
Software	Silent Partner for Windows.	Requires PC running Windows 3.1 or greater and 1 free serial port.
Packaging	Rugged, Heavy Duty Case .	
Accuracy	$\pm 0.25\%$ Range + CT or PT error	
Safety	Isolation of measurement circuit via CT's and PT's	
Operating Temperature	- 40°C to 60°C	

Specifications Subject to Change Without Notice

If Things Go Wrong ...

If you are having problems with your *Silent Partner*, consult the list of solutions that follows. If you still have trouble, please call your nearest Northwood representative or contact Northwood directly at:

Phone: (+1) 905-770-3797 (Canada)

Fax : (+1) 905-770-4167

Cell : (+1) 647-880-0340

Email : rcct@rccgroup.com

Web : www.rccgroup.com

Email : info@techno-canada.com

Web : www.techno-canada.com

Download Problems

The Silent Partner will not download.

- Check the download cable and make sure it is plugged into the right communications port on your computer.
- Make sure you have selected the correct COM port in the Setup section of the software (see page 27).

The software reports an "Invalid Wakeup Response."

- This message is most often displayed when the software tries to communicate with something other than a Silent Partner logger. This is sometimes due to an internal modem or some other device responding when the software is tries to initiate a conversation. If this happens, go back in to the Setup - Logger Serial Port section and choose a different port.

"Scan Ports for Logger" says that no logger was found.

- Make sure the download cable is plugged in before pressing the scan button.

- If you have unplugged a serial mouse and then plugged the logger into that port, it probably will not work. The reason for this is that the Windows mouse driver will report that the port is still in use by the mouse, regardless of whether or not it is physically connected. If this happens, Windows will not allow Silent Partner to use that port for communications. This can be overcome by using a different port for the logger if available, or by buying a second serial port (they are quite inexpensive).
- Ensure that the port you are using actually works. Although most new PC's are equipped with two serial ports, it is not unheard of for the second port to be defective. Connectors are sometimes put on the outside of the case that aren't actually connected to anything inside. The best way to verify that the port is indeed working is to try communicating with some other device such as an external modem.

Time and Date

The time and date on all of the graphs and printouts is wrong.

- Make sure you have set the logger's clock using the Set Time and Date function in the software (see page 20 for details).
- Ensure that your computer's time and date are set correctly.
- Make sure that you press the RESET button on the Silent Partner to begin logging.

All of the times on the graphs and reports are in 24 hour format, but I want 12 hour format (or vice - versa).

The dates appear in the wrong format.

- The way in which times and dates are displayed in the *Silent Partner* software is determined by the International Settings portion of Control Panel In Windows. To change the settings, open the Main program group and select Control Panel. Select the icon for International Settings, and adjust the time and date formats to suit your preference.

Printing

I click on the cancel button when printing, but the printer keeps on going.

- Printing can continue after hitting the cancel button for several reasons. Firstly, Windows has a feature called Print Manager which acts as a background print spooler. The function of a print spooler is to allow printing in the background, freeing up your computer for more important things. If Print Manager is enabled, the *Silent Partner* software will print to Print Manager instead of the printer. Print Manager, in turn, will send the data to the printer leaving the computer free for other tasks. Pressing cancel will stop data from going to Print Manager, but it will not stop Print Manager from sending the data it already received to the printer. To remedy this situation, you can cancel the print job by selecting Print Manager from the Main program group. Select the proper print job from the list and delete it. If you wish to disable Print Manager and print directly to the printer, it can be disabled by opening the Main program group and selecting Control Panel. Next, select the Printers icon, and uncheck the **Use Print Manager** box on the bottom left hand side of the dialog box. For full details on the correct use of Print Manager, please consult your Windows Manual.
- Your printer may also continue to print if it has a large amount of on-board memory. This memory serves the same purpose as Printer Manger by providing a temporary storage space for the printed data so the computer can move on to more important tasks. If your printer continues to print after pressing Cancel and Print Manager is disabled. Try resetting your printer. This should clear any data stored in the printer. If your printer does not have a reset switch, turn the printer off, then on again.

Display

The colours on the Graph are difficult to see on the screen.

- Please refer to appendix A for details on changing some of Silent Partner's Graph colours.

Appendix A - SILPRTRN.INI File Settings

Silent Partner software stores most of its configuration information in a special file called SILPRTNR.INI. This file can be edited using Notepad or any other text editor. ***This file should only be modified by advanced users.***

Customizing Graph Colours

If the colours used in the measurement graph aren't to your liking, you can change the colours used by *Silent Partner*. Each colour is defined by the amount of RED, GREEN, and BLUE. To changes the colours, you must edit the sections below in boldface type:

```
[GraphPref]
OnRGB=0, 0, 64      Box colour for 100% ON on Overview
                    Graph (Not Used for SPPlus)
1-99RGB=0,255,255  Box colour for 1-99% ON on Overview
                    Graph (Not Used for SP Plus)
OffRGB=255,255,255 Box colour for 100% ON on Overview
                    Graph (Not Used for SP Plus)

MaxDaySel=0
OverviewStyle=1
PeriodSel=5
MeasYAxis=1
Meas1RGB=255, 0, 0  Channel 1 trace colour for Minimum
Meas2RGB=0, 0,255  Channel 1 trace colour for Average
GridRGB=206,206,206 Graph grid colour (SPT, SPPLUS, SPC)
Meas3RGB=0,255, 0  Channel 1 trace colour for Maximum
Meas4RGB=128,128,128 Channel 2 trace colour for Minimum
Meas5RGB=0,255,255 Channel 2 trace colour for Average
Meas6RGB=255, 0,255 Channel 2 trace colour for Maximum
Meas7RGB=255,255, 0 Channel 2 trace colour for Minimum
Meas8RGB=0,128, 0  Channel 2 trace colour for Average
Meas9RGB=0, 0, 0  Channel 2 trace colour for Maximum
Orientation=1
```

To determine which colours to use, you can experiment using Paintbrush (a paint program that comes with Windows). After starting Paintbrush, Select the **Options** menu, and then select **Edit Colors**. A box will pop up with sliders for red, green and blue. To the right of the slider is a number that will change from 0 to 255 as you move the slider from left to right. As you move each of the sliders, the box on the extreme right will change colour. Move the sliders around until the box is the colour you want, then note the numbers beside the red, green and blue sliders. These are the numbers you will enter into the SILPRTNR.INI file using the text editor, Simply replace the old RGB values with the new ones.

The remaining items in the file reflect the various options that have been selected while using the software. They can also be edited, but it is probably easier to just change the option from within Silent Partner.

[ComPort]

Port=1 Communications port number
Type=1 Default Logger Type.

[Directory]

Data=C:\SP\DATA Default directory for data storage and retrieval
Export=C:\SP\EXPORT Default directory exported data

[Costing]

Enabled=1 Costing Display 1=On, 0=Off (SPA)
Rate=0.080000 Electricity cost per Kwh, in dollars
Load=6000.000000 Load value in Watts for calculating costing

[Measurement]

MConvert=1
MConvert1=2
MConvert2=1

[Options]

BattWarn=Status,Param Battery voltage after which Silent Partner will warn of a low battery
LoBattV=8.0

[PrintPref]

LogoSummary=1 1 = Print Logo on Summary Page,
0 = don't print logo on Summary Page
LogoStats=1 1 = Print Logo on Stats Page, 0= don't
printlogo on Stats Page
IncludeBitMap=1 1 = Use bitmap file specified below,
0 = don't use bitmap file
BMPFile=C:\TECH5CL.BMP Name and path of bitmap logo file used
on reports
LogoL1= Text on first line after logo
LogoL2= Text on second line after logo