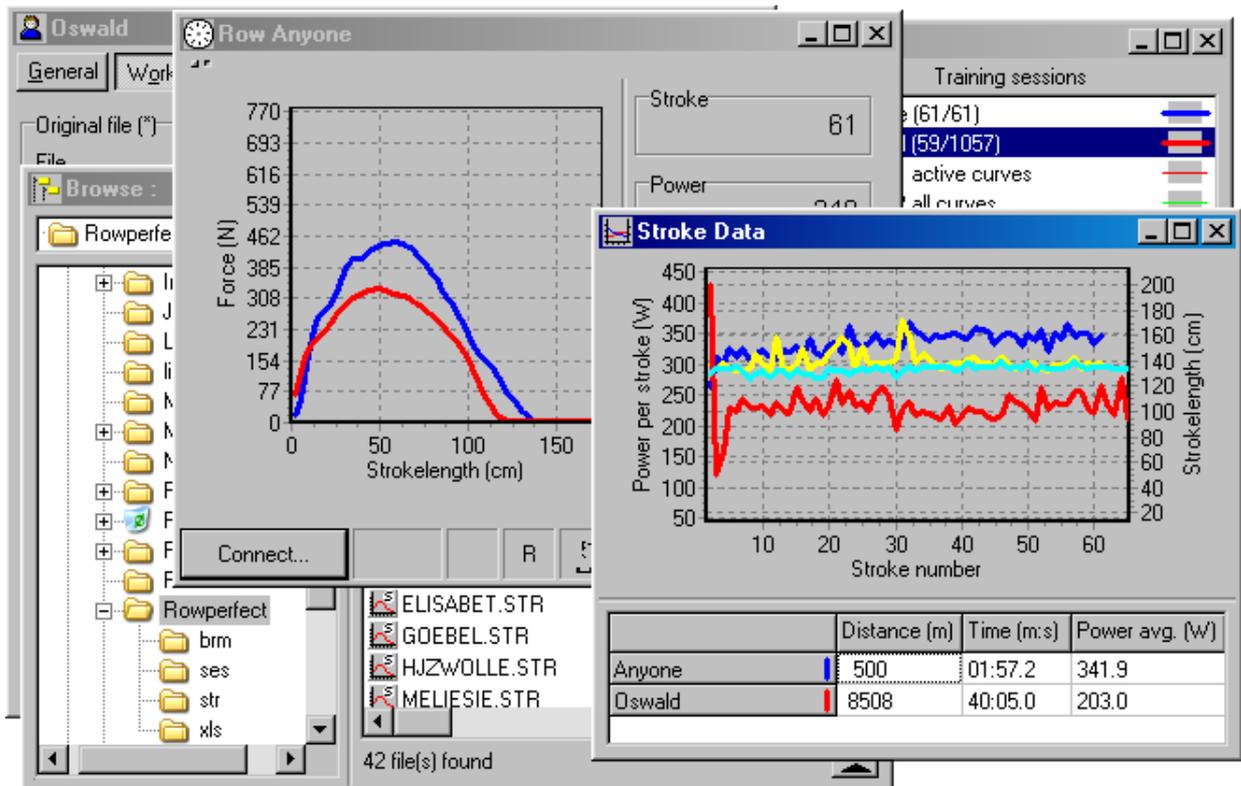


SEAN : Session Analysis





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The revision of this document voids any previous revisions.



About this manual

This is the manual for *SEAN : Session Analysis* (or *SEAN* for short). *SEAN* is a Windows based version of the Rowperfect software. It runs on all MS Windows versions currently available, including - but not limited to - Windows 98, XP, Vista and 7. It is compatible with most USB Serial Adapters, allowing modern PCs without a Com port to be used with the Rowperfect rowing simulator, and it is compatible with the new RP3 USB Interface for the ROWPERFECT3.

This manual consists of the following sections:

A Introduction

This section contains a summarised list of features of *SEAN* and the *SEAN* terminology is explained. Finally, the hard- and software requirements to run *SEAN* are listed

B Quick start guide

This section gives a user enough information to get *SEAN* up and running and to use the most common parts of the programme, following a step-by-step approach.

D Reference manual

All aspects of the programme are covered in the Reference manual. It describes each menu option and screen in detail, and could be seen as a “dictionary”.

E Appendices

The appendices contain, amongst others, the table of contents and lists of figures and tables. One chapter is dedicated to former users of the CARE/DOS software from Rowperfect (CARE.EXE).

Typographical conventions

Throughout this manual, the following typographical conventions are used:

- Window, dialogue and button names are printed *italic*, e.g. *Row window*, *Save* button.
- Specific terminology is underlined, e.g. Status bar, Menu bar.
- Keyboard references are presented between [brackets], e.g. [Space], [Ctrl].



A. Introduction

SEAN : Session Analysis is a Windows programme to record and analyse training sessions done on a Rowperfect rowing simulator. Besides that, it can be used to organise training results. To record, one needs access to a ROWPERFECT3 or Rowperfect Classic rowing simulator equipped with either an RP3 USB Interface, a Rowperfect PC interface or a Rowperfect MkIV monitor. Analysis and organising can be done “off-line”.

A.1. Features

Record over 40 parameters for each stroke made, review a training session stroke by stroke afterwards, match force curves with video, Just some of the possibilities that come within reach when using *SEAN*. The following is a short-list of features and options *SEAN* has to offer:

- *SEAN* can communicate directly with the RP3 USB Interface, Rowperfect PC interface and the Rowperfect MkIV monitor for recording training sessions. When recording, over 40 parameters are calculated for each stroke, such as Power, Stroke length and Drive/Recover ratio, accompanied with a real-time force curve. All these values can be seen during a training session, and are stored to disk for future analysis. When a video input is available (e.g. an USB web cam or a video camera with video capture or TV card), a video area can be switched on during recording next to the force curve chart, to provide a tool for real time motion analysis.
- *SEAN* has a lot of possibilities for analysing data. When reviewing, one can select any of the recorded and saved parameters and plot them in a chart; not only for one training session, but for multiple ones too, thus comparing results of different training sessions (e.g. members of a crew, or different training sessions of one athlete). Also, training results can be plotted as a summary chart, to view workout progress over a longer period of time. Previous recorded training sessions can be set-up to “race” against each other.
- *SEAN* makes browsing through a large number of training sessions easy by integrating a Windows Explorer like interface with a preview panel and chart. Besides the name and date of a training session, users can add extra information to a session file, like the type of the training session or a note. In the *Browse* window, files can be sorted on this information for easy retrieval.
- *SEAN* can present training sessions in a calendar view, giving direct insight into one's training programme.
- *SEAN* is a native Windows programme, running on all versions of Windows available since Windows 95 (Windows 95, 98, Me, NT 4, 2000, XP, Vista and 7).

A.2. Terminology

This chapter introduces some terms used in *SEAN* and throughout this manual.

- Training session

In *SEAN*, a training session (or just Training for short) is all the data and settings associated with a training session. This covers the recording information (name, date etc.), user settings (type of training, interval definition etc.), results, stroke data and force curves. All this data is stored in one STG file (Sean TraininG) per training session.

- User file

A User file is defined as a file containing all the settings and options that go with a training session, but without the recorded data (such as force curves). A User file can be used as the basis for a new training session. User files can be stored with either an INI (compatible with the CARE/DOS software) or STG extension, although the use of STG files is highly recommended.

A.3. Hard- and software requirements

The following list describes the minimal hard- and software requirements to run *SEAN* and use its main features:

- Pentium 90 MHz, 32 MB RAM
- Monitor capable of displaying at a resolution of 600x800
- Windows 95

To record Training sessions, one also needs:

- A free, standard Com port (not USB) - or -
- A free USB port with a USB-to-serial converter cable
- An RP3 USB Interface, Rowperfect PC Interface or Rowperfect MkIV monitor with interface cable

To use a video area, the minimum requirements are:

- Pentium 1 GHz, 256 MB RAM
- A free, standard Com port (not USB) - or -
- A free USB port with a USB-to-serial converter cable
- An RP3 USB Interface, Rowperfect PC Interface or Rowperfect MkIV monitor with interface cable
- Windows 98
- Video input device with Video for Windows drivers

These values strongly depend on the drivers shipped with the video device and the overall performance of the PC. There is a small test utility available on our website to check the hardware requirements for the video area (SEANTEST.EXE). Please contact us for assistance when setting up a video area.

B. Installation

This chapter describes the hard- and software set-up

B.1. Hardware

When *SEAN* will be used for recording data, an RP3 USB Interface, Rowperfect PC interface or Rowperfect MkIV monitor needs to be present on the ROWPERFECT3 or Rowperfect Classic rowing simulator and this device has to be connected to the PC *SEAN* is running on using the cable provided.

When *SEAN* will be used for “off-line” analysis only, neither an RP3 USB Interface, Rowperfect PC interface nor a Rowperfect MkIV monitor is necessary, and only the software set-up is needed. Software installation is explained in paragraph B.2.

B.1.1. Hardware - RP3 USB Interface

The RP3 USB Interface is pre-assembled on the ROWPERFECT3 Rowing Simulator by default, in which case this paragraph can be skipped. The interface can, however, also be mounted on the Rowperfect Classic, following the instructions below:

The RP3 USB Interface is a small black plastic box (62x43x25 mm) with a small cylinder protruding from it (the sensor). The sensor is sensitive towards magnetic fields. Its active spot is very small, and is situated in the centre of the extremity of the sensor. For proper functioning of the interface it is essential that the active spot of the sensor is positioned on exactly the same circle as the magnets in the flywheel that activate the sensor. The distance between sensor and flywheel should be between 1 and 2 mm. The interface comes with two mounting brackets. To correctly place the sensor and interface into the right position proceed as follows (if you are aligning the sensor for the first time it may help to lay the rowing simulator gently on its flywheel side, which makes it easier to see the magnets in the flywheel).

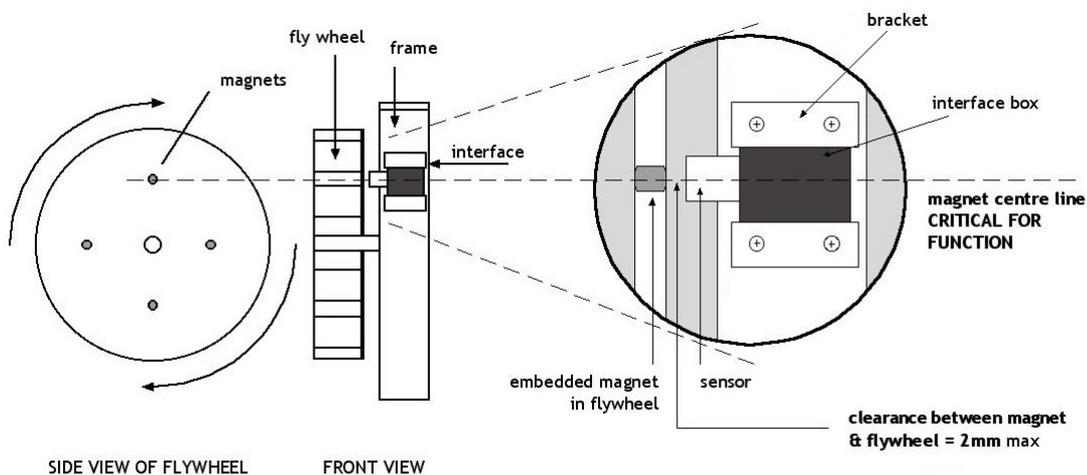


Figure 1 - RP3 USB Interface set-up

Unscrew the screws in both brackets until flush with the inside of the bracket. Hook the two brackets with their bent rims pointing towards each other, under the lower rims of the main frame. Take the interface, put it with the sensor side pointing towards the flywheel and to the main shaft, and insert the interface between the two brackets. Pushing both brackets firmly around the interface, slide the interface into position such that the magnets pass directly under the centre of the sensor.

Make sure the distance between the top of the sensor and the flywheel surface is between 1 and 2 mm, and the interface body is parallel to the flywheel. Then tighten gently the four screws to fix the

brackets, and thus the interface, in the proper position.

The photo in Figure 2, taken from the front, shows a properly mounted RP3 USB Interface on a Rowperfect Classic, connected to both a USB cable (white) and a Polar receiver cable (black). The yellow circle roughly indicates the path of the four magnets.

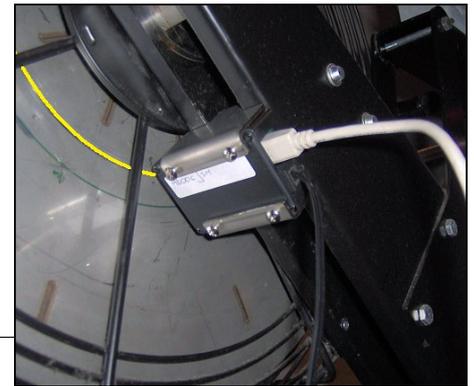


Figure 2 - RP3 USB Interface

The RP3 USB Interface also requires drivers to be installed.

Note : Install the drivers prior to connecting the RP3 USB Interface for the first time to the computer. In any case, make sure the RP3 USB Interface is not connected to the computer when installing the drivers.

To install the drivers, obtain the latest version by downloading the file specific for your MS Windows version from <http://www.row-ware.com/rp3usb/> and run the programme.

Depending on MS Windows version and settings, a warning might be issued asking for special permission to install software from “Future Technology Devices International Ltd” (or FTDI Ltd). Accept this dialogue and the drivers will be installed.

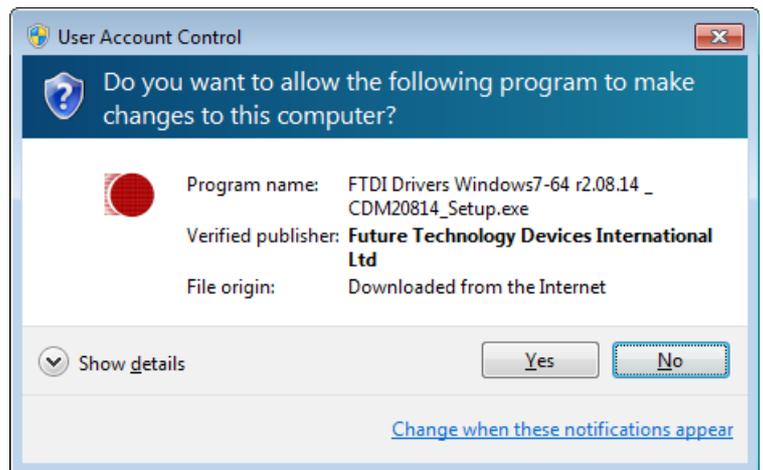


Figure 3 - Windows security warning

Again, depending on MS Windows version, your computer might need to be restarted. Follow any instructions from the driver installer.

To connect the RP3 USB Interface to the computer, use the USB cable provided by plugging in the A connector into a free USB port on the computer, and the B connector into the left side of the ROWPERFECT3 or the RP3 USB Interface.

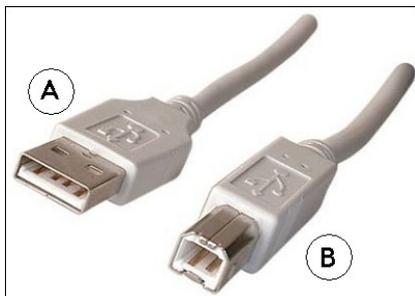


Figure 4 - USB connectors



Figure 5 - ROWPERFECT3 detail

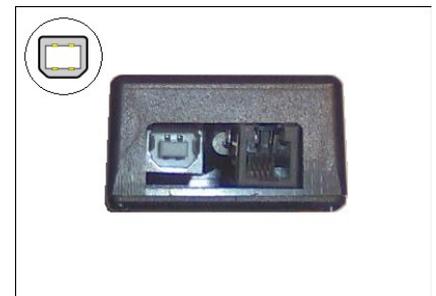


Figure 6 - RP3 USB detail

Note : Ensure the orientation of the B connector is correct (and not upside-down).

B.1.2. Hardware - Rowperfect PC interface

The Rowperfect PC interface comes in several different casings. The most common are types MESO-NEW and MESO-Rpw, both small black boxes (75x57x25 mm) with a small white cylinder protruding from it (the sensor). The sensor is sensitive towards magnetic fields. Its active spot is very small, and

is situated in the centre of the extremity of the sensor. For proper functioning of the interface it is essential that the active spot of the sensor is positioned on exactly the same circle as the magnets in the flywheel that activate the sensor. The distance between sensor and flywheel should be between 1 and 2 mm.

The interface comes with two mounting brackets. To correctly place the sensor and interface into the right position proceed as follows (if you are aligning the sensor for the first time it may help to lay the rowing simulator gently on its flywheel side, which makes it easier to see the magnets in the flywheel)

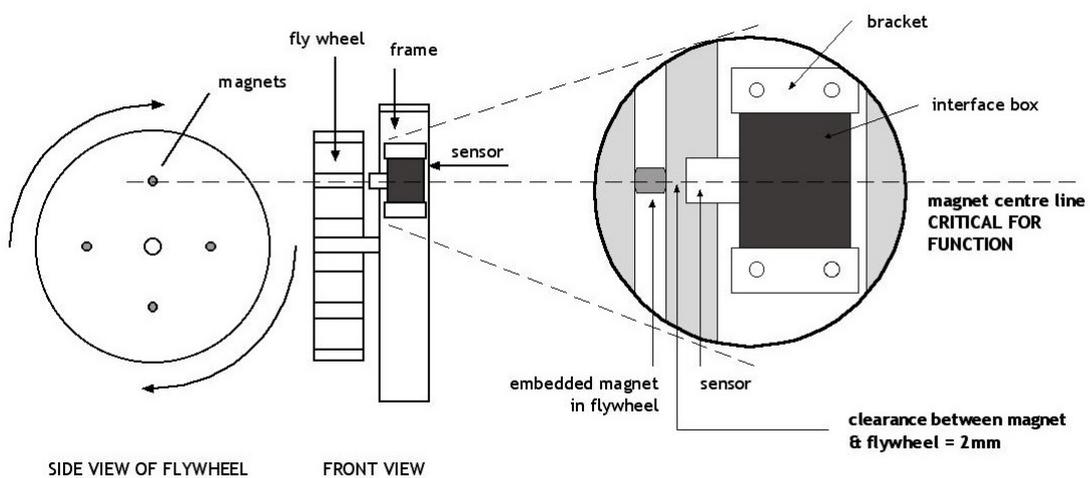


Figure 7 - Rowperfect PC Interface set-up

Unscrew the screws in both brackets until flush with the inside of the bracket. Hook the two brackets with their bent rims pointing towards each other, under the lower rims of the main frame. Take the interface, put it with the sensor side pointing towards the flywheel and to the main shaft, and insert the interface between the two brackets. Pushing both brackets firmly around the interface, slide the interface into position such that the magnets pass directly under the centre of the sensor. Make sure the distance between the top of the sensor and the flywheel surface is between 1 and 2 mm, and the interface body is parallel to the flywheel. Then tighten gently the four screws to fix the brackets, and thus the interface, in the proper position. Put the rowing simulator upright again. An example of a properly mounted interface can be found in Figure 8.

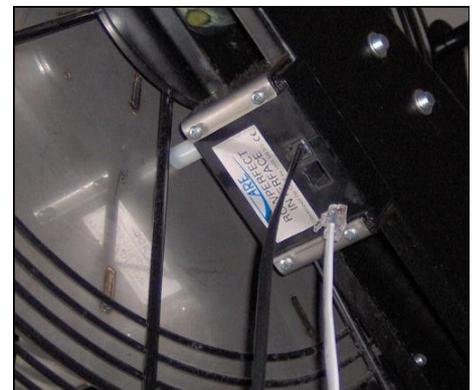


Figure 8 - Rowperfect PC Interface

B.1.3. Hardware - Rowperfect MkIV monitor

With the Rowperfect MkIV monitor, the signal needed for *SEAN* is generated by the rotating magnet on the flywheel; in this et-up no alignment is necessary. Simply ensure the Rowperfect MkIV Monitor is mounted properly and connected to the sensor via the flywheel icon. For installation instructions on the Rowperfect MkIV monitor, please consult the documentation that came with it, or contact your Rowperfect agent.



Figure 9 - Rowperfect MkIV monitor

Note : The word “interface” will be used for the remainder of this manual. It corresponds to either an RP3 USB Interface, Rowperfect PC interface or Rowperfect MkIV monitor.

B.1.4. Hardware - Polar receiver

To record heart rate data, a Polar receiver can be plugged-in into the RP3 USB Interface, Rowperfect PC Interface or Rowperfect MkIV Monitor. The Polar receiver is a little black box (usually 50x35x20 mm) and has an RJ10 connector at the end of the 1.5m cable. This connector fits in only on of the sockets of either interface, or the lower left hand socket on the back of the Rowperfect MkIV monitor. Place the black box near the seat, for example under it, using Velcron adhesives, in such a way the cable is pointing towards the flywheel. The Polar receiver will operate in combination with a Polar T31, T61 or Wearlink chest strap (coded and non-coded types).



Figure 10 - Rowperfect Polar receiver

B.2. Software

There are slightly different approaches to installing *SEAN* for the first time and performing an upgrade of an existing installation. The next paragraphs are a summary of the Installation guide available from our website.

B.2.1. First time installation

To install *SEAN* for the first time on a PC, take the following steps:

- ◆ Download the latest installer from our website <http://www.row-ware.com/sean/> and save the file SEANnnnn.EXE (where nnnn reflects the version number, e.g. “sean1108.exe” contains “*SEAN : Session Analysis* version 1.1.0.8”) on your desktop.
- ◆ Double-click SEANnnnn.EXE
- ◆ Follow the instructions on screen.
- ◆ The files will now be copied to their destination folders and a short-cut in the Windows Start menu will be added. Also, all *SEAN* compatible file types (with the BRM, SED, SES, STG, STR, MKS, MKR and MKI extensions) will automatically be associated with *SEAN*, each with its own icon and description:

Extension	Small icon	Large icon	Description
BRM			SEAN BRaM File
SED			SEAN Desktop File
SES			SEAN Session File
STG			SEAN Training File
STR			SEAN Stroke File
MKS			MkIV Session File
MKR			MkIV Stroke File
MKI			MkIV User File

Table 1 - SEAN Compatible file types

In any case, files registered with *SEAN* can be recognised by the small “(s)” in their icons. The differences between these file types is described in paragraph D.3. To open a *SEAN* compatible file, just double-click it in the Windows Explorer.

B.2.2. Upgrading an existing installation

If the PC *SEAN* is running on does not have an Internet connection, install the new version following the “First time installation” approach. Otherwise, to upgrade an existing installation of *SEAN*, take the following steps:

- ◆ Start *SEAN*.
- ◆ Close all windows (if there are any opened) and choose *Update* from the *Help* menu.
- ◆ *SEAN* will check the Row-Ware website for the availability of an updated version. If none exists, a warning will be displayed. If a newer version is available, click *Install*. The latest version of *SEAN* will now be downloaded.
- ◆ *SEAN* will automatically exit, and the installer will start.
- ◆ Follow the instructions on screen.
- ◆ The files will be copied to their destination folders, and a short-cut in the Windows Start menu will be added. Preferences from the previous version will be saved.

B.2.3. Folder locations

By default, *SEAN* is installed in the “*program folder*”. This folder contains amongst others the programme itself, the manual and the license key; all this is - more or less - static data. When sessions are saved or configuration data is loaded and stored, *SEAN* will operate on the “*data folder*”. This folder contains the configuration file (SEAN.INI), Layout files (*.SRL), default User Files (DEFAULT.STG and/or SEAN.STG) and optionally user data too.

The actual location of both folders may vary by Windows version and system configuration. In a standard set-up, the tables below lists the default folders for *SEAN* on English Windows installations:

Windows version	Program folder
Windows '95/'98/ME	C:\Program files\SEAN\
Windows 2000 / XP	C:\Program files\SEAN\
Windows Vista / 7 32bit	C:\Program files\SEAN\

Windows version	Program folder
Windows Vista / 7 64bit	C:\Program files (x86)\SEAN\

Table 2 - Default program folder location

Windows version	Data folder
Windows '95/'98/ME	C:\My Documents\Row-Ware\SEAN\
Windows 2000 / XP	C:\Documents and Settings\{username}\My Documents\Row-Ware\SEAN\
Windows Vista 32bit	C:\Users\{username}\Documents\Row-Ware\SEAN\ -or- > {username} > Documents > Row-Ware > SEAN
Windows Vista 64bit	C:\Users\{username}\Documents\Row-Ware\SEAN\ -or- > {username} > Documents > Row-Ware > SEAN
Windows 7 32bit	C:\Users\{username}\Documents\Row-Ware\SEAN\ -or- > Libraries > Documents > Row-Ware > SEAN
Windows 7 64bit	C:\Users\{username}\Documents\Row-Ware\SEAN\ -or- > Libraries > Documents > Row-Ware > SEAN

Table 3 - Default data folder location

The {username} refers to the Windows account used for logging on to the computer.

Note: When using *SEAN* on a computer with multiple user accounts, configuration settings and data are stored separately for each user.

B.2.4. Calibrating the software

Because the flywheels of two Rowperfects are not identical, they are engraved with a calibration factor. The default calibration factor built into *SEAN* can be replaced by the number found on the flywheel. To do so, follow these steps:

- ◆ Locate the file SEAN.INI in the *SEAN* data folder (see B.2.3).
- ◆ Double click the file to open it.
- ◆ Add a line "Inertia=XXXX" in the SEAN.INI file in the [Row] section, where the X-es correspond to the 3rd through 6th digit behind the decimal point of the factor on the flywheel of the Rowperfect unit concerned. (E.g. for a factor on the flywheel of 0.108867, the line should read "Inertia=8867", but then without the quotes).
- ◆ Save the file.

B.2.5. Licensing overview

SEAN is equipped with a shareware protection / registration system based on so called License Keys. These keys are bound to specific PC hardware and can not be transferred from one computer to another.

- ◆ Without a (valid) key, *SEAN* runs in "Unlicensed mode". This results in "nag-screens" every now and then, making the use of the software less comfortable, and limiting the opening and saving of data (only 2 files can be opened at the same time, no data can be saved). Approximately 3 months after release of a new version, the Unlicensed mode ends, and the software won't start at all. At that time, you'll need to either
 - ◆ purchase a commercial license
 - ◆ request a trial license
 - ◆ download a more recent version.
- ◆ For testing purposes, users can send a request for a free Trial license key to us, giving them the

opportunity to try and play with the software without any limitations for a specific period of time, usually 1 month. After that period, the key is rendered invalid, and the software will continue running as Unlicensed.

- ◆ For users who have already tested the software, there is the option to buy a Commercial license key. This inflicts no further limitations on the software.

B.2.6. Obtaining a License Key

Obtaining a License Key (Trial or Commercial) requires the following steps:

- ◆ (Install and) start *SEAN* on the PC that you would like a License Key for.
- ◆ Select *About* from the *Help* menu, and click on the *Click here to obtain a license* or the *Licensed to : ...* line.
- ◆ Send an email with the number shown in the *Register* dialogue box to info@row-ware.com or click the *Mail* button to have one composed automatically. When requesting a Commercial License Key, note your full name and address in the email too.
- ◆ Wait for the License Key and - in case of a Commercial License Key - instructions for payment that will be sent back by email (please allow 24 hours for handling).



Figure 11 - Register dialogue

B.2.7. Installing a License Key

To install a License Key, take the following steps:

- ◆ Read the email regarding the License Key carefully. It contains a link to our website that contains your personalised License Key Installer.
- ◆ Download and save the License Key Installer - usually named "yourname.exe" - to the desktop of the PC on which *SEAN* will be running.
- ◆ Start the License Key Installer, and follow the instructions shown there.

B.2.8. Un-installing SEAN

To remove *SEAN* from your PC, do the following:

- ◆ Start *SEAN*, and open the *Options* dialogue in the *View* menu.
- ◆ De-select all lines on the File types tab, and click the *Register* button.
- ◆ Exit *SEAN*.
- ◆ Run Uninstall in the *SEAN - Session Analysis* programme group in the Start menu.

B.2.9. Test interface

To ensure the interface is positioned correctly and detected accordingly, take the following steps:

- ◆ Connect the cable:
 - RP3 USB Interface: Plug-in the A type connector into a free USB port on the computer, and the B type connector in the interface.
 - Rowperfect PC Interface: Connect the larger DB-9 plug of the interface cable to a Com port (or USB Serial Adapter cable) on the computer, and the smaller RJ-45 plug to the bigger one of the two sockets on the PC interface.
 - Rowperfect MkIV monitor: Connect the larger DB-9 plug of the interface cable to a Com port (or USB Serial Adapter cable) on the computer, and the smaller RJ-45 plug into one of the two sockets labelled COM on the back of the monitor.
- ◆ (Install and) start *SEAN*.

- ◆ Select *Row* from the *View* menu.
- ◆ Click *OK* in the *New row window* dialogue. The dialogue disappears.
- ◆ Press [Space] in the *Row* window.
- ◆ In the *Connect* dialogue, click on the *Search* button. The software will try to detect an interface connected to the PC. If one is found, a message appears and the source option will be set to the port number found. To check if all four magnets are detected, click the *Test* button, and give a gentle swing to the flywheel. The type of interface will be detected and a regular beep will be heard every time a magnet passes the sensor, or approximately once a second when the fly wheel is at a standstill.

If any of these steps fail, refer to the troubleshooting section in the next paragraph. If the tests were successful, continue with paragraph C.1 “Record a training session : Row window” of page 19.

B.3. Troubleshoot connection problems

This paragraph describes a series of steps helping to track down possible connection problems when recording (or trying to record) a training session with *SEAN*. As the programme supports different types of interfaces, each with their own specifics, they are addressed one-by-one. To start, first identify the type of interface used. Then, turn to the appropriate paragraph for assistance.

B.3.1. Identifying the interface

Over the years, several different interfaces have been developed for the Rowperfect Classic and ROWPERFECT3 Rowing Simulator. *SEAN* supports all of them. For the types of interface most used, a set of guidelines how to find the culprit can be found in the next paragraphs. For the rare ones, please contact Row-Ware directly.

ORIGINAL Interface	MESO-OLD Interface	MESO-NEW Interface	MESO-Rpw Interface
			
MkIV Monitor	SMD Interface	RP3 USB Interface	
			

Table 4 - Interface types

Notes:

- ◆ The MESO-NEW and MESO-Rpw interfaces are identical except for the firmware (internal software, not visible from the outside) and a sticker or marker saying “Rpw”.
- ◆ All except the MkIV monitor and the RP3 USB Interface go by the generic name “Rowperfect PC Interface”.

B.3.2. Troubleshooting : ORIGINAL Interface

Very rare to come by and very specific issues. Please contact Row-Ware for support.

B.3.3. Troubleshooting : MESO-OLD Interface

Very rare, very specific issues. Please contact Row-Ware for support.

B.3.4. Troubleshooting : MESO-NEW Interface

Connection problems between SEAN and the MESO-NEW Interface can occur as a result of a wide variety of causes, each with a specific approach to fix it. As a whole, the set-up consists of the following parts:

- ◆ Interface sensor
- ◆ Interface circuit board
- ◆ Interface cable
- ◆ (optionally : USB Serial Adapter cable / driver)
- ◆ SEAN software on the computer

The next steps describe a systematic approach to track down any possible cause of the malfunction, referring to this list when needed.

Step 1

- ◆ Detach the interface from the Rowperfect by loosening the brackets, making sure to keep the cable connected to the interface as well as to the computer, and optionally, the USB serial adapter.
- ◆ Start SEAN
 - Click on the Row button in the tool bar, or press [Ctrl] + [R] alternatively.
 - Accept the *New row window* dialogue, and press [Space] in the Row window.
 - Select the first COM port in the *Connect* dialogue.
 - Click [Test].

--> *You will now hear a regular beep (approx. once every second). CORRECT?*

- ◆ If OK, go to step 2.
- ◆ If not, possible causes are, a faulty connection, a defective cable, the wrong COM port, a defective COM port, wrong USB serial adapter settings (if applicable), a defective interface or combinations thereof.
 - a faulty connection
 - > *Check all the connectors and repeat step 1.*
 - a defective cable
 - > *Check the cable and connectors visually for any signs of damage.*
 - > *Try a cable of another Rowperfect unit (if available), or obtain another (temporary) cable from your Rowperfect agent and repeat step 1.*
 - > *When swapping the cable solves the problem, the original cable is defective and needs to be replaced or repaired. Diagnosis complete.*
 - the wrong COM port has been selected.
 - > *Select another COM port or let SEAN search for a proper COM port and repeat step 1.*
 - the COM port is having problems.
 - > *When possible, connect the interface to another COM port and repeat step 1.*
 - > *Write down the error message on screen, then try CARE/DOS and repeat step 1.*
 - > *When the problem is solved using CARE/DOS, contact Row-Ware with the error message previously written down. Diagnosis complete.*
 - > *When the problem persists using CARE/DOS, the COM port on the computer is*



defective or does not provide sufficient voltage.

--> If a lap top computer is used, a low COM port voltage may be the problem. To eliminate this possibility remove the battery from the laptop and run the laptop from the mains adaptor. Repeat step 1.

-->When the problem persists, try another computer, and repeat step 1.

the USB serial adapter has wrong settings (if applicable)

--> When the interface cable is connected to the PC using a USB serial adapter, it might be configured improperly. Please see the separate USB Serial Adapter diagnosis instruction in B.3.5. and repeat step 1.

the interface is defective.

--> Obtain another (temporary) interface from your Rowperfect agent and repeat step 1.

--> When the problem is solved now, the interface needs mending. Send it back to your Rowperfect agent for repair or exchange. Diagnosis complete.

Step 2

- ◆ Keep the software in “test” mode, and move the interface past one of the magnets in the flywheel a few times.

---> Now you will hear irregular beeps. CORRECT?

- ◆ If not, go to step 3.
- ◆ If OK, the interface sensor had not been aligned correctly with the magnets in the flywheel in the first set-up (when mounted).
--> Mount the interface properly, according to instructions found in the manual. Problem solved.

Step 3

- ◆ Keep the software in “test” mode, and move the interface past one of the magnets in the flywheel on the OTHER SIDE (“the vane side”) of the flywheel a few times. You will have to remove the cover of the flywheel cage for this.

---> Now you will hear irregular beeps. CORRECT?

- ◆ If not, the sensor (white cylinder) or internal wiring inside the interface might be broken.
--> Obtain another (temporary) interface from your Rowperfect agent and repeat step 1.
--> When the problem is solved now, the interface needs mending. Send it back to your Rowperfect agent and wait for further instructions. Diagnosis complete.
- ◆ If in this case irregular beeps are heard, this specific magnet has been inserted into the flywheel the wrong way around. Check all four magnets before continuing.
To attend to this problem, the magnets not producing the beeps have to be removed from the flywheel and re-inserted with their polarity reversed. To do this, please follow the procedure below
 1. *With a marker, mark the “vane side” of the magnets; this side should point to the smooth side of the flywheel after the reversion process has been completed.*
 2. *Prepare a 2mm, flat headed nail, to be used as a tool, by blunting the sharp end e.g. by using a file.*
 3. *Remove the flywheel from the cage, and place it, with the smooth surface upwards, on a flat surface, e.g. a table, a workbench or on the floor.*
 4. *Apply a few drops of nail polish remover or acetone to each magnet, to soften/dissolve the glue. Keep the magnets moist with this liquid for at least 2 minutes*
 5. *After the glue has softened, by means of the blunted 2 mm nail, gently tap the magnets out using a small hammer. Clean the magnets.*
 6. *Make sure all 4 magnets are oriented in the same way by having them stick together. Verify the correct orientation (polarity) of the magnet using the interface (!)*
 7. *One by one, provide each magnet with a small drop of superglue and re-insert it into the*

- flywheel. Make sure the magnets are flush with the smooth surface of the flywheel*
8. Repeat step 2 to check the magnets again.

When done, you should end up with either :

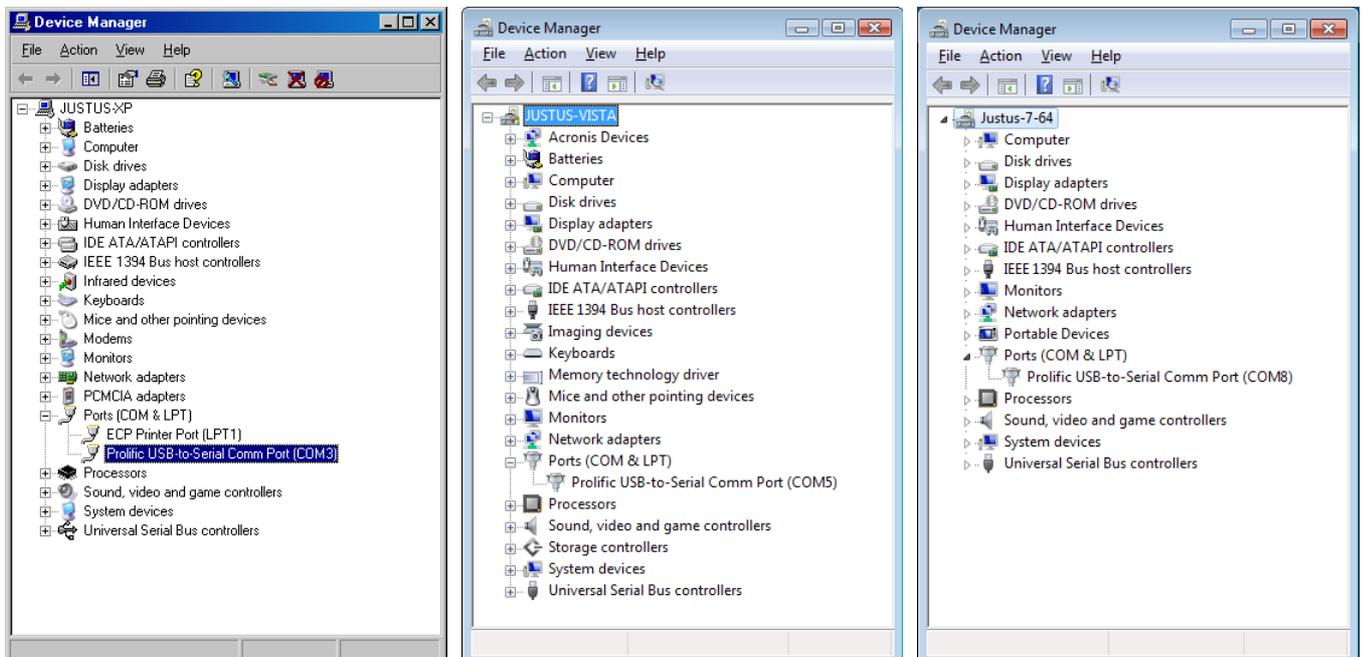
- ♦ a Problem solved situation, where the computer does recognise the spinning flywheel again and everything is working as expected, OR
- ♦ a Diagnosis complete situation, where the cable or interface needs mending, or further investigation on the computer needs to be done.

B.3.5. Troubleshooting : USB Serial Adapter

In case SEAN does not seem to detect the flywheel spinning signals of the MESO-NEW / MESO-Rpw Interface and a USB Serial Adapter is used, please follow the steps in the check-list below to track down the cause and find ways to solve the problem.

Step 1

- ♦ Make sure the USB Serial Adapter is plugged in to a USB port on the computer.
- ♦ Start the the Device Manager to check whether Windows has recognised the adapter:
 - Windows XP:
Open *Control Panel* and select *System Properties*. In the dialogue, click the *Hardware* tab and then the *Device Manager* button.
 - Windows Vista:
Open *Control Panel* and select *Hardware and Sound*, then *Device Manager*.
 - Windows 7:
Open *Control Panel* and select *Hardware and Sound*, then under the *Devices and Printers* section the *Device Manager* option.
- ♦ In *Device Manager*, locate the *Ports (COM & LPT)* group. When this can't be found, go to step 2.
- ♦ Open the *Ports* group and locate a line *Prolific USB-to-Serial Comm Port*. If found, go to step 3, else go to step 2.



Step 2

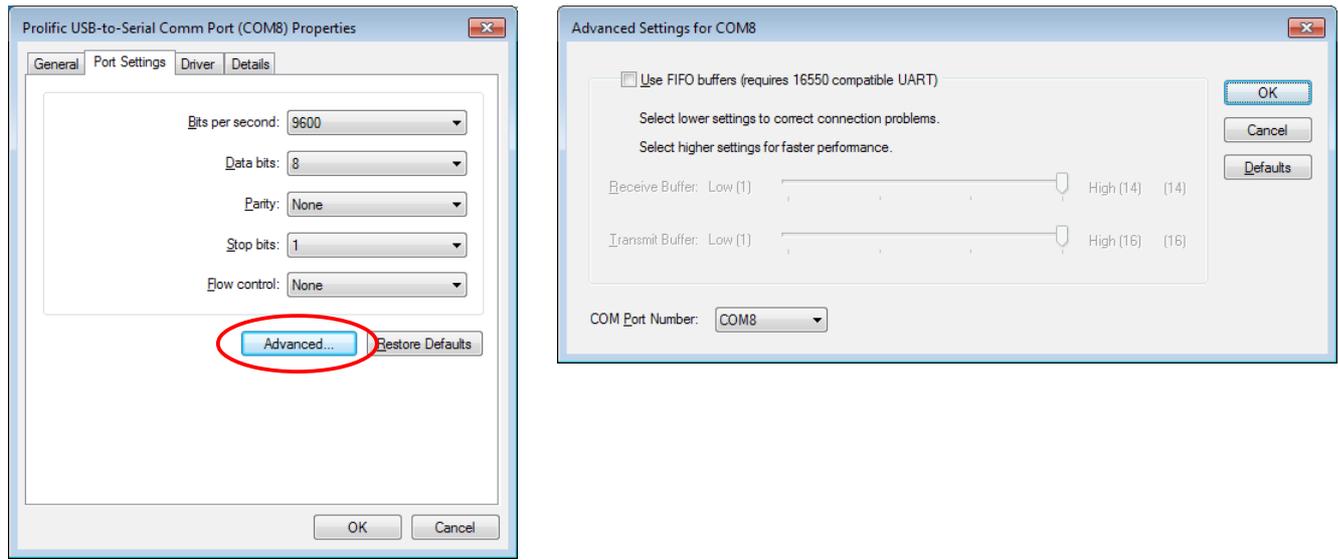
- ♦ Windows does not recognise the USB Serial Adapter. Try using a different USB port on the computer and wait for Windows to refresh the Device Manager. If the *Prolific* line can be located

now, go to step 3.

- ◆ The drivers for the USB Serial Adapter need to be updated. The Prolific USB Serial Adapter uses the PL-2303 chipset. Download the latest version for your operating system from <http://www.row-ware.com/usb/> and run the installer. When done (a reboot might be required) go to step 1. If updating the driver didn't help, contact your Rowperfect agent or Row-Ware directly.

Step 3

- ◆ Double-click the *Prolific USB-to-Serial Comm Port* line and click the *Port Settings* tab. Next, click the *Advanced ...* button. In this dialogue, un-tick the *Use FIFO buffers ...* check-box and save the settings by clicking the *OK* button.



Re-start SEAN and test again. If the problem persists, contain Row-Ware.

B.3.6. Troubleshooting : MESO-Rpw Interface

Identical to MESO-NEW Interface, see paragraph B.3.4. .

B.3.7. Troubleshooting : MkIV Monitor

Very specific issues. Please contact Row-Ware for support.

B.3.8. Troubleshooting : SMD Interface

Comparable to MESO-NEW / MESO-Rpw, except for the sensor. Please contact Row-Ware for support.

B.3.9. Troubleshooting : RP3 USB Interface

Connection problems between SEAN and the RP3 USB Interface can occur as a result of a wide variety of causes, each with a specific approach to fix it. As a whole, the set-up consists of the following parts:

- ◆ RP3 USB Interface sensor
- ◆ RP3 USB Interface circuit board
- ◆ USB Cable
- ◆ Driver software on the computer
- ◆ SEAN software on the computer

The next steps describe a systematic approach to track down any possible cause of the malfunction, referring to this list when needed.

Step 1. Initial test in the *Connect* dialogue.

- ◆ When RP3W is started and the Connect dialogue is showing, does the *Source* drop down list an entry saying “COMx” (where x is a number between 1 and 255 inclusive) ? If not, go to step 2. If there is an entry, go to step 5.

Step 2. There is a problem with the computer recognising the RP3 USB Interface.

- ◆ The first thing to check is the easiest: are both ends of the cable properly plugged-in into both the computer and the RP3 USB Interface. If not, see to it. Close *RP3W* and go to step 1.
- ◆ Is the USB cable visually damaged? Replace it with another one. Do you have any other USB device with the same USB B socket (e.g. a printer, modem, USB hub or docking station) that is working properly, then temporarily use that USB cable with the RP3 USB Interface. Close *RP3W* and repeat step 1.
- ◆ Open Device Manager in MS Windows (through Control Panel or Administrative Tools, depending on MS Windows version) and locate a “Ports” section. If it's not there, go to step 3. If it is, open it and locate an item named “USB Serial Port”. If there's no such line, go to step 3, else go to step 4.

Step 3. The RP3 USB Interface is not recognised by MS Windows at all.

- ◆ Un-plug the RP3 USB Interface from the computer and install the proper drivers as described in B.1.1. : Hardware - RP3 USB Interface. When done, go back to step 1.

Step 4. The RP3 USB Interface is not properly recognised by MS Windows.

- ◆ Download and run the RP3List utility found on <http://www.row-ware.com/rp3usb/> and follow the instructions in the corresponding manual.

Step 5. The RP3 USB Interface is recognised, but not responding properly.

- ◆ Click the *Test* button in the *Connect* dialogue and wait for 5 seconds. Then click the same button again, now captioned *Stop*. Was there a beeping sound and/or a spinning symbol in the dialogue, every second? If not, go to step 4. If there was, go to step 6.

Step 6. The sensor data is not coming through.

- ◆ The sensor is most probably badly aligned or too far away to pick up the magnets in the flywheel. Contact your ROWPERFECT3 agent to assist in getting the sensor aligned properly.
- ◆ The RP3 USB Interface sensor or circuit board is broken. Contact your ROWPERFECT3 agent for repair or replacement.

C. Quick start guide

The most common tasks performed in *SEAN* are recording a training session, reviewing a training session as a whole, reviewing a training session stroke-by-stroke and organising training results. These tasks are described below, step-by-step.

For more details on the windows described in this Quick start guide, please consult the Reference manual (chapter D starting on page 25).

C.1. Record a training session : Row window

To record a training session, follow these steps. Make sure the interface is properly set-up and connected to the PC. Alternatively, use the build-in demo data.

- ◆ Start *SEAN* and click on the *Row* button (🕒) on the toolbar (or press [Ctrl] + [R], or select *Row* from the *View* menu alternatively).
- ◆ A dialogue *New row window* appears, asking for information about the rower. Here either enter the data needed, or open a previously saved User file.
- ◆ When finished, click *OK*, and the *Row* window is displayed.
- ◆ This window contains by default two charts (left: Force curve of current stroke; right: Stroke history of all strokes) and 8 parameter cells at the bottom. All these items (charts and cells) can be adjusted by right-clicking on them.
- ◆ Also by default, a training session is set to 2km countdown. To modify this, click the *Training* button (👤) on the toolbar (or press [Ctrl] + [T], or select *Training* from the *View* menu alternatively). When the workout has been modified, click the *Row* button (🕒) on the toolbar (or select *Row* from the *View* menu, or press [Ctrl] + [R]) again to switch back to the *Row* window.
- ◆ In the lower left-hand corner, click *Connect* (or press [Space]) to make a connection to the interface.
- ◆ The *Connect* dialogue appears, asking for details about the interface. Select the appropriate Com port or choose “Demo” and click *OK*.
- ◆ Start rowing or watch the demo.
- ◆ To cancel or to interrupt a training session, click on the *Disconnect* button (or press [Space]).

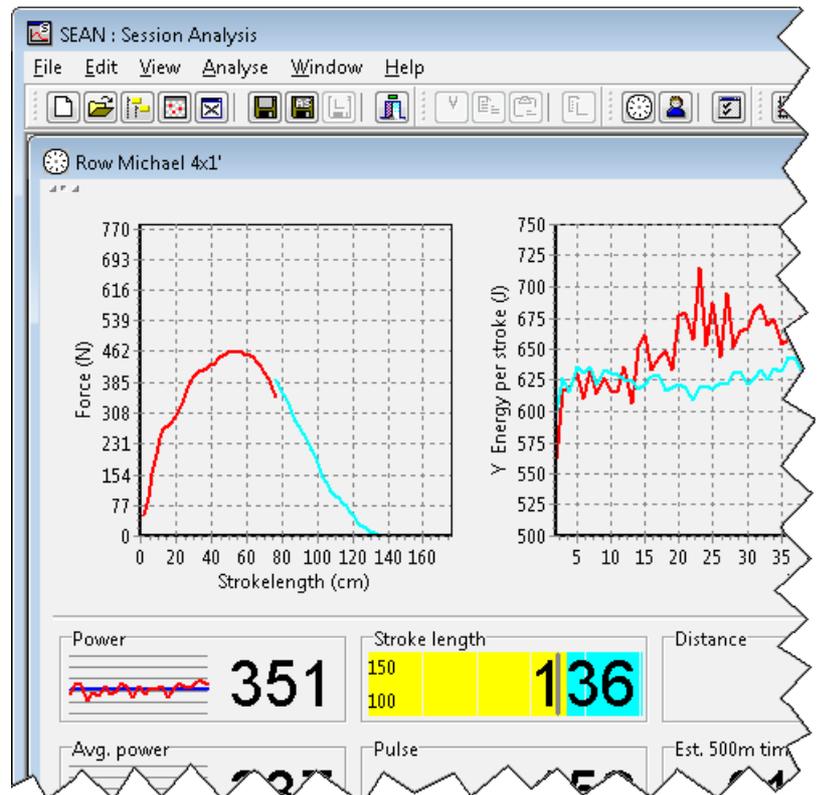


Figure 12 - Quick view : Row window

- ◆ When you have completed your training session, the *Results* window appears, displaying a session summary, the *Splits* table and - in case of an interval session - the *Intervals* overview.
- ◆ When done reviewing the results, switch to the *Training* window by clicking on the the *Training* button () on the toolbar (or press [Ctrl] + [T], or select *Training* from the *View* menu).
- ◆ The *Training* window appears, showing results and giving the opportunity to add some extra information to this training session on the *General* tab. When finished, click the *Save* button () on the toolbar (or press [Ctrl] + [S], or select *Save* from the *File* menu), to save the training session to disk.

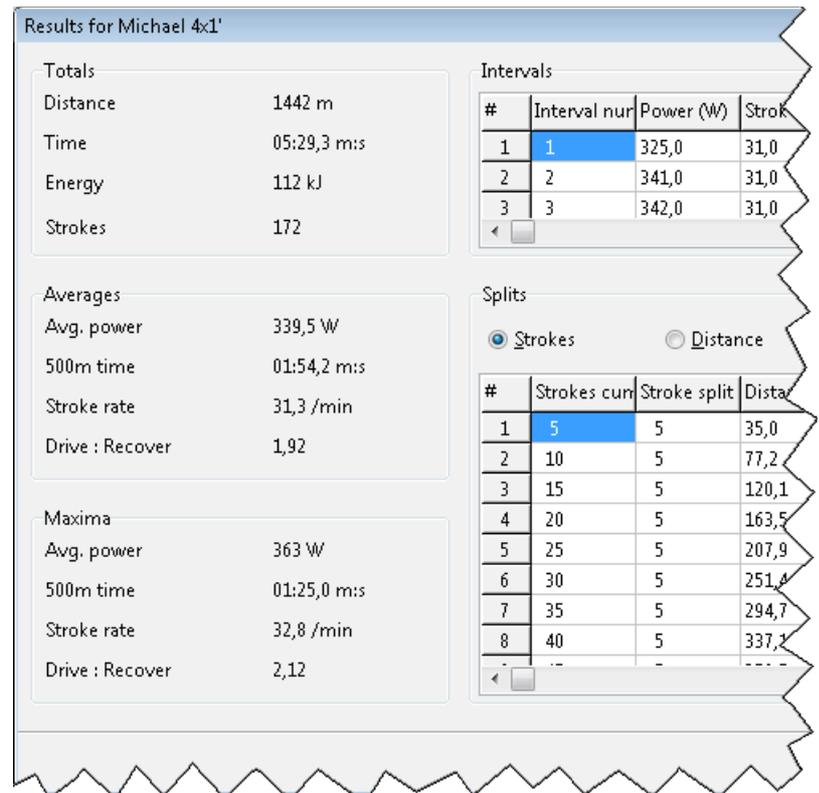


Figure 13 - Quick view : Results dialogue

Note: Training sessions can be saved from within the *Row* window as well. It is not necessary to switch to the *Training* window just for saving; it is, however, to add the extra training information.

The *Row* window is explained in detail in chapter D.15 on page 38.

Summary:

- Start *SEAN*
- Press [Ctrl] + [R] or click the *Row* button () to start a new *Row* window
- In the *New row window* dialogue, Enter your name, weight, gender, boat type and sprocket, or accept the defaults
- In the *Row* window, press [Space]
- In the *Connect* dialogue, select the appropriate source and press [Enter]
- Row 2km!
- When done, press [Ctrl] + [S] or click the *Save* button () to save the training session

C.2. Review a saved training session : Stroke data window

A training session can be reviewed by following these steps:

- ◆ Start *SEAN* and open a file by clicking the *Open* button (📂) on the toolbar (or press [Ctrl] + [O], or select *Open...* from the *File* menu alternatively).
- ◆ Click on the *Stroke data* button (📊) on the toolbar, or select *Stroke data* from the *Analyse* menu, to open the *Stroke data* window.
- ◆ Set X (bottom), Y (left) and Z (right) axes as needed, by selecting the appropriate parameter on the right-hand side of the window.
- ◆ Tick the *Average* check-box to display a running average for the selected axis.
- ◆ To compare this training session with another, just open one or more other files.
- ◆ Zoom in on the chart, by selecting a rectangle. To do so, click on the chart with the left mouse button, drag the mouse to the bottom and right, and let go of the mouse button.
- ◆ Move the chart, by right-clicking it and moving the mouse. When finished, let go of the mouse button.
- ◆ Reset a chart by selecting a rectangle from bottom-right to top-left.

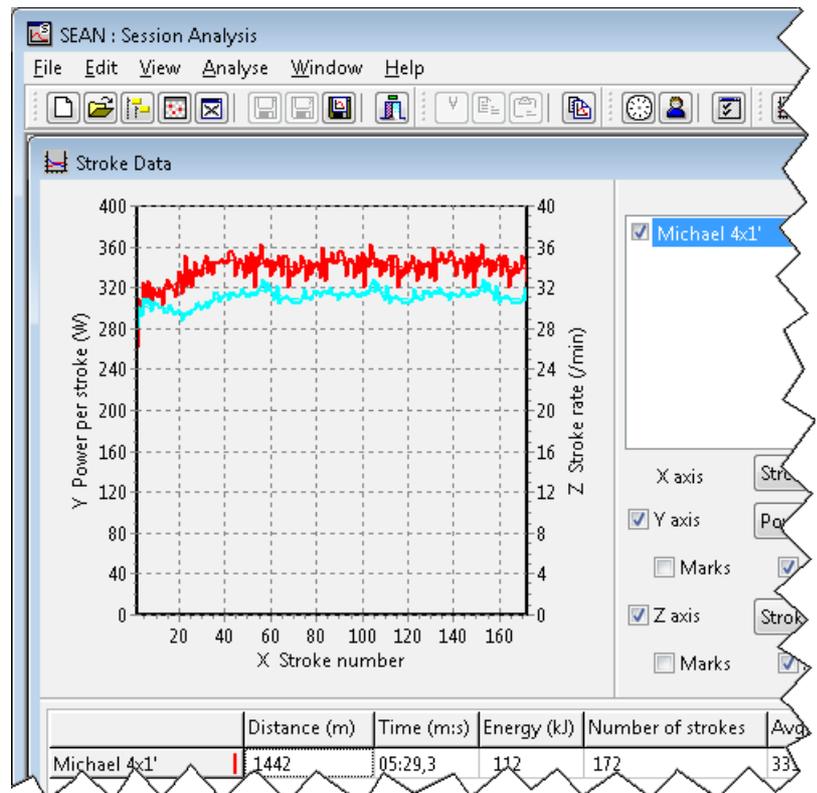


Figure 14 - Quick view : Stroke data window

The *Stroke data* window is explained in detail in chapter D.22 on page 51.

Summary:

- Start *SEAN*
- Press [Ctrl] + [O] or click the *Open* button (📂) to open a file
- Click the *Stroke data* button (📊)
- Set X, Y and Z axes

C.3. Review a saved training session : Force curves window

To analyse force curves, take these steps:

- ◆ Start *SEAN* and open a file by clicking the *Open* button (📂) on the toolbar (or press [Ctrl] + [O], or select *Open...* from the *File* menu alternatively).
- ◆ Click on the *Force curves* button (📊) on the toolbar, or select *Force curves* from the *Analyse* menu, to open the *Force curves* window.
- ◆ Click the training session in the list on the right, and use the “VCR” buttons (⏪⏩⏴⏵) or scroll bar to view the next or previous stroke. The *Play* button shows the force curves as an animation. The data area at the bottom of the screen is updated for every stroke. Optionally, select the *Session average* or *Browse intervals* to see the average force curve for the entire training session or one specific interval.
- ◆ To compare this training session with another, just open another file.
- ◆ Scale the force curves by force (vertical) or length (horizontal), for better comparison.

The *Force curves* window is explained in detail in chapter D.23 on page 53.

Summary:

- Start *SEAN*
- Press [Ctrl] + [O] or click the *Open* button (📁) to open a file
- Click the *Force curves* button (📈)
- Browse through the strokes using the “VCR” buttons (⏪|⏩) or scroll bar

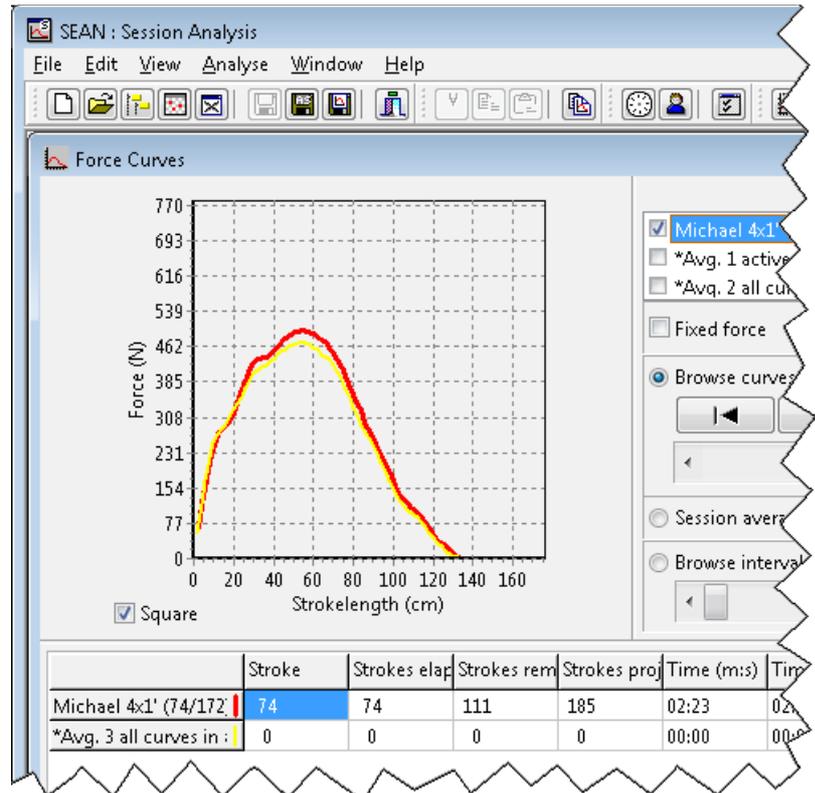


Figure 15 - Quick view : Force curves window

C.4. Review a saved training session : Session window

To review a session as a whole (stroke data AND force curves), take these steps:

- ◆ Start *SEAN* and open a file by clicking the *Open* button (📁) on the toolbar (or press [Ctrl] + [O], or select *Open...* from the *File* menu alternatively).
- ◆ Click on the *Session* button (📅) on the toolbar, or select *Session* from the *Analyse* menu, to open the *Session* window.
- ◆ Browse through the curves like in the *Force curves* window, using the VCR buttons or scroll bar, and both charts and all parameter cells are updated simultaneously. The stroke data chart at the bottom displays a reference to the “current” stroke.
- ◆ Set any of the parameter cells by right-clicking on them.
- ◆ Change the axes in the stroke data chart by right-clicking on them.
- ◆ Scale the force curves by force (vertical) or length (horizontal), for better comparison.

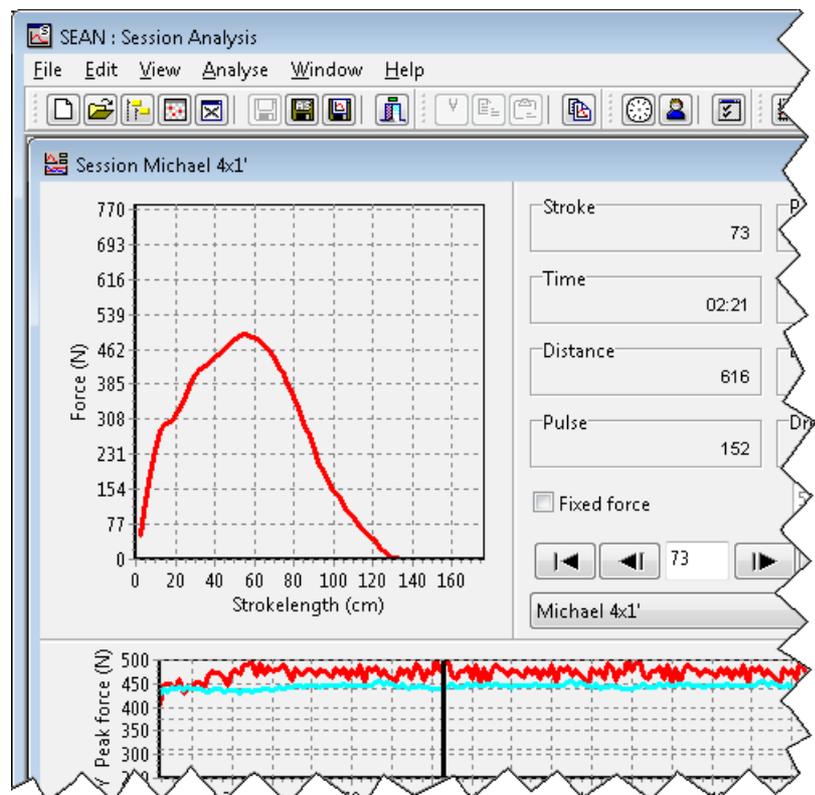


Figure 16 - Quick view : Session window

The *Session* window is explained in detail in chapter D.24 on page 55.

Summary:

- Start *SEAN*
- Press [Ctrl] + [O] or click the *Open* button (📁) to open a file
- Click the *Force curves* button (📊)
- Browse through the strokes using the “VCR” buttons (⏪⏩) or scroll bar

C.5. Organise training results : Browse window

Training results are saved in files. These can be organised through the Windows Explorer, but this can be done far more easily with *SEAN* by using the *Browse* and *Calendar* windows.

- Start *SEAN* and open the *Browse* window by clicking on the *Browse* button (📁) on the toolbar, or press [Ctrl] + [B]. Alternatively, choose *Browse* from the *File* menu.
- Here, navigate through the drives and folders of your PC as in the Windows Explorer: Double click to open a folder or file, sort data by clicking on the column titles, right-click for a pop-up menu and so on. By default, only *SEAN* compatible files are listed.
- Click on the black arrow button (🔍) to show the file info panel. When a file is selected, information such as date, time and title are listed here.
- When screen size allows (at least 1024 x 768 is needed), a preview chart can be switched on next to the file info panel, to give some more insight in the contents of the selected file, without having to open it.

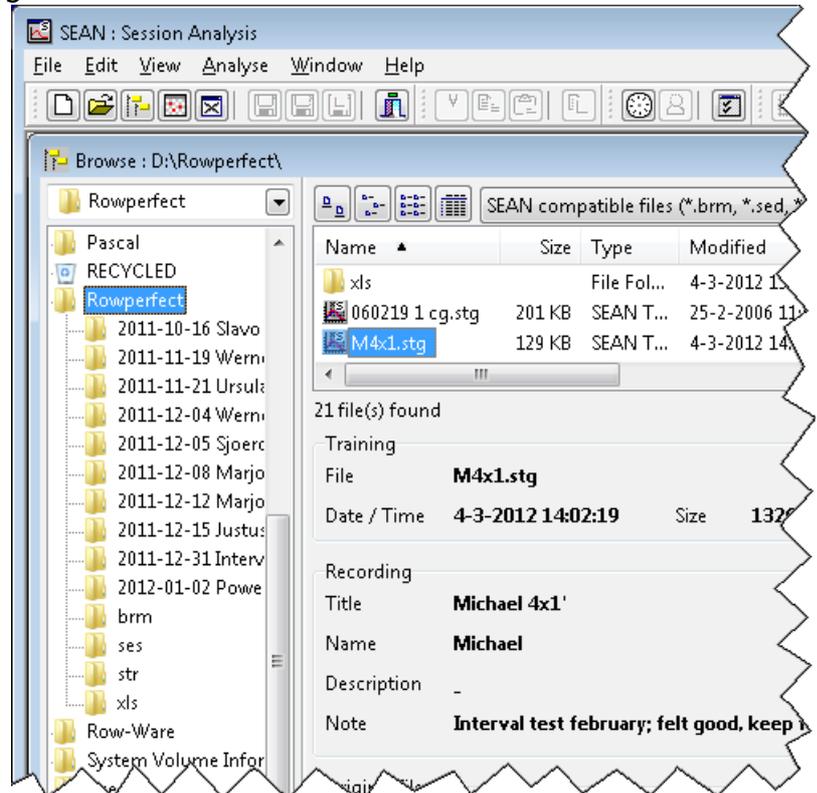


Figure 17 - Quick view : Browse window

The *Browse* window is explained in detail in chapter D.6 on page 32.

Summary:

- Start *SEAN*
- Press [Ctrl] + [B] or click the *Browse* button (📁) to open the *Browse* window
- Navigate through the files and folders as when using the Windows Explorer

C.6. Organise training results : Calendar window:

- Start *SEAN* and open the *Calendar* window by clicking on the *Calendar* button (📅) on the toolbar or choose *Calendar* from the *File* menu.
- *SEAN* will scan all files in the data folder (see B.2.3 on page 10), and present a calendar like view showing all training sessions over a six weeks period.
- Navigate through time by clicking the buttons with the names of the previous and next month on them.
- Open a training session for a specific day, by double clicking that date. If more than one file is present for a date, a list will be shown from which to choose.
- To start a new training session for a specific date, right-click the date and choose the *New training session* option in the pop-up menu.

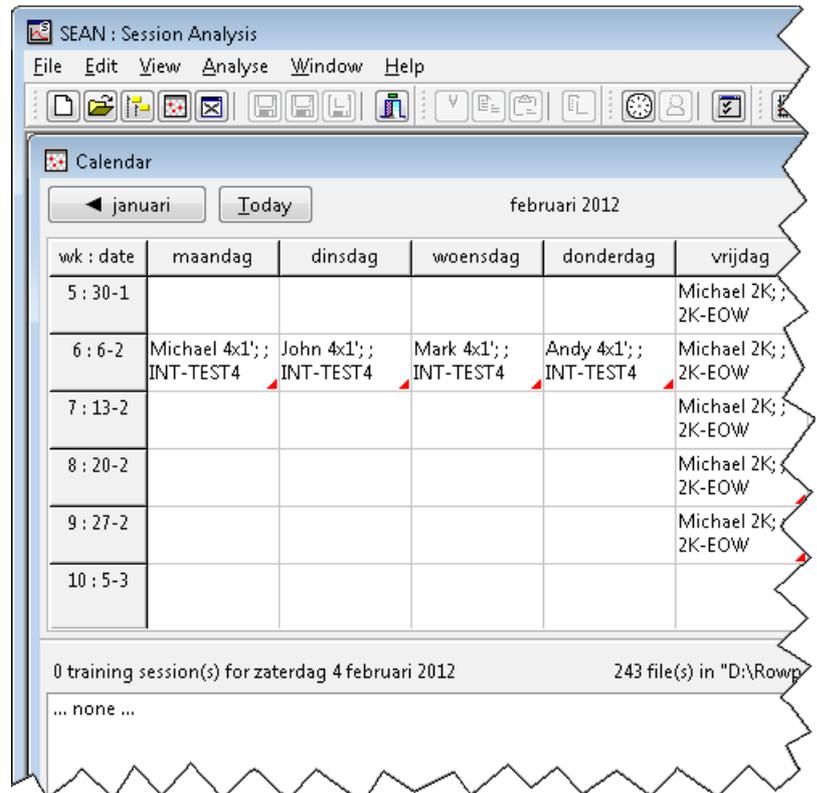


Figure 18 - Quick view : Calendar window

The Calendar window is explained in detail in chapter D.7 on page 33.

Summary:

- Start *SEAN*
- Click the *Calendar* button (📅) to open the *Calendar* window
- Navigate through time with the buttons in the top left and right corners of the window
- Open a training session by double clicking a date

D. Reference manual

This section presents a detailed description of all the aspects of *SEAN*. It starts with some common user interface features that apply to (almost) every window in the programme, and then addresses all windows, dialogues and menu-items one by one.

D.1. Standard user interface features

The image below shows a number of standard window items:

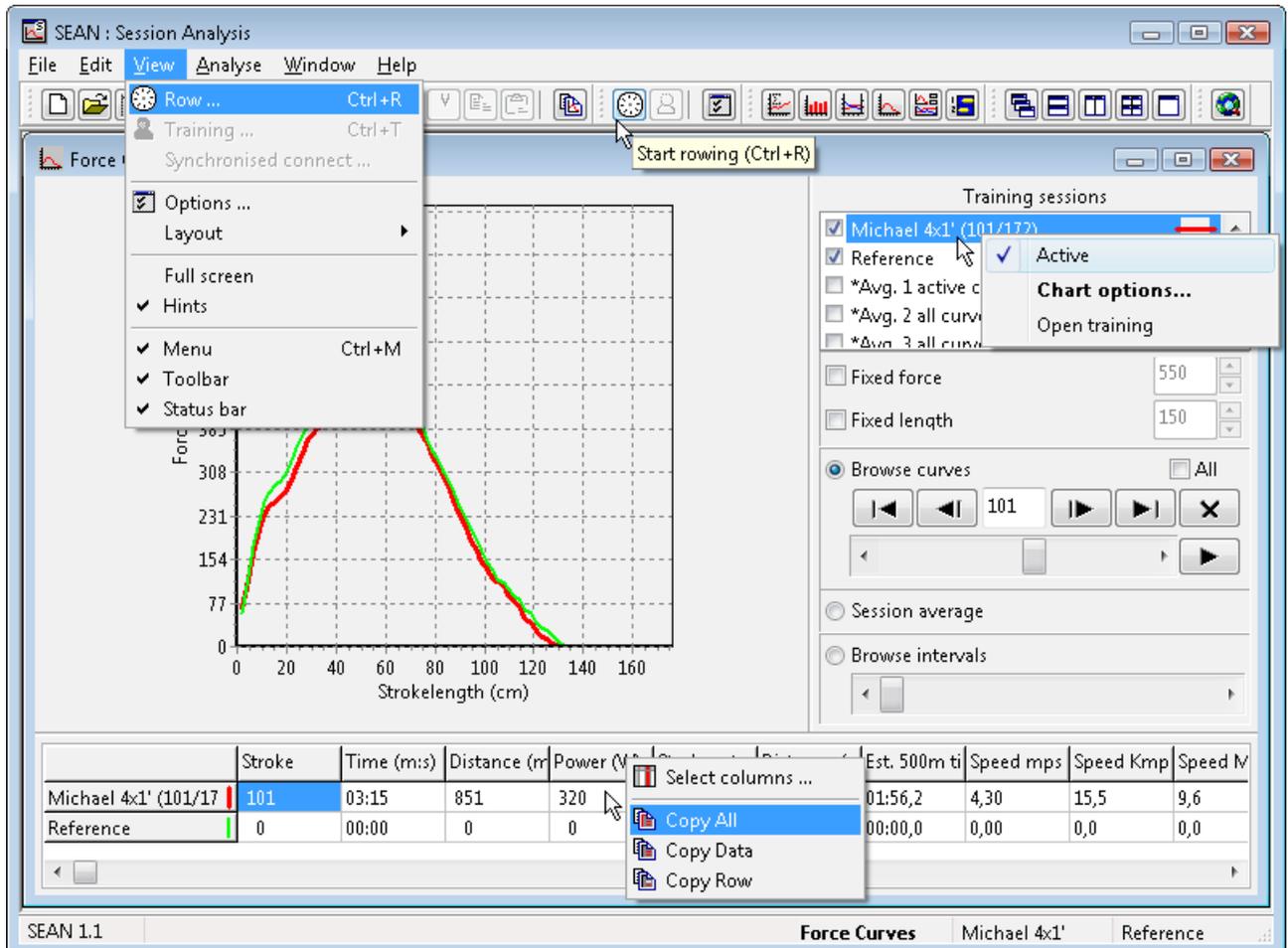


Figure 19 - Standard windows items

- ◆ The (usually) dark blue or black bar on the top stating “SEAN : Session Analysis” is called the (Main) Title bar.
- ◆ The second “line” is the Menu bar, with common items like *File*, *Edit* and *Help*.
- ◆ Menu items can have Short cuts, meaning key(-combinations) which activate the items. Short cuts are shown next to a menu item, e.g. the *Row* window can be opened by pressing the [Ctrl] and [R] keys simultaneously.
- ◆ The images on the third line are called the toolbar. The buttons shown here are also visible in one of the menus. Items that can not be used at the time are greyed out (dimmed). Right-clicking the toolbar allows for hiding buttons associated with a specific menu.
- ◆ Hovering the mouse over an item on the screen and holding it still for a few seconds, will show a Hint (or Tool tip) near the mouse pointer. Short cuts are also shown in these hints.
- ◆ The bottom bar is called the Status bar. It contains the programme version on the left, and - when available - extra information on the item the mouse is pointing at.
- ◆ On several locations throughout the software, clicking with the right mouse button will show a Pop-up menu from which specific actions can be selected.

As some options are available through a menu item as well as by clicking a button on the toolbar, things can be accomplished in different ways. For example, to open a *Row* window, you can either:

- Select *Row* from the *View* menu
- Click the *Row* button (🚣)
- Press [Ctrl] + [R] simultaneously
- Use the command line parameter “/R” (see D.31).

Most analysis windows in *SEAN* have a common layout, and consist of three areas:

1. On the top-left, there's a Chart (or regatta course, in case of the *Race* window).
2. The Training sessions list can be found in the top-right. A training session can be temporarily switched on and off by (un-)checking the check box in front of it. “Checked” training sessions are called “Active”. To change the colour of a training session and corresponding graph (or boat) in the chart, double click the name in the training sessions list. This will bring up the *Chart options* dialogue, as shown in Figure 20. Use the pop-up menu alternatively.
3. The Data area is visible at the bottom. Columns can be re-sized by dragging (clicking with the left mouse button and holding it down) the line between two columns. Right click for a pop-up menu that allows for hiding or showing columns and copy the data to the clipboard. From there, they can be pasted in - for example - MS Word or MS Excel. An example of this is given in paragraph D.22.

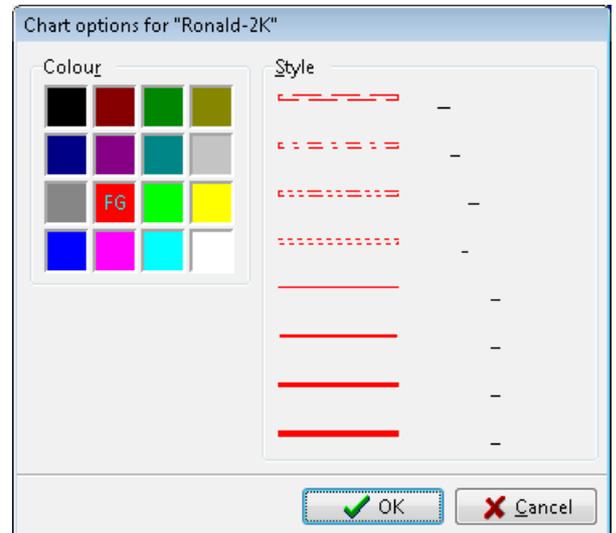


Figure 20 - Chart options

The width of the list of training sessions and the height of the data area can be changed by dragging the Splitter (thick grey line) next / above the area.

All charts in *SEAN* have these common options:

- ♦ To zoom in on a part of a chart, “draw” a window from top-left to bottom-right by clicking with the left mouse button.
- ♦ To move a chart, right-click it and drag the chart.
- ♦ To reset a chart to it's original position / zoom, “draw” a window from bottom-right to top-left.

When *SEAN* is running, the Windows screen saver and energy saver are blocked, to prevent problems when recording a training session.

Most of the customisations made in *SEAN* (e.g. data area columns in the *Stroke data* window, parameter cells in the *Row* window) are automatically saved upon exiting the programme and re-used the next time the programme is started.

D.2. Training

All data associated with a training session are visible in a *Training* window. A *Training* window consists of five tab pages:

D.2.1. Training - General

This tab page contains information about the name of the athlete, date and time of recording and some extra information like type of training session. The lists of the Name, Description, Type and Event fields are stored for future reference, so it's not necessary to type common values here over and over again: just select them from the list. There's also a Note field to add text that can't be categorised.

Title, Name, Date / time and Chart options are set automatically, but can be changed as needed. The other values are optional.

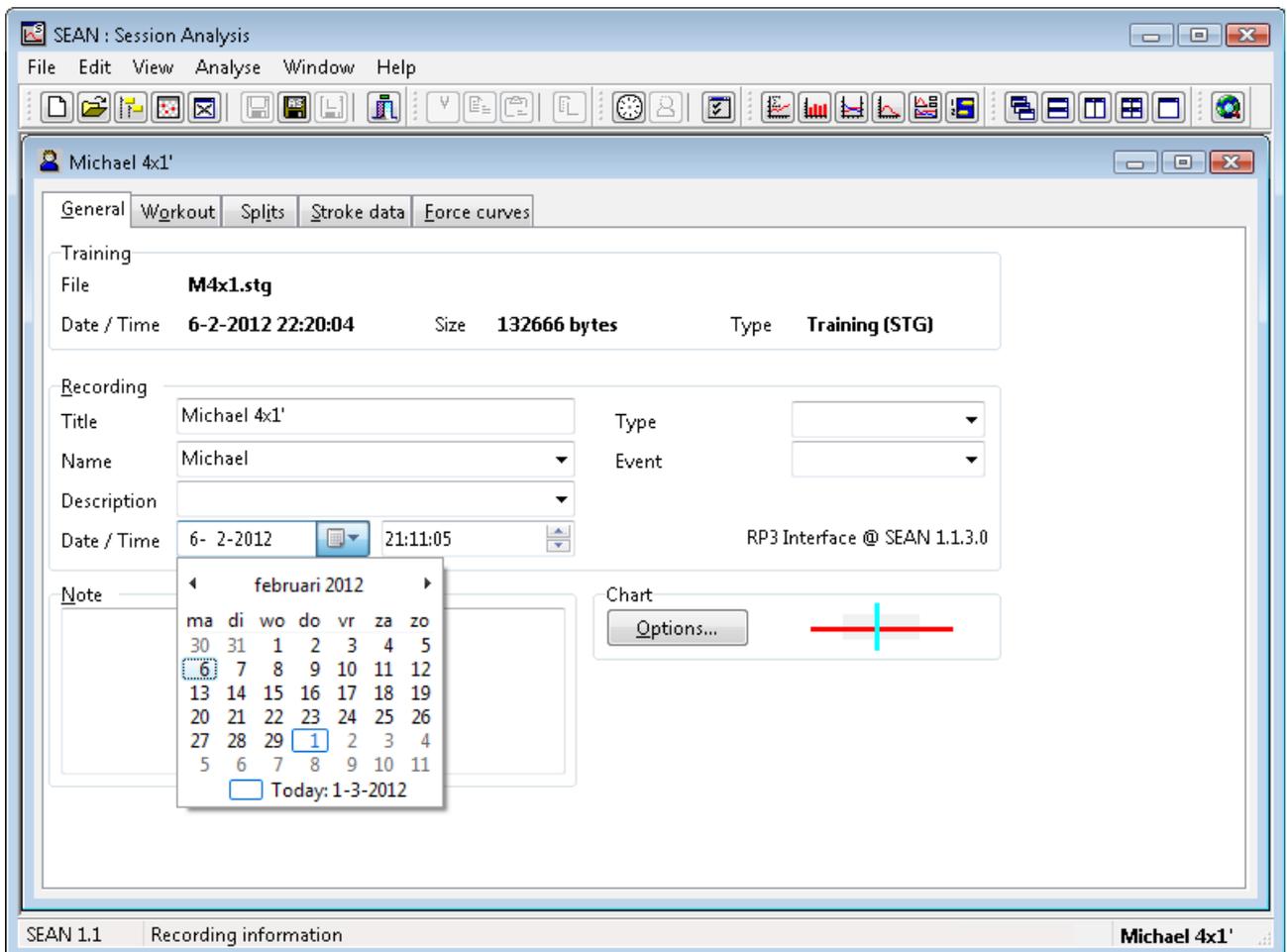


Figure 21 - Training General

An asterisk (*) next to the group box captions (*Training*, *Recording* and so on) indicates the training session data have been changed, and might need to be saved.

Every training session can have its own colour in the various charts available in *SEAN*. Set the colour and line type by clicking the *Options* button, or double-clicking a name in a training session list (see D.1).

D.2.2. Training - Workout

The *Workout* page contains the User settings (Weight and training definition) and training results. The data shown in *User* group box can only be modified in new training sessions (see D.4) and User files. The values shown in *Totals* and *Averages* are calculated, and cannot be modified manually.

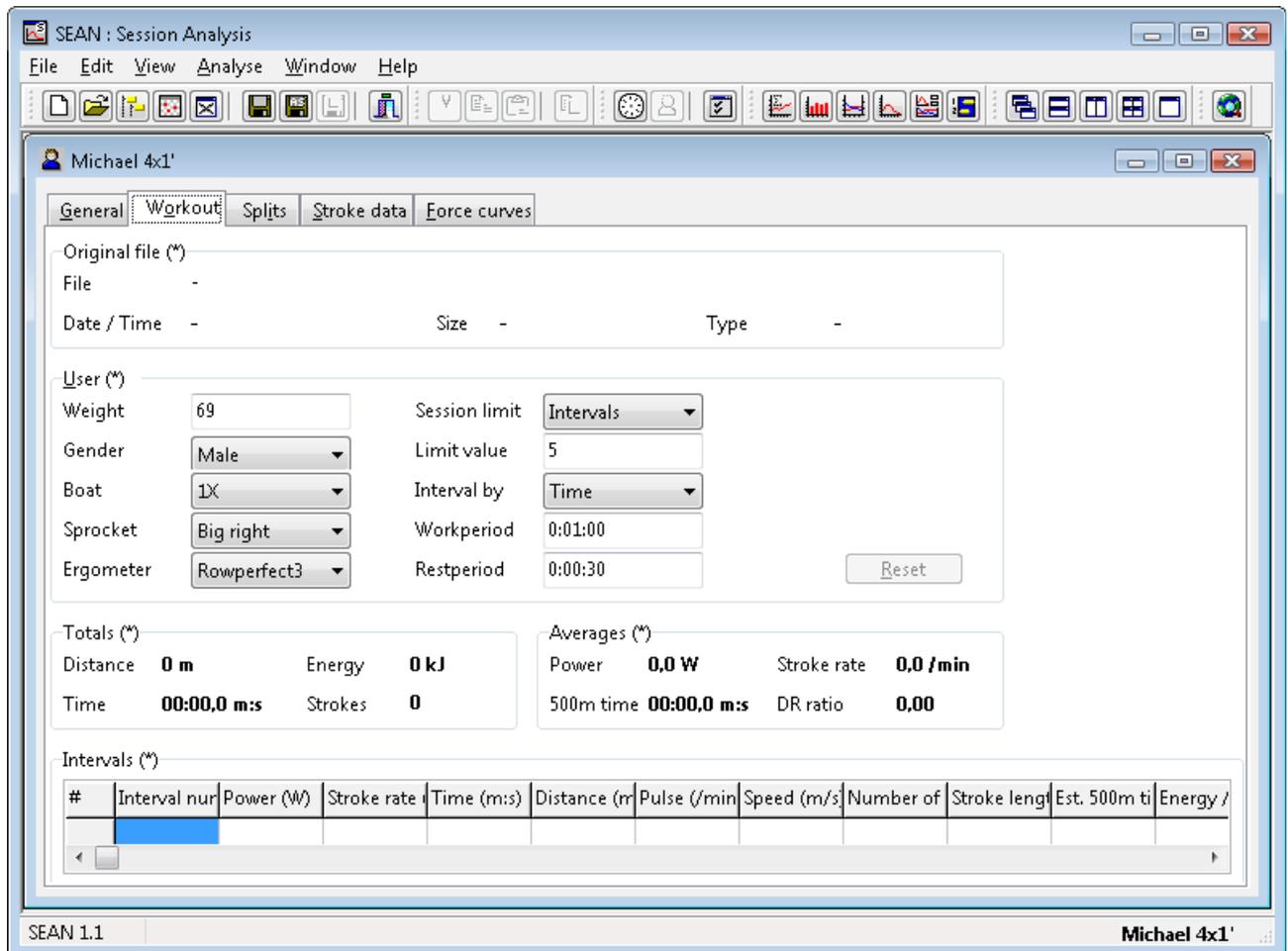


Figure 22 - Training Workout

A session that has already been recorded can be reset to record using the same settings again, by clicking the Reset button.

The type of training to be performed can be chosen by defining a certain amount of work to do or by indicating a certain intensity. This can be expressed in terms of Strokes, Energy, Distance, Time or Intervals, to be set using the drop down box next to *Session limit*.. The chosen parameter then is counted from the *limit value* down to zero. If the limit value is set to zero, the session is considered to be “infinite” and the values in the *Row* window will count up from zero until the session is cancelled, a power failure occurs or Hell freezes over - whatever comes first.

If the session limit Intervals is chosen, the number of intervals, and the units in which the intervals are going to be counted down can be selected, with separate values for the work and rest period.

The example in Figure 22 will result in a session consisting of 4 work periods, each 1 minute long, and 3 Rest periods of 30 seconds each: WORK1, REST1, WORK2, REST2, WORK3, REST3, WORK4.

Note: Always choose the number of intervals one higher than the number actually to be rowed.

At the end of the session the results as shown in the *Totals* and *Averages* group boxes are displayed in

the Results dialogue. When a session is limited by Interval, the *Training* window as well as the *Results* dialogue will display a summary for each interval. For training sessions limited any Distance, Time, Strokes or Energy, this interval summary will not be visible, as it wouldn't contain any data.

D.2.3. Training - Splits

The third tab contains the *Splits*. Here the stroke data can be split into fragments of an equal number of strokes, distance or time. Data in the split-unit is displayed both as a “cum.” (cumulative) as well as a “split” column.

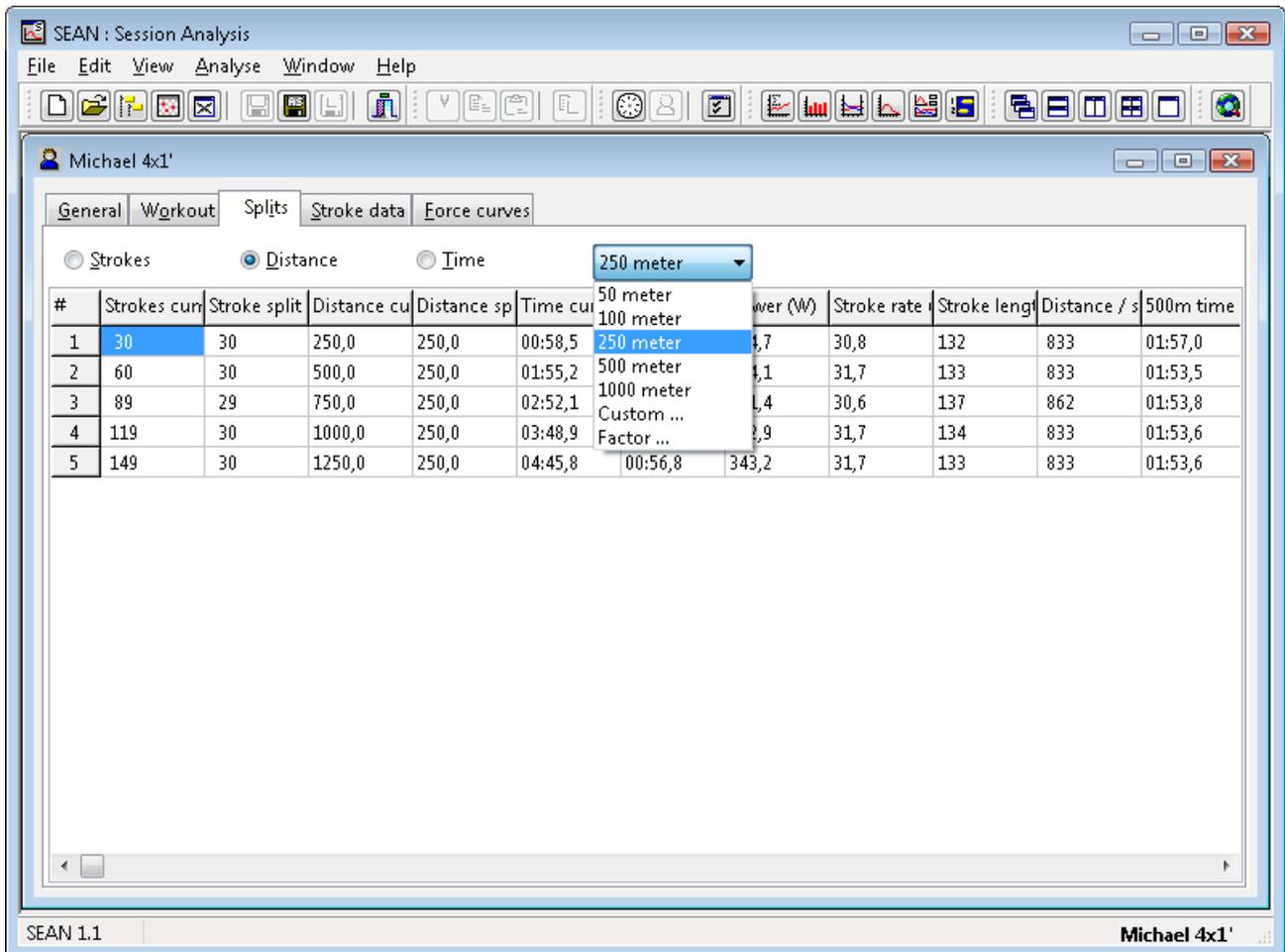


Figure 23 - Training Splits

The three split-units each have their own “value” options: *Strokes* can be split into equal portions of 5, 10, 20, 25, 50 or 100 strokes. *Distance* can be split into equal portions of 50, 100, 250, 500 or 1000 meters. *Time* can be split into equal portions of 0:30, 1:00, 2:00, 2:30, 4:00 and 5:00 minutes. To allow for “custom” splits, the aptly named “Custom ...” can be selected from the values pop-up, to enter a different split value (e.g. “Distance at 200 meter”). Finally, one can break down a training session in exact equal parts using the “Factor ...” option (e.g. “Time in 10 splits” will break down a training session of 7:00 minutes into 10 splits of 42 seconds).

D.2.4. Training - Stroke data

On the fourth tab is a long list of all Stroke data saved in a file. This tab is “read-only”.

D.2.5. Training - Force curves

The last page contains the force values for all saved Force curves. Again, read-only.

Data shown in the Intervals, Splits, Stroke data and Force curves areas can be copied to the clipboard

by clicking on it with the right mouse button. An example of this is described in D.22.

D.3. File types

SEAN can handle - that is read and write - several different file types, each with their own distinctive features and background.

-  SEAN BRaM Files (BRM) are text based, tab delimited files containing either stroke data, force curves, intervals or user settings. These files originate from the CARE/DOS software, and can easily be imported into other programmes, for example MS Excel or MS Word.
-  SEAN Desktop Files (SED) contain SEAN windows settings and references to training sessions. They are explained in D.12 (page 36).
-  SEAN Session Files (SES) originate from the CARE/DOS software also, and contain intervals, stroke data as well as (up to 200) force curves for a specific training session. They are limited not only in the number of force curves, but also are not capable of storing parameters that are not available in the CARE/DOS software, such as Drive Recover ratio.
-  SEAN Training Files (STG) are the native *SEAN* files. They contain all the information associated with a training session, including an unlimited number of strokes and curves and extra user information such as name, event and date. When a Training File is stored without recorded data, it is called a User File.
-  SEAN Stroke Files (STR) contain just one single force curve and the stroke data that goes with it. These files were originally intended to store reference curves, so these could be sent to others.
-  User files (INI) define the workout settings as used in the CARE/DOS software. They can be read and written by *SEAN*, but lack the extra information that can be entered on the *General* page of a *Training* window.
-  MkIV Session Files (MKS) are the Session files generated and stored on the Rowperfect MkIV monitor.
-  MkIV Stroke Files (MKR) are the Stroke files generated and stored on the Rowperfect MkIV monitor.
-  MkIV User Files (MKI) are the User files generated and stored on the Rowperfect MkIV monitor.
- SEAN Row Layout Files (SRL) contain *Row* window settings, like chart and parameter cell options. To be used by *SEAN*, these files need to reside in the *SEAN* data folder (see B.2.3 on page 10). Layout files are discussed in D.18 (page 47).

For exporting data, the *Export training session* dialogue also allows for choosing SportTracks FitLog files (*.FITLOG), Text files (*.TXT) and Excel worksheets (*.XLS) files.

Note: SES, INI and BRM files are available only for compatibility with *CARE/DOS*. Use of these file types is discouraged when saving data in *SEAN* because of the limitations they imply; use their *SEAN* counterparts (STG for sessions and User Files) and TXT or XLS instead.

D.4. File - New

To create a new, empty training session (to start a new row session or so store as a User file), click the *New* button (📄) on the toolbar, select *New* from the *File* menu or press [Ctrl] + [N]. An empty *Training* window appears, which can then be filled in as needed.

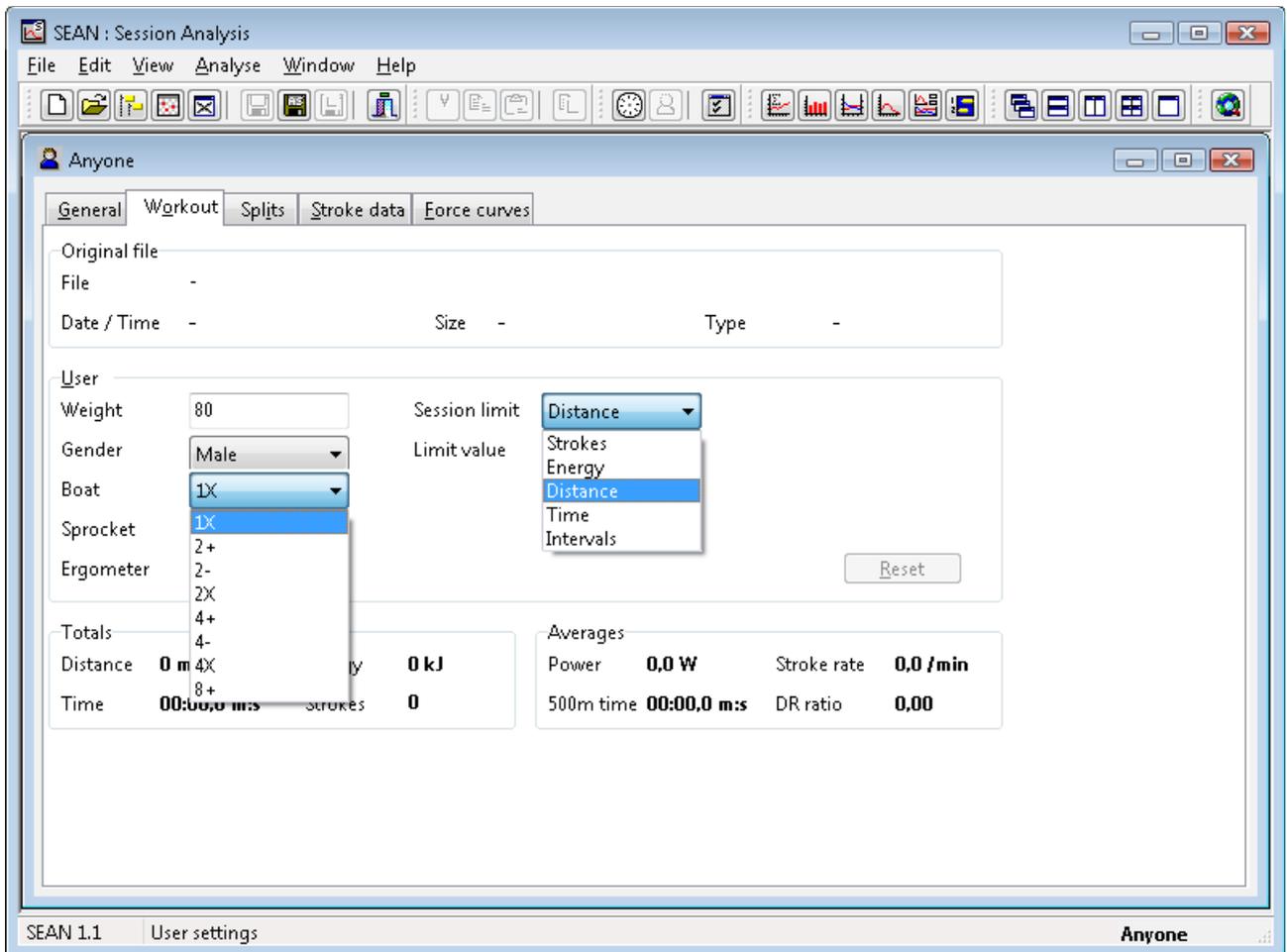


Figure 24 - Training New

To create a new file with some defaults already set, e.g. Name and Weight, create a new file, enter the preferred default values and save it as either DEFAULT.STG or SEAN.STG in the *SEAN* data folder (see B.2.3 on page 10). When both files are present, SEAN.STG overrules the other one:

- When *SEAN* is started, it looks for a file named SEAN.STG in this data folder first. If found, values the training session are used for any new *Training* or *Row* window.
- When no such file is found, *SEAN* searches for the DEFAULT.STG file in the same folder. Again, if found, data is used for any new Training Session.
- When neither of these files can be located, *SEAN* will use the built-in defaults resulting in a session for someone named “Anyone” who weighs 80kgs, rows in a single (1x) and uses the right/big sprocket setting.

New files can also be created from within the *Calendar* window, see D.7.

D.5. File - Open

To open an existing *SEAN* compatible file, click the *Open* button (📂) on the toolbar, select *Open ...* from the *File* menu or press [Ctrl] + [O]. A standard *Open file* dialogue appears. Here one or more files can be selected to open simultaneously.

Opening files can be done in a number of ways, besides using the toolbar or the *Open ...* option from the *File* menu:

- ♦ By dragging one or more files from the Windows Explorer or Windows Desktop and dropping it/them onto a *SEAN* icon
- ♦ By dragging one or more files from the Windows Explorer or Windows Desktop and dropping it/them onto a running copy of *SEAN*
- ♦ By using the *Browse* window (see D.6)
- ♦ By using the *Calendar* window (see D.7)
- ♦ By using the command line parameters (see D.31) specifying one or more files to open automatically at programme start-up. This is especially handy for opening User files to record a training session.

Names of files that have been opened, are added automatically to the bottom of the *File* menu, up to a maximum of 10, in a recently used file list. These files can now be easily re-opened by selecting them from this list, instead of having to go through any of the procedures mentioned above.

D.6. File - Browse

With the *Browse* window, available through the *Browse* button (📁) on the toolbar and the *Browse ...* option in the *File* menu, one can go through ones archives of training sessions and check the extra data saved in a training before opening one. Alternatively, pressing [Ctrl] + [B] will open the *Browse* window also.

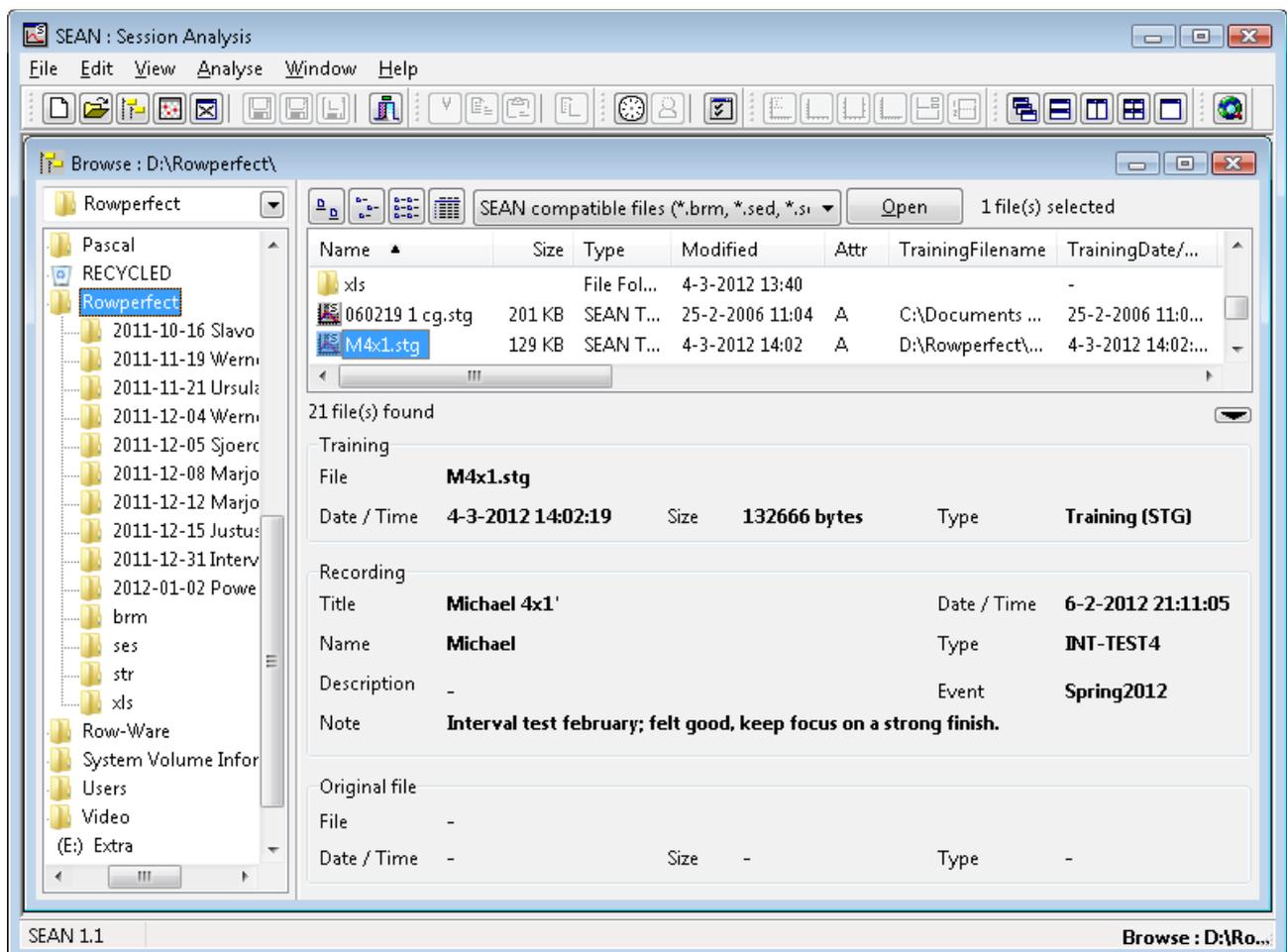


Figure 25 - Browse window

To switch to a different folder or drive, click on the Drive drop-down box or select a folder in the Folder tree. To filter the file list, select a different file type in the drop-down box next to the *Open*

button. The file list as well as the folder tree behave quite like the Windows Explorer does:

- In the file list, columns can be resized (drag the line between two columns) and sorted (click on the column header).
- The way files are listed can be changed (Large icons, Small icons, List or Details). To do so, click one of the four corresponding buttons (   ).
- Right clicking a file or folder shows a pop-up menu with options for renaming, copying and so on.

To open one file, simply double-click it, or select it and click the *Open* button. To select multiple files, hold down the [Shift] key and select a range of files, or hold down the [Ctrl] key and click additional files. When done making a selection, click the *Open* button to have SEAN open each file in a separate *Training* window.

By clicking the black arrow button () in the lower-right corner of the Browse window, a file info panel will be revealed. This file info is shown here as a reference only. All these values are also visible as columns in the detailed view. The data is updated when different files are selected in the file list. To hide the file info panel, click the black arrow button () on the right.

When window size allows (measuring at least 1024 x 768), a preview chart appears next to the file info. This graph shows the *Power per stroke* and *Stroke rate* data from the file, as a simple preview to help find the correct file.

This chart is updated for each selected file in the file list too, and can be a very convenient way to quickly identify a training session.

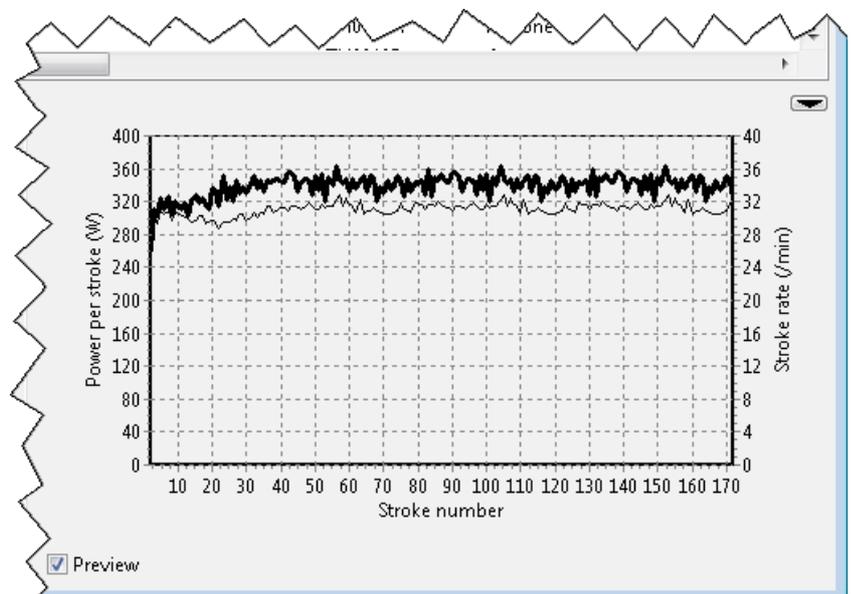


Figure 26 - Browse - Preview chart

D.7. File - Calendar

The *Calendar* window shows all *SEAN* compatible files in the calendar folder and below in a calendar view. To open it, choose the appropriate option from the *File* menu or click the *Calendar* button () on the toolbar. Navigating through time is done with the *previous month* () and *next month* buttons () in the top of the window, or by double clicking a date before or beyond the current month. To see the details, the list of training sessions, for a specific date, simply click on it or select it by using the arrow keys. To open a training session, double click the date, or select the date and press the [Enter] key. When more than one training session exists for that specific date, a small *Select training* dialogue appears, from where a file can be selected.

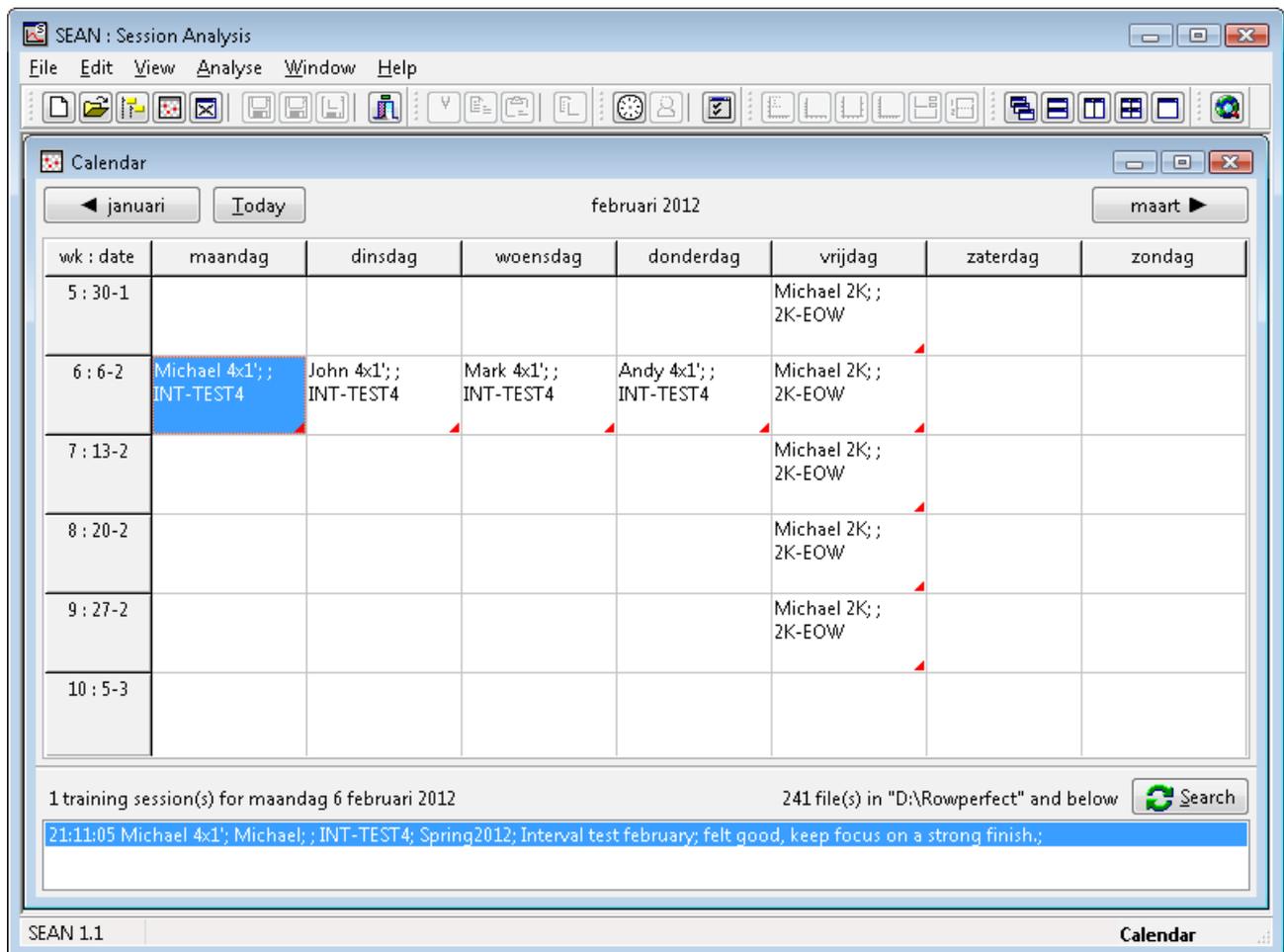


Figure 27 - Calendar window- overview

To add (or start) a new training session for a specific date, right-click the date and choose *New training session* from the pop-up menu. For “empty” dates, one can also just double click on them. This new training can be an entire session, or just the “definition” of one, a User file. User Files contain the settings for weight, limit type, intervals etc. and also contain date and time, a title and all the other information available on the first tab page of a *Training* window (see D.2.1). This way, one can define a training schedule up front, and use the pre-defined User Files for workouts later.

To make creation of repetitive User Files easier, a training session can be copied from one date to another:

- Select the original date
- Right-click on it and choose *Copy ...* from the menu
- Select the target date
- Right-click and choose *Paste ...* from the menu

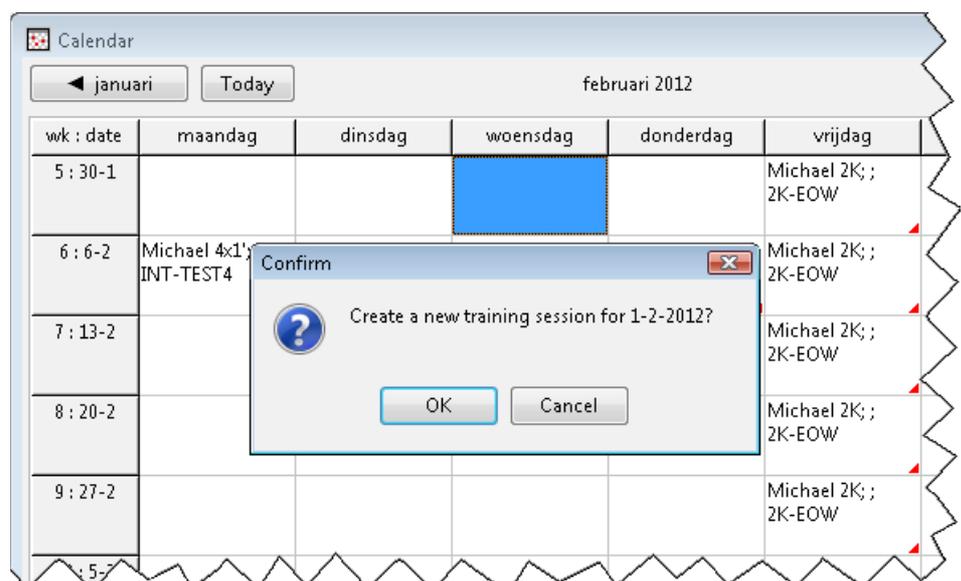


Figure 28 - Calendar window - new training session

The base path and layout of the *Calendar* window are customisable through the *Options* dialogue (see D.17.4). By default, it shows a period of six weeks: the current month with one week preceding and one week following.

D.8. File - Close

The option *Close* in the *File* menu closes the current window, regardless of its contents or origin. It has the same effect as clicking the close icon in the upper right hand corner of the window. For *Row* and *Training* windows, a confirmation dialogue will be presented asking if the modified data can be discarded. When this data needs to be saved, click *Cancel* and save the data by using the *Save* or *Save as...* options from the *File* menu (see D.9 and D.10).

SEAN can also save a new or existing training session automatically (see D.17.5). This will show a dialogue stating file and folder name, as in Figure 30.

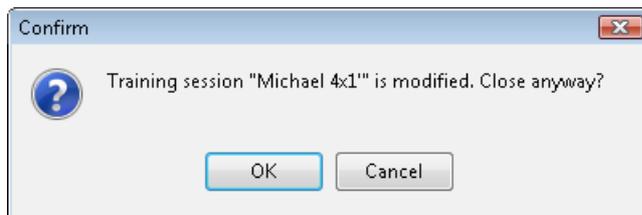


Figure 29 - Training session is modified

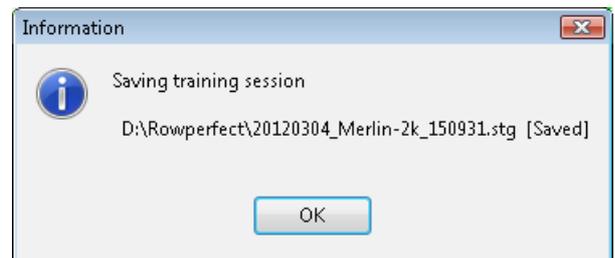


Figure 30: Training session saved

D.9. File - Save

To save a new training session or an existing training session under the same name as it has been opened with, switch to the *Training* window and click the *Save* button (📁) on the toolbar, choose *Save* from the *File* menu or press [Ctrl] + [S]. For a new training session, the *Export training session* dialogue will be shown (see D.10).

D.10. File - Save As

To save a training session under a different name, or as a different type of file, use the *Save As* option. To do so, click the *Save As* button on the toolbar (📁) or select *Save As ...* from the *File* menu. This will bring up the *Export training session* dialogue.

Here a different path, name and / or file-type for the training session can be chosen. The file types are described in more detail in paragraph D.3. on page 30.

When reviewing force curves in the *Force curve* or *Session* window, using the *Save as ...* option will save the current force curve of the selected training session as a Stroke (*.STR) file.

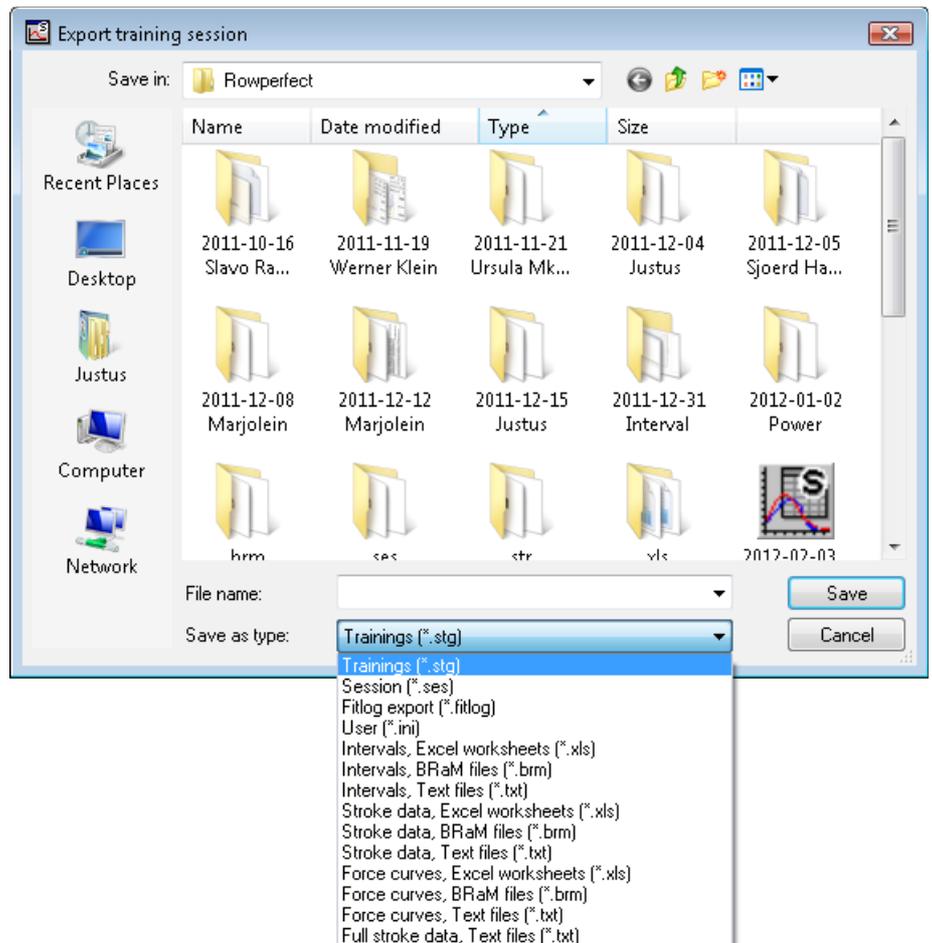


Figure 31 - Export training session

D.11. File - Save chart

When a chart is visible, the *Save chart* option can be used to save the current window to a BMP file. To do so, click the *Save chart* button (🖨️) on the toolbar, or choose *Save chart ...* from the *File* menu. The background will temporarily be set to white, so the screen might flicker for a moment. A dialogue titled *Save chart as file* will be shown to enable choosing the folder and name for the file.

D.12. File - Save desktop

To work on the same set of files on multiple occasions, save the workspace (which window is placed where, what trainings are opened and so on) in a SEAN Desktop file (SED). Opening a Desktop file restores the workspace in its previous state, without having to open the files by hand and choosing the same analysis windows from the *Analysis* menu again.

To open a Desktop file, use the various ways for opening any SEAN compatible file (see D.5 on opening files). To create, save or update a desktop file, select *Save desktop ...* from the *File* menu.

Note: Only one desktop file can be opened at the same time.

D.13. File - Exit

To exit *SEAN*, choose *Exit* in the *File* menu, or click the *Exit* button () on the toolbar. The programme can also be closed by pressing [Alt] + [F4], or clicking on the close button in the top-right hand corner of the window.

When closing *SEAN*, all custom made modifications (chart axes, column sizes, parameter cells etc.) are saved to be re-used when *SEAN* is run again. If any changes in Training sessions have not been saved yet, a confirmation dialogue warns for this.

D.14. Edit menu

SEAN comes with a standard Windows *Edit* menu, with the usual options:

- ◆ *Cut* (). Cuts the selected text and places it on the clipboard. Shortcut [Ctrl] + [X]
- ◆ *Copy* (). Copies the selected text and places it on the clipboard. Shortcut [Ctrl] + [C]
- ◆ *Paste* (). Pastes the text on the clipboard at the current position, Shortcut [Ctrl] + [V]
- ◆ *Find*. Opens the *Find* dialogue to search for text within the current field. Shortcut [Ctrl] + [F]

Non-standard is the *Copy chart* option. Selecting this, or clicking the *Copy chart* button () on the toolbar, copies the current window contents to the clipboard as an image. The background will temporarily be set to white, so the screen might flicker for a moment. From the clipboard, the chart can then easily be pasted in, for example, a word processor such as MS Word or OpenOffice.org Writer as shown below:

- ◆ Open an analysis window and select the *Copy chart* option from the *Edit* menu.
- ◆ Open OpenOffice.org Writer and place the cursor where the chart should be.
- ◆ Choose *Paste* from the *Edit* menu in OpenOffice.org Writer (or press [Ctrl] + [V]) to paste the chart.

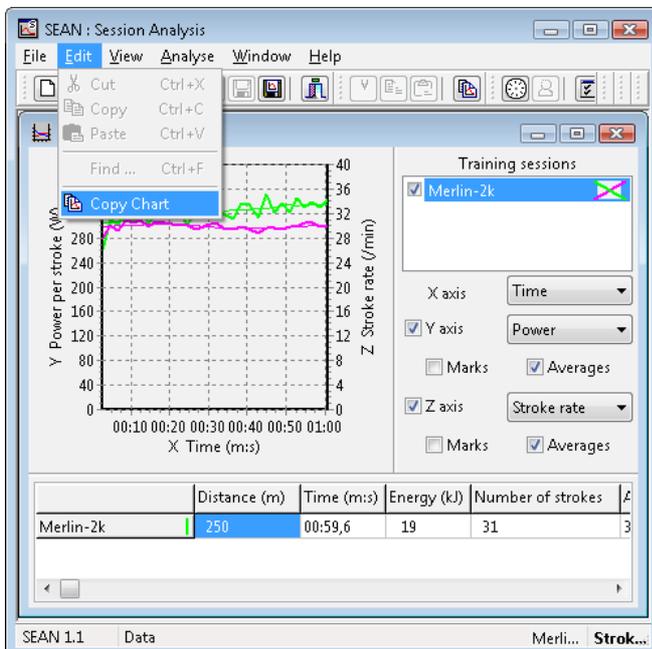


Figure 32 - Copy chart (SEAN)

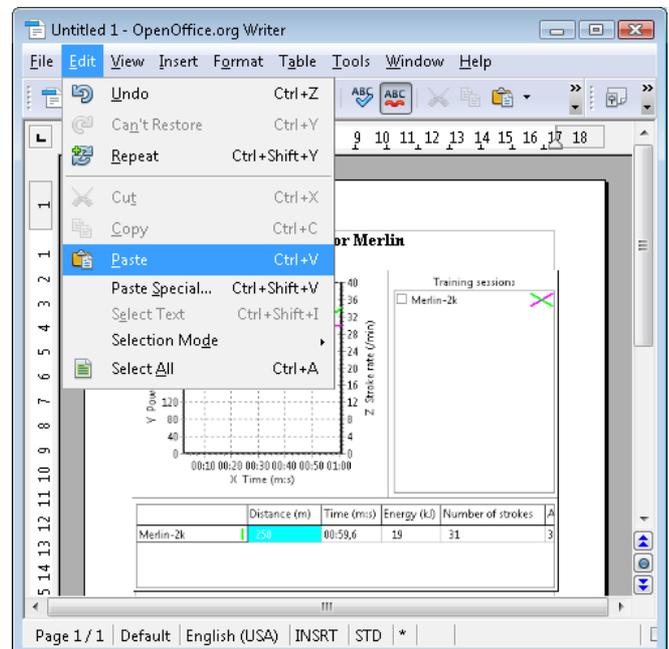


Figure 33 - Paste chart (OpenOffice.org Writer)

D.15. View - Row

To record a training session, click the *Row* button (🚣) on the toolbar (or select *Row* from the *View* menu, or press [Ctrl] + [R]).

The *New Row Window* dialogue appears. Values for Name, Weight and so on are based on data taken from an optional SEAN.STG or DEFAULT.STG file in the *SEAN* data folder (see D.4), or default to John Doe named “Anyone”, weighing 80kgs and rowing in a single, as shown in Figure 34. Make the appropriate changes, load a User File from disk by clicking the *Open...* button or accept the present values by clicking *OK*.

Now the *Row* window opens.

To connect to the interface, click the *Connect* button, or press [Space].

In the *Connect* dialogue, specify which source to use. *SEAN* comes with demo data built-in, to test the software without being connected to a Rowperfect at all. To search all ComPorts for presence of an Interface, click the *Search* button.

To test whether the selected source is working properly, click the *Test* button. It will sound a beep every time a magnet in the flywheel moves past the sensor, or, when it’s not turning, approximately every second. Also a “spinning symbol” will be visible, indicating the turning of the flywheel. When the *Test* button is clicked, four numbers appear at the bottom of the dialogue. These numbers indicate sensor detection accuracy. To verify sensor detection, the flywheel must be spinning. The numbers shown there are not (really) relevant, but they should be more or less stable. When they vary much, there is some problem detecting all magnets and/or reading the interface data at all. Refer to the troubleshooting paragraph B.2.9.

xxxxxxxxxxxxx

When the *Connect* dialogue is closed by using the *OK* button, *SEAN* is ready for action and will begin recording when the flywheel of the rowing simulator starts turning. In the lower right corner of the window, a little clock indicates the period the interface has been detected.

Furthermore, on the left corner of this window, next to the *Connect / Pause* button, 3 boxes indicate the current state of the interface, flywheel and stroke:

- ◆ The source (the com port the interface is connected to, or “DEMO” for demo data, or blank when not connected)
- ◆ The speed of the flywheel (a small line “spinning” at half the rpm the flywheel does)
- ◆ The phase of the stroke (showing a “D” for the Drive part, an “R” for the Recover).

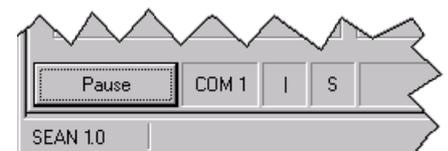


Figure 36 - Status indicators

The third box, indicating the phase of the stroke, will be coloured red and green when doing an interval session. During the work period, the box is coloured green (“go!”), during the rest period it is red (“easy”).

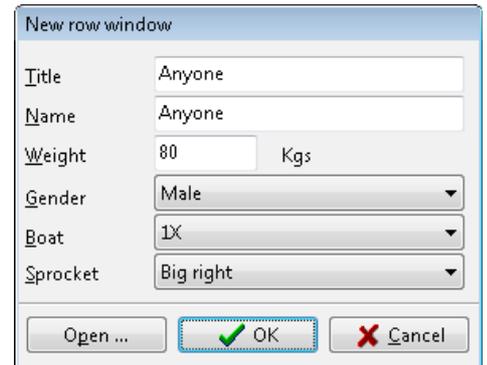


Figure 34 - New row window

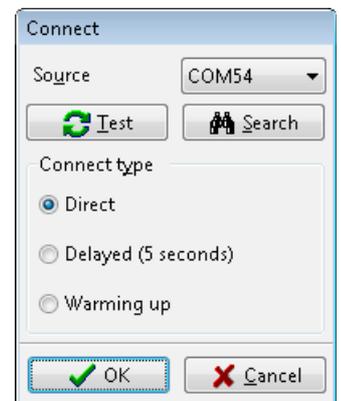


Figure 35 - Connect dialogue



Figure 37 - Standard Row window

The caption of the button in the lower left corner of the window changes, depending on the state the programme is in. When the interface is **not** detected - when *SEAN* has just been started, for example - the caption says “Connect”. Click it to open the *Connect* dialogue as stated above. When connected, the training session will be re-set (**previously recorded data will be lost**) and the caption of the button will be changed to “Pause”, as in Figure 37. Clicking this will interrupt the training session and prompt for pausing.

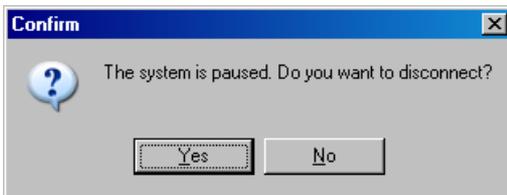


Figure 38 - The system is paused

To disconnect from the interface, choose Yes. The training session will be aborted, but **not** re-set, and the button caption set to “Connect” again. If No is clicked, the training session will be paused, and the caption changed to “Continue”.

When a training session is finished, the *Results* dialogue is displayed, showing the main workout results. This dialogue contains four or five groupboxes with data, depending on the type of training session being limited by Intervals or not.

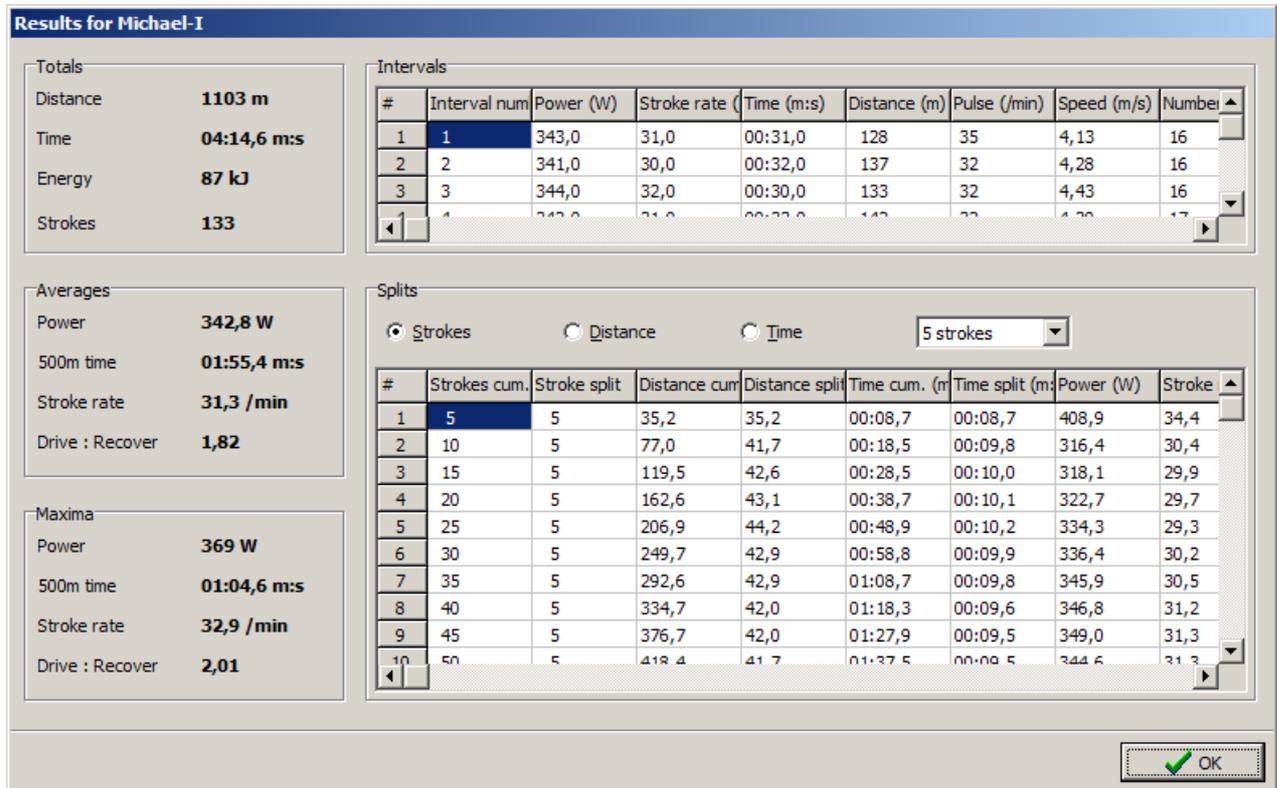


Figure 39 - Results dialogue

This summary can also be found on the *Workout* and *Splits* pages of the *Training* window (see D.2.2).

D.15.1.Row - Window layout

The *Row* window consists of 4 areas:

1. *Force curve* chart on the top left.
Right click on the chart to enable/disable the reference curve(s) - the curves currently visible in the *Force curves* window - or the previous stroke.
2. *History / Stroke data* chart on the top right.
Right click on the chart to set the X, Y and/or Z axis.
3. *Data area* at the bottom.
Right-click on a parameter cell to add or remove rows or cells, or choose which data item to show here. Parameter cells are discussed in the next paragraph.
4. *Data area* at the right.
Right-click on a parameter cell to add or remove cells, or choose which data item to show here, see next paragraph.

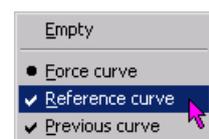


Figure 40 - Force curve pop-up

These areas can be shown / hidden by using the *Layout* item in the *View* menu, as described in D.18. By default, the right data area is not visible.

D.15.2.Row - Parameter cells

The parameter cells at the bottom of the window - and optionally on its right - can be set by right-clicking on them. The areas are made up of “rows” which contain “cells”. There is no limit in the number of rows or cells one can add, they resize automatically as needed. The format of a cell can be set by choosing *Options* from the pop-up menu, or by double clicking a cell. This will bring up an *Options* dialogue like the one shown below.

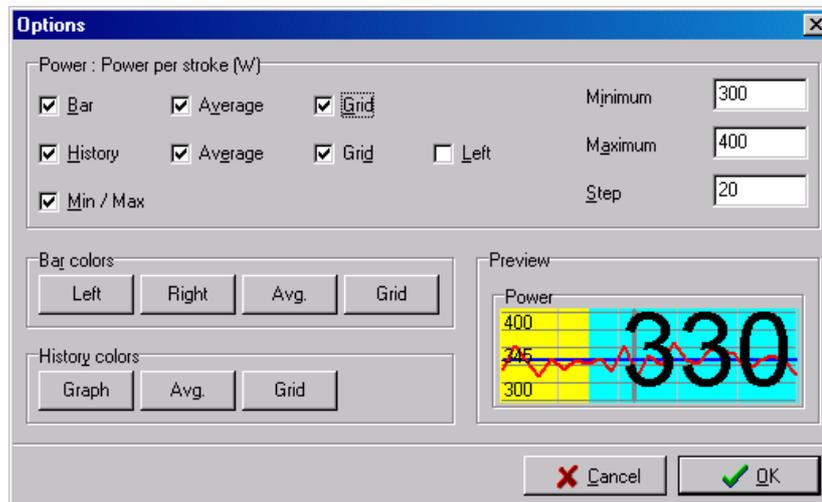


Figure 41 - Parameter cell options

Here the look and feel of each cell can be defined. Not only the calculated data can be shown, but there’s also the option to show one or two extra charts in a cell.

- The Bar chart is a horizontal bar with 3 parts: left (or: below the current value), average and right (or: above the current value).
- The History chart contains one or two lines representing the values for the last 25 strokes, optionally with an “Average” line.

The average values / line is calculated over the last 25 recorded strokes. The upper- and lower bounds of the charts are set by the *Minimum* and *Maximum* values. The *Step* value indicates at what interval a grid should be drawn. The colours of all the parts of the charts can be set. All the settings made in this dialogue are stored automatically for future use.

D.15.3.Row - Video

The Row window contains two charts by default. These can be adjusted by right-clicking on them. The right chart can also be replaced by a video area, if the PC's hard- and software allow. The result might look like this:

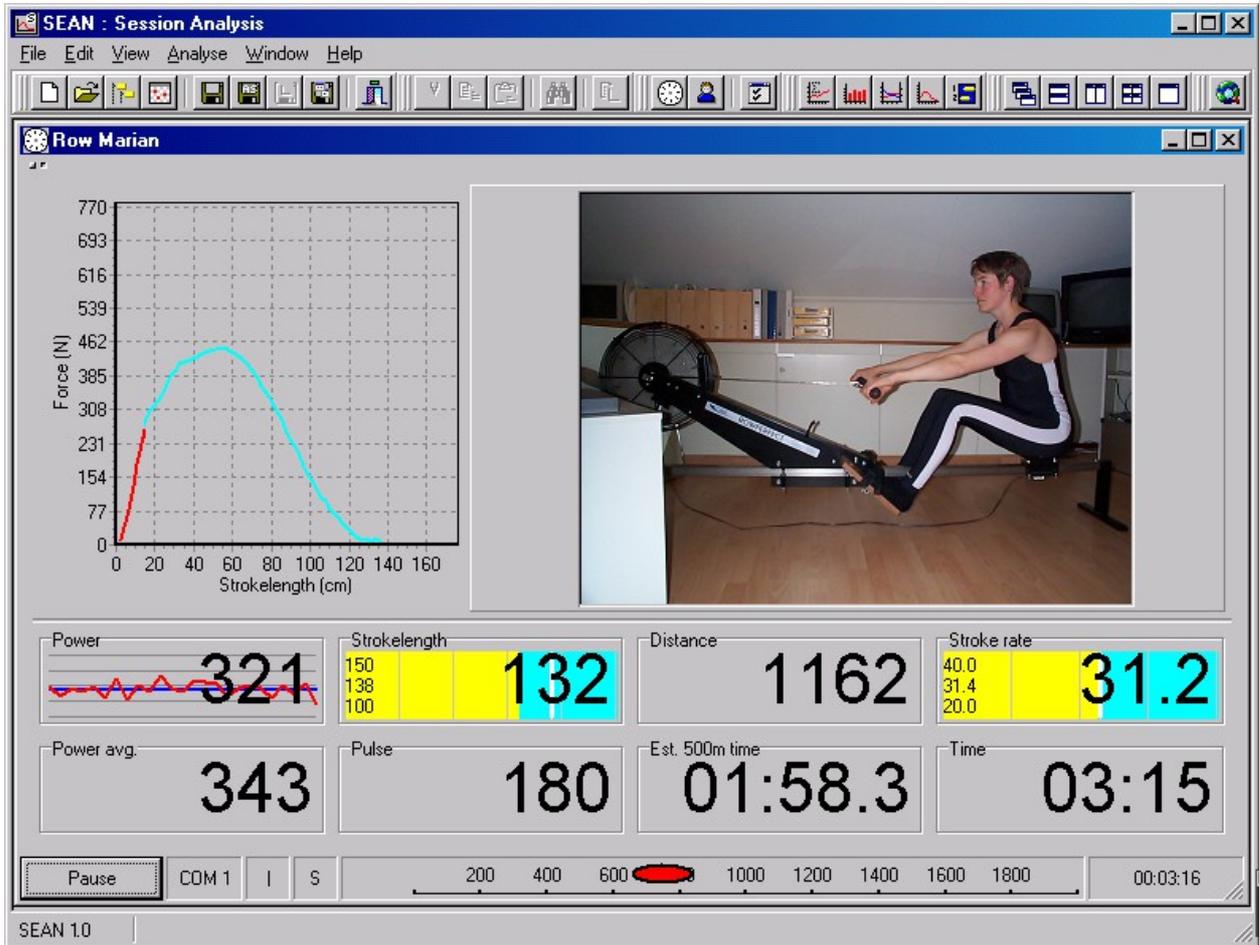


Figure 42 - Row with video

To switch on the video window, right click the *Stroke data* chart and select *Video* from the pop-up menu. An empty video area will appear.

All the video configuration is done through the *Video options* dialogue, that appears when the video area is double clicked near the border.

Use this dialogue to set up the driver, format and size, and to test the video performance. This should be at least 20 frames per second (fps) for smooth video. See paragraph A.3 for details on hard- and software requirements.

Note: Video is not saved in or by SEAN.

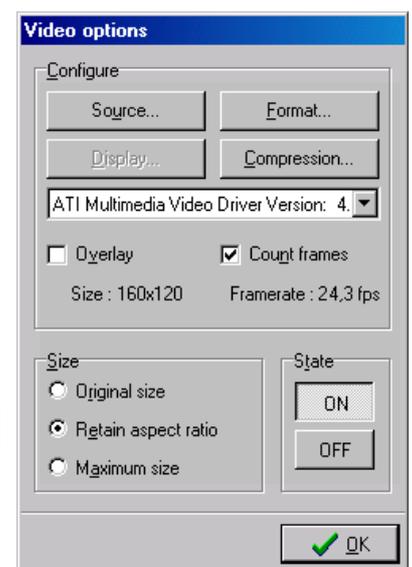


Figure 43 - Video options

D.15.4.Row - Reviewing training

When a video area is used, a training session can be analysed with data and video in real time. But it might also be interesting to do this afterwards, when the workout is done. One way to accomplish this, is to record the screen contents on a VCR so both video and data are saved simultaneously, if the PC has a Video out option (usually a S-VHS or yellow tulip connector). See your hardware documentation for details.



Figure 44 - Video Out (PC)



Figure 45 - Video Out (laptop)



Figure 46 - Video In (TV)

D.15.5.Row - Performance issues

Running *SEAN* on older hardware, with limited processor and/or memory capacity, can result in badly updated charts in the *Row* window, especially with long sessions (20 minutes and more). To address this, users can switch off the data chart on the right by right-clicking it, and selecting *Empty*. Alternatively, one can setup the programme to just show the last x strokes, in stead of the whole training session. To do so, follow these steps:

- Locate the file *SEAN.INI* in the *SEAN* data folder (see B.2.3 on page 10).
- Double click the file to open it.
- Add a line "DataRange=X" in the *SEAN.INI* file in the [Row] section, where the X denotes the number of strokes to plot. The minimum is 5, the maximum is 32000. (E.g. to limit the number of strokes in the chart to 10, the line should read "DataRange=10", but then without the quotes).
- Save the file and (re-)start *SEAN*.

D.16. View - Training

Click the *Training* button (👤) on the toolbar (or select *Training* from the *View* menu, or press [Ctrl] + [T]), to switch to the *Training* window belonging to the current *Row* window. Therefore, this option is only available if a *Row* window is already present. The *Training* window is explained in detail in D.2.

To switch to another window, select it from the *Window* menu or press [Ctrl] + [F6] alternatively.

D.17. View - Options

SEAN is highly customisable. This doesn't only apply to charts and window layouts, but to a lot of other settings too. They are accessible through the *Options* button (☰) on the toolbar (or by selecting *Options* from the *View* menu). The last page of this dialogue lists all the Command Line Parameter options (see D.31). The first pages target different aspects, discussed below. All settings are automatically stored when exiting the programme, and reused when starting it again.

D.17.1.Options - Appearance

Here the colours and font used throughout SEAN can be set. When set to default, SEAN adapts to the Windows system default font and background colour. Using alternative font style, size and colours can increase the readability, e.g. on a laptop display or beamer. To specify your personal settings, first un-check the *Default* check box.

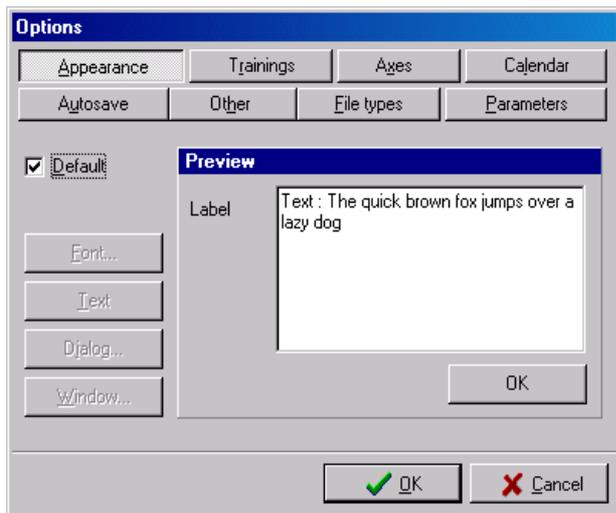


Figure 47 - Standard appearance

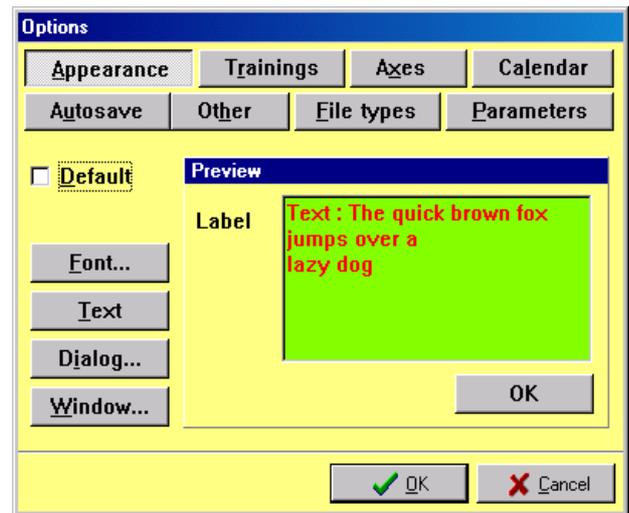


Figure 48 - Custom appearance

To change a setting, double-click the item in the Preview area and set the values in the *Font* or *Colour* dialogue that appears, or click the buttons on the left.

D.17.2.Options - Trainings

The list addresses which items (or “fields”) of a training session are to be shown in the trainings lists in the analysis windows. By default, the training session title is shown, but this can be changed to any combination of values, e.g. “name” and “date”.

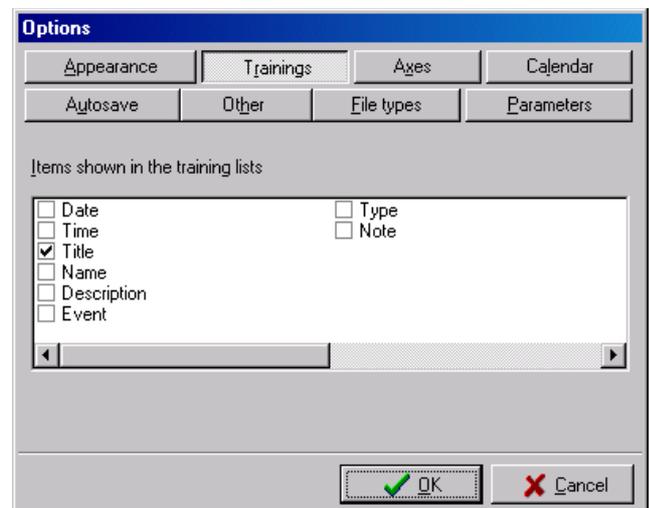


Figure 49 - Options - Trainings

D.17.3.Options - Axes

The scale of the axes of the Summary, Intervals and Stroke data charts can be set to either “manual”, “double”, “range” and “auto”.

- Manual. Axes are fixed to the Minimum and Maximum values precisely as entered.
- Double. The user defined Minimum and Maximum values are used, but when data for a few consecutive strokes would “run off the scale”, they are re-scaled by a factor 2.
- Range. The minimum and maximum values of the chart axis are arranged in such a way that the range covered by the chart does not change, only the offset to zero. The re-arranging is done to show the average of the data for the last 10 strokes as close as possible to the centre of the chart.
- Auto. An automatic scaling algorithm is used where axes will be scaled to accommodate all data.

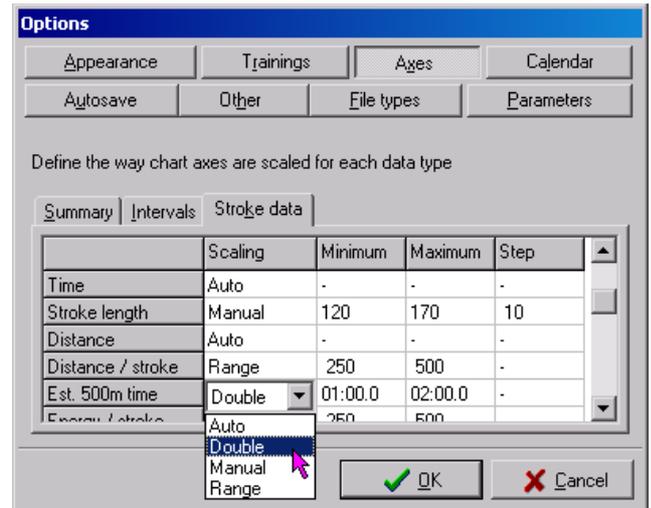


Figure 50 - Options - Axes

To change a scaling type, double click the appropriate cell (or press [F2] alternatively) and use the up- and down arrows to switch between types and press [Tab] when finished. To change a Minimum, Maximum or Step value, double click a value and press [Tab] or [Enter].

Note: Times are entered using the format *hh:mm:ss* (hours:minutes:seconds), although only *mm:ss.n* (minutes:seconds.hundreds) is shown.

D.17.4.Options - Calendar

The list addresses which items (or “fields”) of a training session to show in the *Calendar* window (see D.7). As date cells in the calendar are small, one needs to choose the items that are most distinct to tell one training session from another.

The *Calendar* window by default shows a period of six weeks: an entire month, with one week preceding and one following. This can be extended (or shortened) with the *Weeks to show* scrollbar.

Also, by default, the *SEAN* data folder (see B.2.3 on page 10) is used as the base path. This can be changed here.

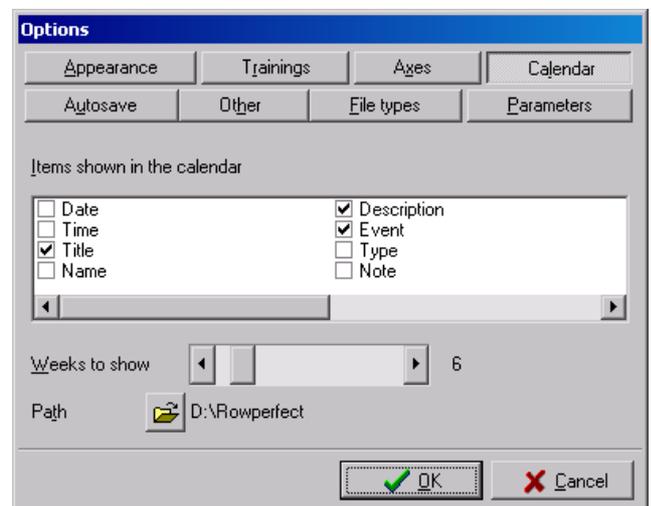


Figure 51 - Options - Calendar

D.17.5.Options - Autosave

New training sessions can be saved automatically to a predefined folder and under a predefined name, bypassing the “File ... is modified. Close anyway?” warning when closing a *Training* window, *Row* window or *SEAN*; both folder and name can contain variables, such as {name} and {date}, that will be replaced with the actual data on saving. Folders will be created automatically if needed. Note that the {date} variable uses the “CCYYMMDD” (Century, Year, Month, Day, e.g. 20051223 for December 23, 2005) format, for easy sorting within the Windows Explorer.

Examples, assuming John did an Interval training on September 2nd, 2005, on half past eight in the evening:

- to save all training sessions to the “C:\RPData\” folder, with the date, time and athlete’s name as file name, use “C:\RPData\{date}_{time}_{name}.stg” resulting in “C:\RPData\20050902_203000_John.stg”.
- To save all training sessions to the “C:\Rowperfect\” folder, with a sub-folder for every athlete, with date and type, use “C:\Rowperfect\{name}\{date}_{type}.stg” resulting in “C:\Rowperfect\John\20050902_Interval.stg”.

When Autosave is active, an existing training session will automatically be saved when closed without asking, overwriting the previous file.

After saving a - new or existing - training session, *SEAN* shows an information dialogue with folder and file name.

D.17.6.Options - Other

Several other customisations can be done on the *Other* tab page.

- The Play speed indicated the speed for the animation of force curves in the *Force curves* window (see D.23)
- With *Allow multiple copies* *SEAN* can be run several times simultaneously. When this option is de-selected, files launched from within the Windows Explorer will be opened in the running copy.
- When *SEAN* is closed, a confirmation dialogue “This will exist *SEAN*. Are you sure?” is shown. De-selecting the *Confirm programme exit* option will prevent this.
- For former users of the *CARE/DOS* software, the keyboard shortcuts used there can be (partially) introduced in *SEAN* by checking *Use CARE/DOS shortcuts*. See E.7 for details.
- To get audible feedback on the catch and finish, select the appropriate check box. This feature does not require a sound-card; it will use the standard PC speaker.
- In the Stroke data charts, every training session is shown with it’s own colour for both Y and Z axes, where the Y-axes chart can be set at will and the Z-axes graph will be represented with a thin line,

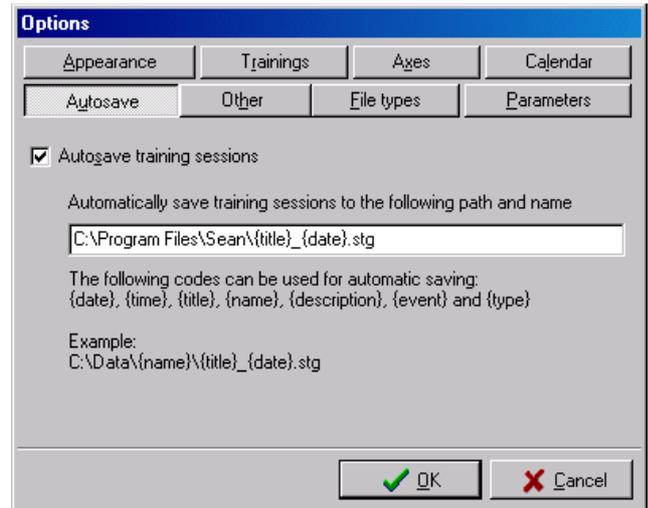


Figure 52 - Options - Autosave

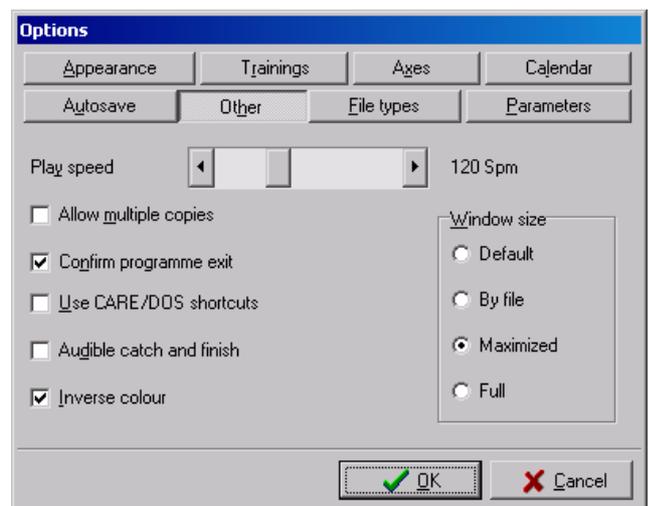


Figure 53 - Options - Other

continuous line in the same colour. The *Inverse colour* option will show the Z-axis graph in the same style as the Y-axis graph, only with the opposite (inverse) colour (see Figure 54 and 55).

- When opening a new window (*Training, Row, Summary, ...*) the standard window size can be set by choosing one of the 4 options under *Window size*.

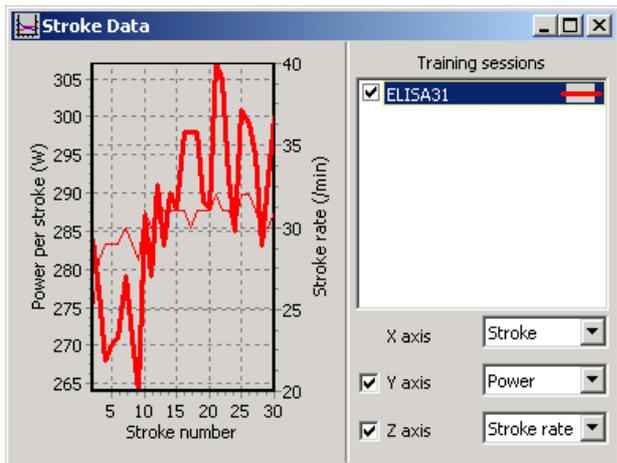


Figure 54 - Normal colour

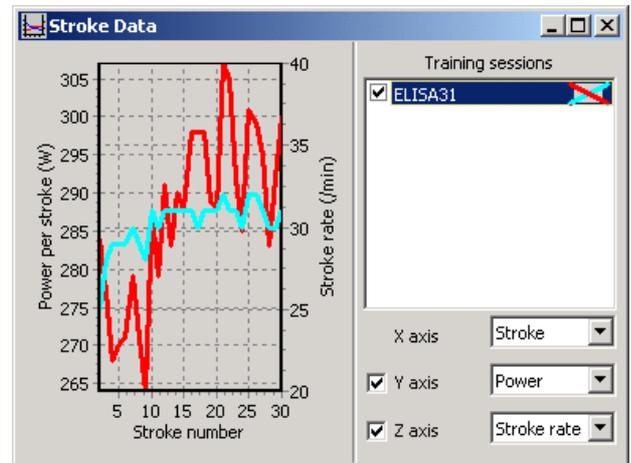


Figure 55 - Inverse colour

D.17.7. Options - File types

When *SEAN* is installed, it is associated with all *SEAN* compatible file types, except for the User files with INI extension. This process is called “Registering file types”. File types can be manually un-registered if their extensions conflict with other software on your PC. The major benefit of registering file types, is that *SEAN* will be invoked automatically when double clicking a file in the Windows explorer.

When one or more file types are registered with *SEAN*, then the Windows Explorer enhancements will be registered automatically (see D.32).

D.18. View - Layout

Use the *Layout* item in the *View* menu, to show or hide parts of an analysis or *Row* window. Icons symbolise the corresponding part of the window. In an analysis window, the following items are present:

-  Data area
-  Training sessions list

In a *Row* window, one can select any combinations of the following items:

-  Left chart
-  Right chart
-  Right values
-  Bottom values

In the example on the right (in a Row window), the data area on the right side of the window is hidden, the others are visible. To hide or show one, (de-)select the appropriate item.

Row window layouts can be saved to disk, and restored later on. This provides a way to define different window layouts for different types of training sessions, e.g. Warming up and Interval training sessions. A layout file contains information on which charts and value areas are visible, as well as which parameter cells are used, including their properties set in the *Options* dialogue.

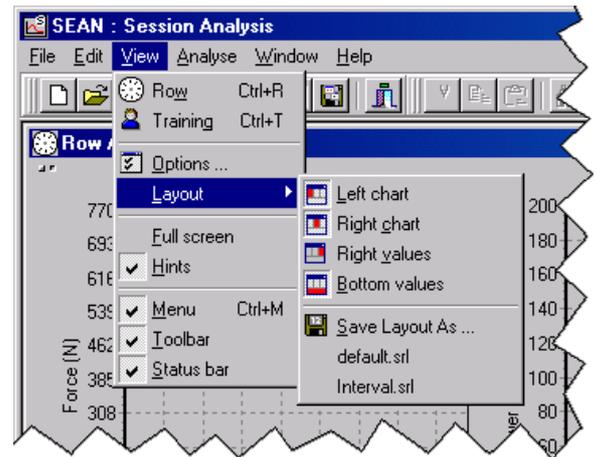


Figure 56 - Layout menu

To save the current layout, choose *Save Layout As ...* in the *Layout* menu. To restore a Row window layout, choose the appropriate item in the *Layout* menu, or use the command line parameter “/L”, as described in D.31.

Note: Row window layouts must be saved in the SEAN data folder (see B.2.3 on page 10).

D.19. View - Other menu items

SEAN can be set to full screen (or reset to a normal window), by selecting the corresponding option from the *View* menu. A tick mark in front of the menu item indicates its current state. In full screen mode, the main title bar is no longer visible.

Note: Only switch from or to full screen mode when there are no windows open at the time.

Most of the buttons, lists etc. in SEAN will show a hint if the mouse pointer pauses while hovering over them. If required, this feature can be switched off by de-selecting the corresponding item from the *View* menu.

If most of the screen should be used for data, not for windows, borders or others, consider the last 3 options from the *View* menu. Compare the screens in Figure 57 and 58. In the “Enlarged view”, the menu, toolbar and status bar are switched off. The menu bar can always be restored by pressing [Ctrl] + [M].

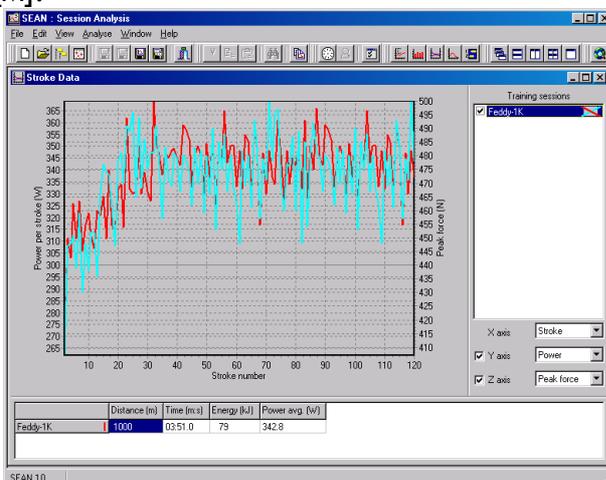


Figure 57 - Normal view

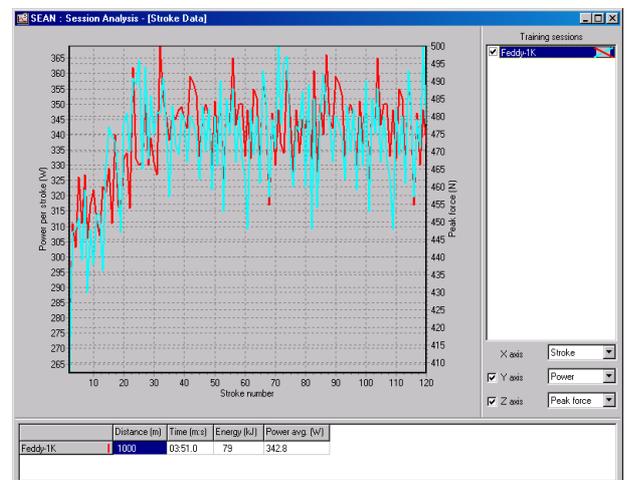


Figure 58 - “Enlarged” view

D.20. Analyse - Summary

Use the *Summary* window to compare workout results of different training sessions. Click the *Summary* button (📊) on the toolbar (or select *Summary* from the *Analysis* menu) to open it. For each training the overall Distance, Time, Energy and Average power are recorded, and can be presented here as a bar graph.

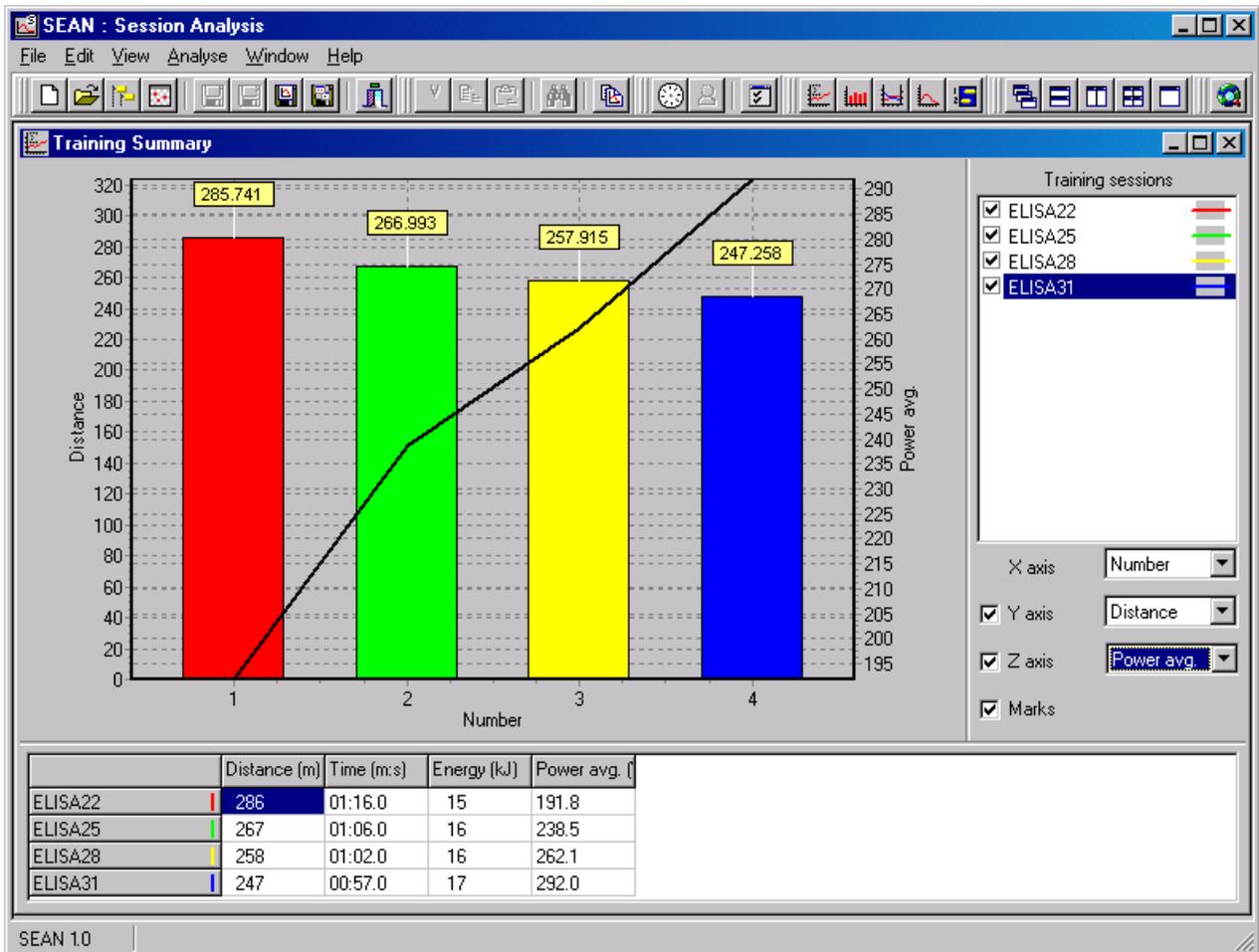


Figure 59 - Summary window

Data on the X-axis (horizontal) can be ordered by either training number (as they appear in the trainings list) or by Date/Time. If you choose Date/Time, the X-axis is scaled proportionally in time, meaning “gaps” in time become evident as gaps between the bars.

To compare two data values at the same time, the Z-axis (right side) can be switched on, generating a line between the bars.

Little marks can be shown above the bars for a better read out of the main chart value (Y-axis, left side).

D.21. Analyse - Intervals

To compare intervals in one or more trainings, click the *Intervals* button () on the toolbar or select *Intervals* from the *Analysis* menu alternatively. Interval data consists of a Number, Average power, Stroke rate, Time, Distance, Pulse and Speed.

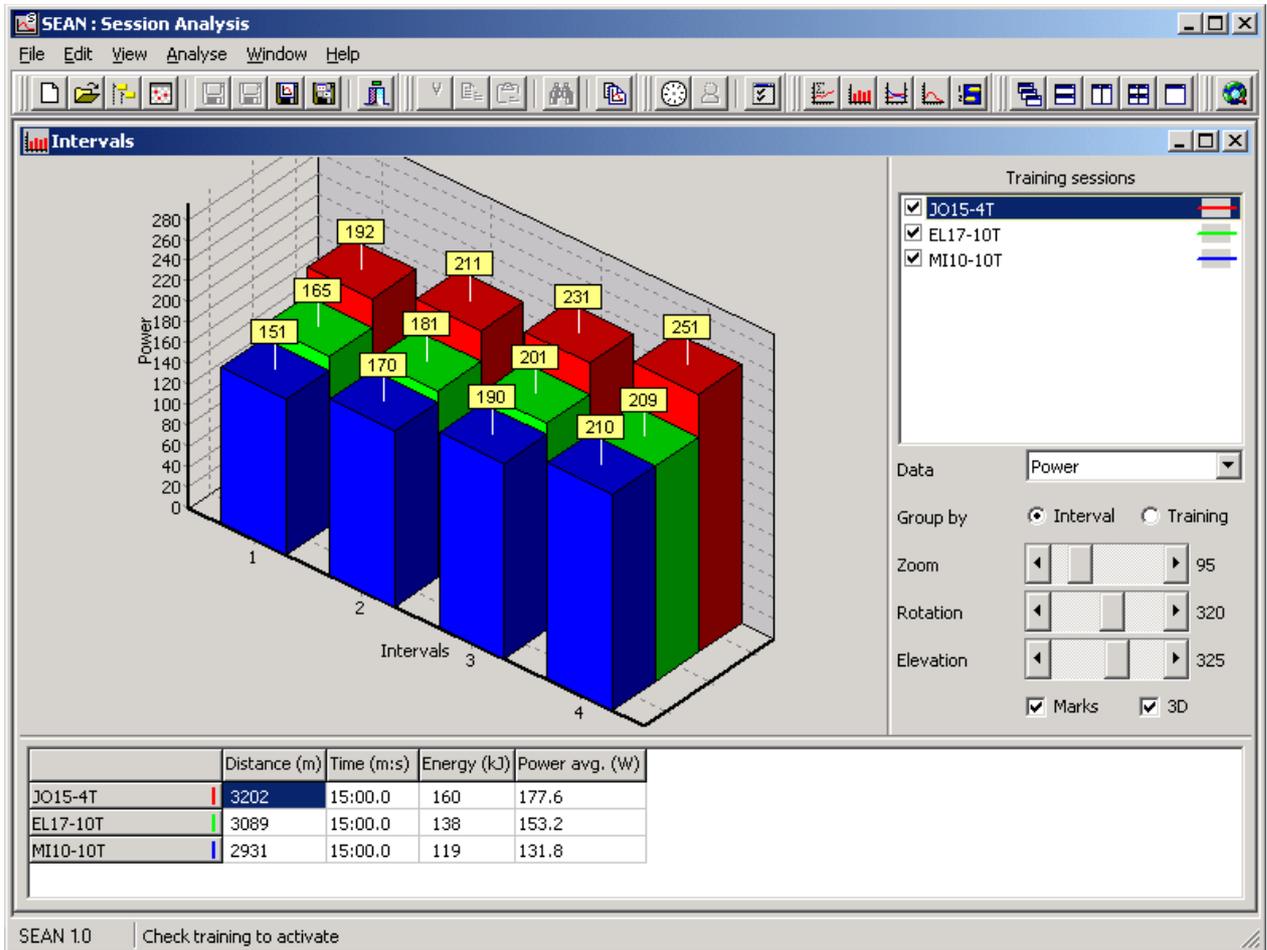


Figure 60 - Intervals window

The chart is presented standard as a 3D bar chart, but can be shown as a “flat” chart also by unchecking the 3D check box. In 3D mode, the chart can be manipulated using the Zoom, Rotation and Elevation sliders. Data can be grouped by training or Interval number.

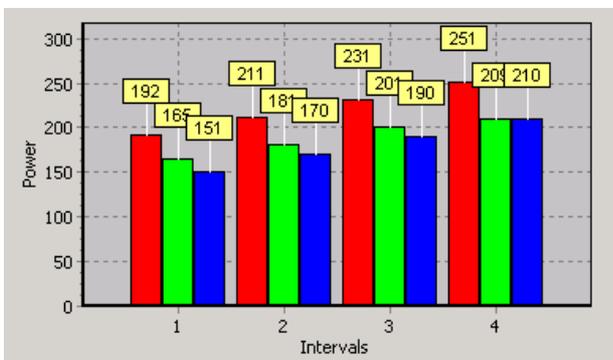


Figure 61 - Intervals by interval numbers



Figure 62 - Intervals by training sessions

D.22. Analyse - Stroke data

To open the *Stroke data* window, click the *Stroke data* button (📊) on the toolbar or select *Stroke data* from the *Analyse* menu. This enables in-depth analysis of training sessions, and to set any of the over 25 recorded parameters on any of the three axes.

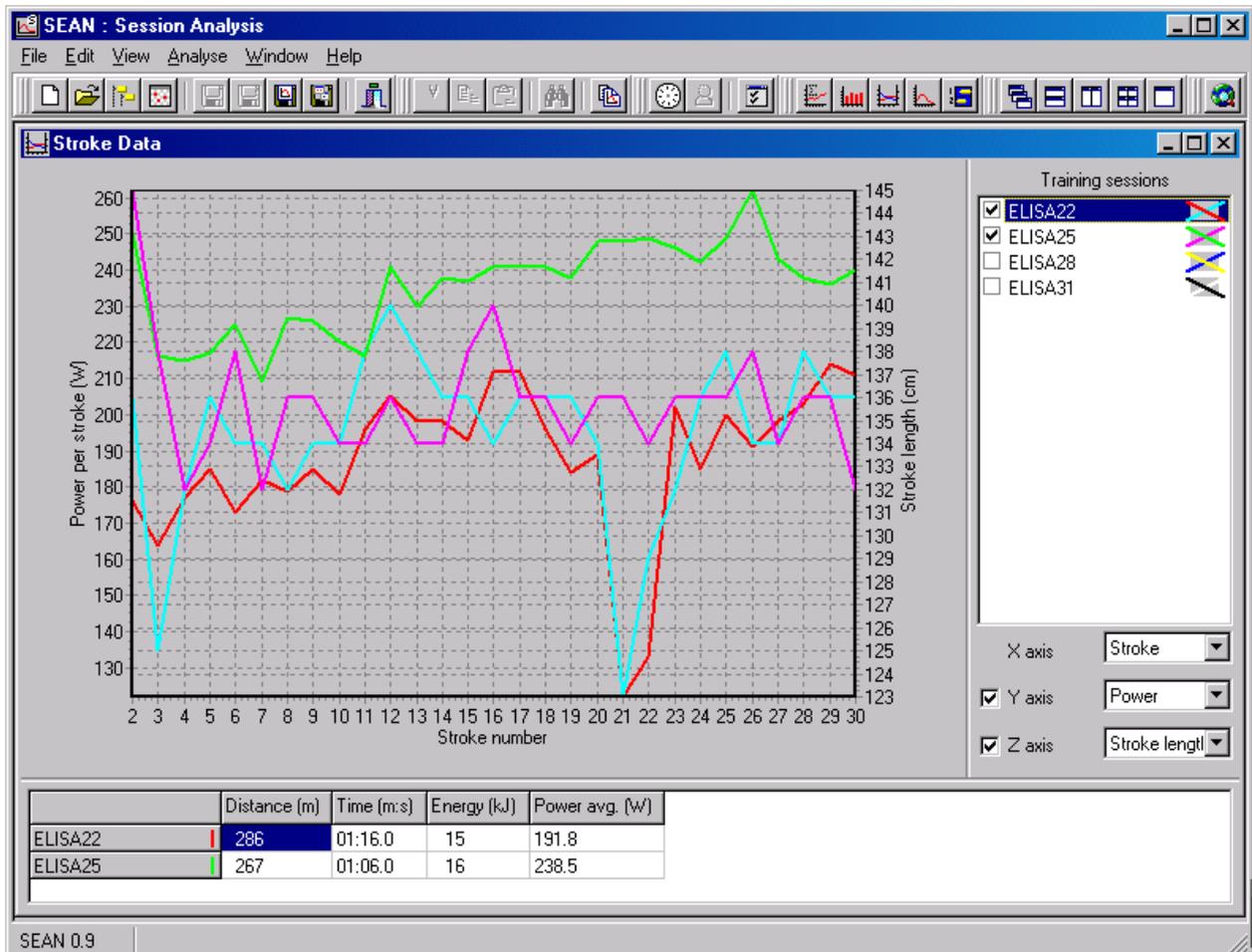


Figure 63 - Stroke data window

This chart can get cluttered easily if both Y and Z-axes are used, and a lot of files are loaded. To get a better overall view, temporarily hide a training session (de-activate it), by un-checking the check boxes in the training sessions list. Also, selecting a part of the chart for zooming in can be very helpful. To do so, click on the chart with the left mouse button, and drag a window from top-left to bottom-right, and let go of the mouse button (see also D.1).

D.23. Analyse - Force curves

Analysing stroke profiles is done in the *Force curves* window. To open it, click the *Force curves* button () on the toolbar, or select *Force curves* from the *Analyse* menu.

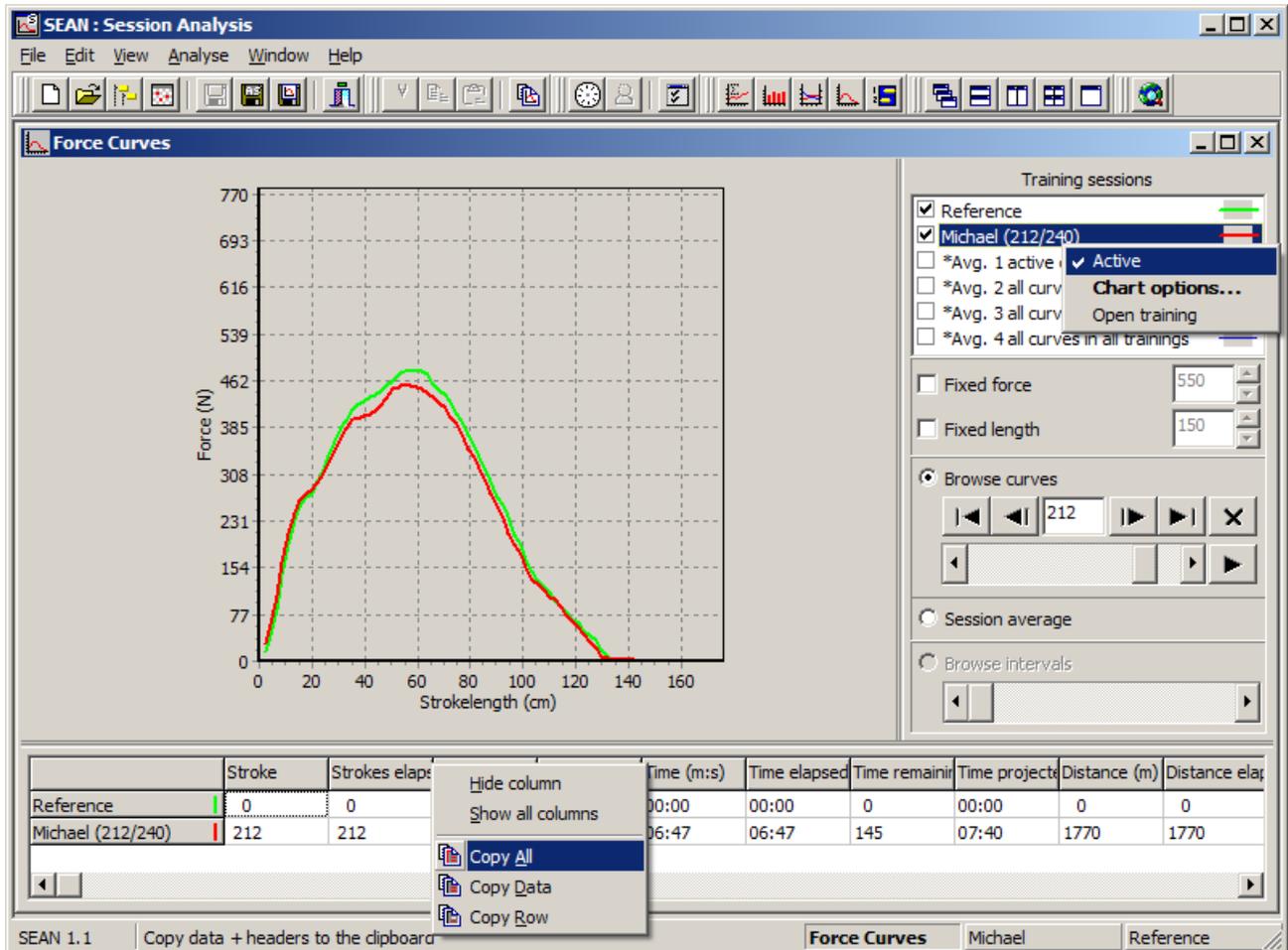


Figure 68 - Force curves window

This window allows one to browse through all force curves in one or more training sessions, compare them, play one training session as an animation or resize them to ones specific needs or reference.

At the bottom, the data area is filled with all the parameters calculated for each stroke. This area is updated automatically when training sessions are (de-)activated and when other force curves are selected.

A training session is called "Active" when it is checked in the list on the right. A force curve is called "Active" when it is currently being shown in the chart. Therefore, for every training session, only one fore curve can be active.

D.23.1. Force curves - Averages

Besides the “usual” items shown in the training sessions list, there are also four “*Avg.” lines:

1. Active curves. This shows an average force curve based on the current curves visible for the active training sessions (the ones preceded with a “ticked” check box).
2. All curves. This shows an average force curve based on all current curves of all training sessions, regardless of their Active state.
3. All curves in active trainings. An average force curve calculated from all curves in the active training sessions will be shown if “Avg. 3” is checked.
4. All curves in all trainings. This will result in an average curve calculated from all curves in all opened training sessions.

Note: For Average force curves, only a limited set of parameters is re-calculated.

D.23.2. Force curves - Navigate

To navigate through the force curves of a training session, select one in the training sessions list and use the scrollbar or the VCR-like buttons on the right:

- ◆  *First*
- ◆  *Previous*
- ◆ Force curve number
- ◆  *Next*
- ◆  *Last*
- ◆  *Delete force curve*
- ◆  *Play*, starts animation
- ◆  *Stop*, pauses animation

The *Play* button changes into the *Stop* button when showing an animation, and changes back to the *Play* button when stopped.

When holding down the [Shift] key during the navigation, all training sessions will follow your instructions relatively to their current status, not just the selected training session.

Selecting the *Avg.* check box next to the VCR buttons, will show the average force curve for the selected training session, instead of the current one. As long as the *Avg.* check box is checked, browsing through the force curves for that training session is not possible.

The captions next to the names in the training session list indicate the stroke / force curve currently shown, for example:

- ◆ “Name (213/452)” means the force curve for stroke 213 of a total of 452 is shown.
- ◆ “Name [A] (941)” means the average of the force curves for all 941 strokes is shown.
- ◆ “Name”, without extras, means there’s no or just one curve in the corresponding training session.

Note that the text for “Name” can be set through the *Options* dialogue, see D.17.2.

D.23.3. Force curves - Scale

To compare force curves of athletes of different strength or height, all shown force curves can be scaled in height (force) or width (stroke length). To do so, select the *Fixed force* or *Fixed length* check boxes. Examples are shown in the following figures:

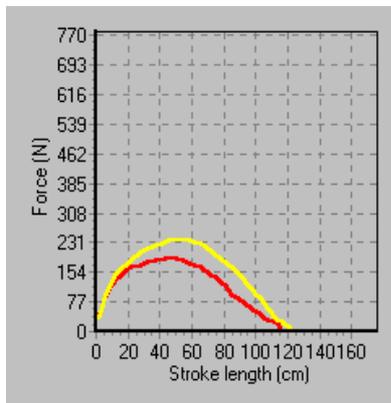


Figure 69 - Forces curve, normal

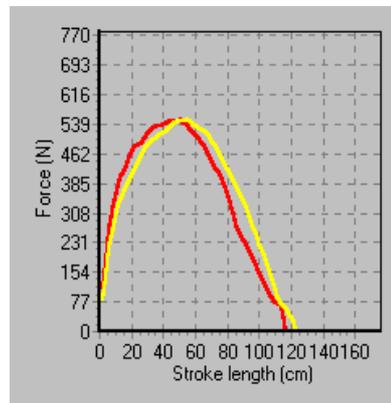


Figure 70 - Force curves, fixed force 550N

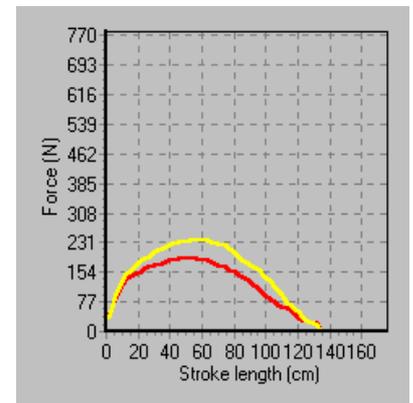


Figure 71 - Force curves, fixed length 135cm

To save a force curve to a STR file, select the training session in the list and click the *Save as* button () on the toolbar, or choosing *Save as ...* from the *File* menu. This STR file can later be used to serve as a template- or reference-curve for a rowing session.

D.23.4. Force curves - Save

To save a specific force curve, either a “normal” one or an average curve, to disk, click the corresponding training session in the list. Then, choose *Save as* from the *File* menu, or click the *Save as* button () on the toolbar. This will present the *Export stroke file* dialogue, where an appropriate location and file name can be entered.

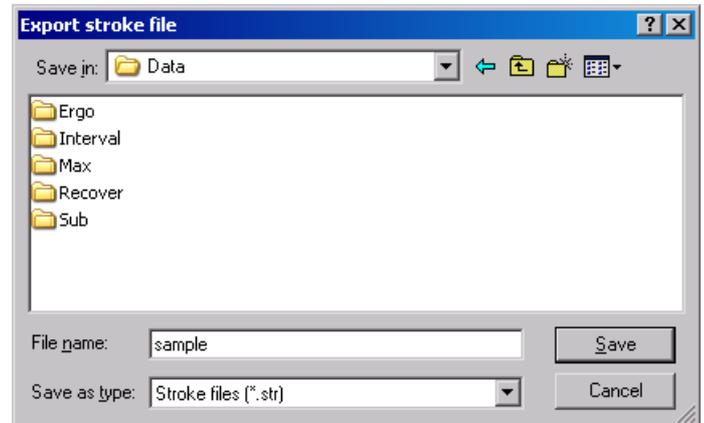


Figure 72 - Export stroke file

D.24. Analyse - Session

Analysing stroke profiles AND stroke data in one window, use the *Session* window. To open it, click the *Session* button () on the toolbar, or select *Session* from the *Analyse* menu. The *Session* window is in some way a combination of the *Stroke data* and *Force curves* windows, as it displays both a stroke data chart and the current (or average) force curve for a given training session. The *Session* window can, however, only show information for ONE training session at the time. Selecting which session to display is done through the use of the drop-down list on the right-hand side of the window.

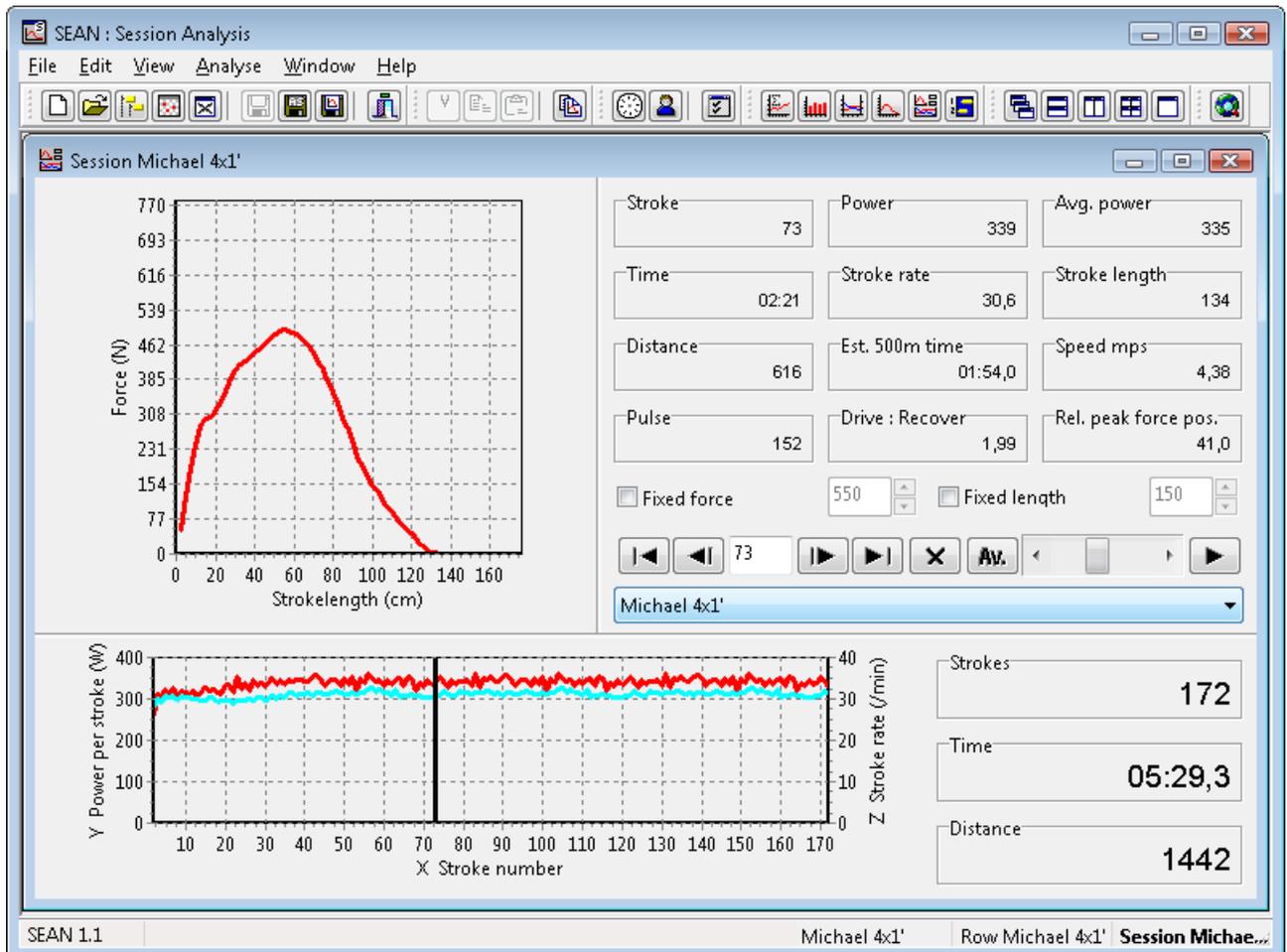


Figure 73 - Session window

The parameter cells in the upper half of the window display the stroke data values for the current stroke. Browsing through the strokes using the VCR buttons or the scroll bar will update both the force curve chart as well as these parameter cells. The contents of the cells can be changed by right-clicking on them.

D.25. Analyse - Race

To open the *Race* window, click the *Race* button (🏁) on the toolbar (or select *Race* from the *View* menu). Here you can virtually re-race one or more training sessions on screen.

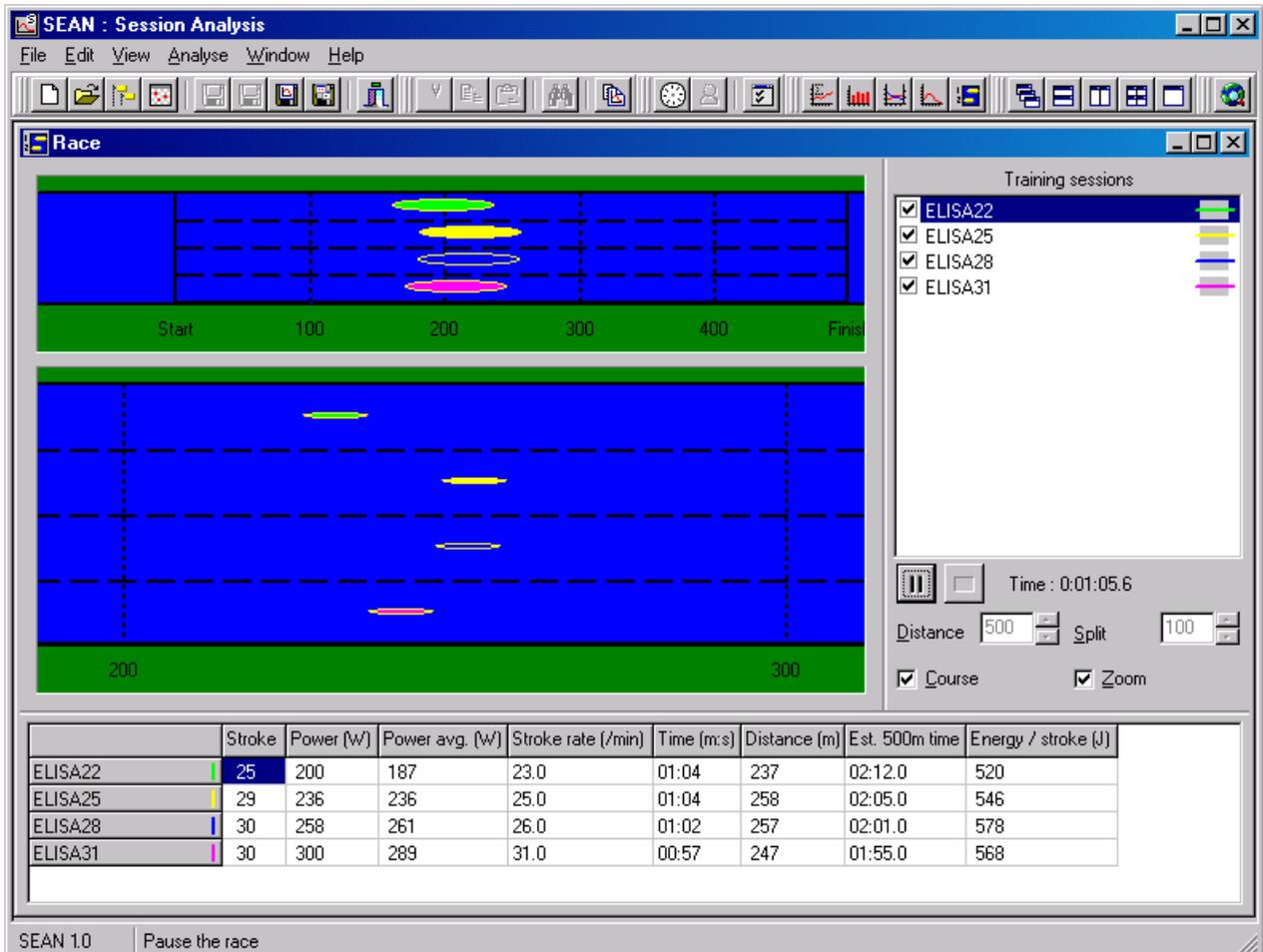


Figure 74 - Race window

Before you start racing, set up the course distance and split distances. When finished, simply click the *Play* button (▶) on the right to start racing. To pause, click the same button, which by then will show a “Pause” symbol (⏸). To reset a race, click the *Stop* button (■) on the right.

At the bottom, the data area is filled with all the values calculated for each stroke. This area is updated automatically when training sessions are (de-)activated and when a “boat” has moved.

Every time a boat passes a split mark, the split time is displayed for a short period of time. Note that the re-racing is done in real-time.

By selecting the *Course* check box, the area on top is shown, representing the whole regatta course. Checking the *Zoom* check box displays the bottom area, being a small part of the course (a little bit more than 1 split distance). Here, boats are somewhat scaled to their proportions in reality.

D.26. Window menu

To arrange or select the different windows in *SEAN*, use the *Window* menu. The top 7 items available here are more or less common in Windows applications:

-  *Cascade*
-  *Tile horizontally*
-  *Tile vertically*
-  *Tile mosaic*
-  *Minimise all*
-  *Arrange icons*
-  *Maximise*

When holding down the [Shift] key and clicking the *Maximise* button on the toolbar or selecting it from the *Window* menu, all windows are maximised. You can enlarge a window a bit further by double clicking its title bar.

Below these standard items, all windows are listed. To switch to one, select its name. Alternatively, press [Ctrl] + [F6] to switch to the next window.

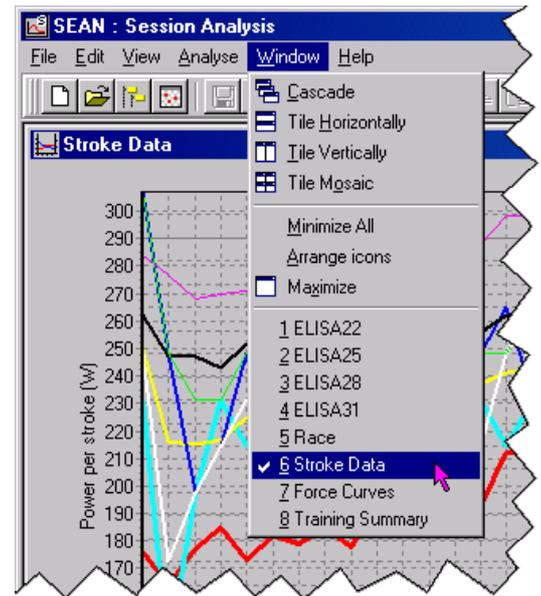


Figure 75 - Window menu

D.27. Help - Manual

Selecting this option will open this manual in a separate window.

D.28. Help - Website

Selecting this option, or clicking the *Website* button () on the toolbar, launches the default web-browser on your PC opening the website <http://www.row-ware.com/sean/>

D.29. Help - Update

To update *SEAN* to the latest version, you can download it manually from our website (see above), but you can also use the built-in update mechanism if the PC *SEAN* is running on is connected to the Internet. By selecting *Update* from the *Help* menu, *SEAN* will check the website for a newer version (this may take a few seconds), and present you with a dialogue to install it, if there is one available.

This dialogue has 4 buttons:

1. The *Release notes* will open a new window and show the release notes of the latest version.
2. The *Homepage* button will launch the default web-browser with the *SEAN* website in it.
3. The *Install button* will download the version displayed, exit *SEAN* and then install it automatically.
4. The *Close* button will cancel the update process.

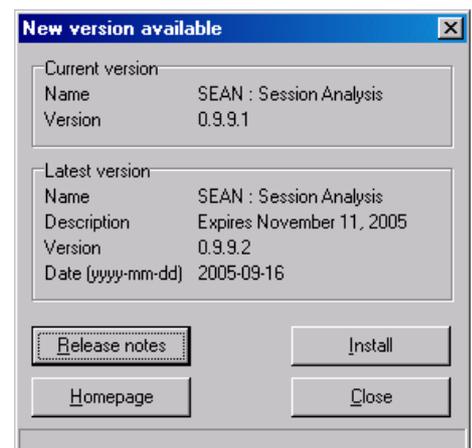


Figure 76 - New version available

Note: To update *SEAN*, all windows have to be closed.

D.30. Help - About

Pressing [F1] or selecting *About* from the *Help* menu, will bring up the *About* dialogue. This dialogue contains information on your licensing details or provides a button to request a trial / commercial License Key. Furthermore, the version number is available, as is a list of people and companies who contributed one way or the other in the development of *SEAN*. The last page on the *About* dialogue contains some statistics on programme use.

D.31. Command Line Parameters

Starting *SEAN* with Command Line Parameters facilitates selection of the same User file again and again.

Note: Command Line Parameters are optional.

To use Command Line Parameters, make a shortcut to *SEAN.EXE*, for example on your desktop, and open its properties page (right click the shortcut and choose *Properties*, see Figure 77). Command Line Parameters are entered in the *Target* box, as shown in Figure 78.

Below is a list of all available options:

<code>/?</code> , <code>/H</code>	Show this list
<code>/B[:Path]</code>	Open <i>Browse</i> window (in Path)
<code>/C</code>	Open <i>Calendar</i> window
<code>/N</code>	Create a new training session
<code>/R[:User file]</code>	Open <i>Row</i> window (with User file)
<code>/R:?</code>	Open <i>Row</i> window with <i>Open user file</i> dialogue
<code>/L:Layout</code>	Open row layout (only valid when preceded by the <code>/R</code> option)
<code>/S</code>	Open <i>Summary</i> window
<code>/I</code>	Open <i>Intervals</i> window
<code>/D</code>	Open <i>Stroke data</i> window
<code>/F</code>	Open <i>Force curves</i> window
<code>/A</code>	Open <i>Race</i> window
<code>/X</code>	Register current <i>SEAN</i> file types
<code>/X+</code>	Register all <i>SEAN</i> file types
<code>/X-</code>	Un-register all <i>SEAN</i> file types

General remarks on command line parameters:

- ◆ Multiple options and files are allowed.
- ◆ The “/” can be replaced by a “-”.
- ◆ Options are not case-sensitive.
- ◆ Enclose Path and User file with quotation marks, especially when they contain spaces.
- ◆ The SRL extension for Row layout files is not mandatory.
- ◆ Relative paths are allowed for the *Browse* and *Row* window options. Some examples, assuming *SEAN* is installed in “*C:\Program files\Sean*” :
 - When the folder containing your data is located in “*C:\Program files\Sean\data*”, then the *Browse* option can be entered either as `/B:“C:\Program files\Sean\data”` or `/B:data`
 - To open the User file in “*C:\Program files\Sean\data\mark4.stg*”, either use `/R:“C:\Program files\Sean\data\mark4.stg”` or `/R:data\mark4.stg`

This list is also available in the *Options* dialogue, see D.17.

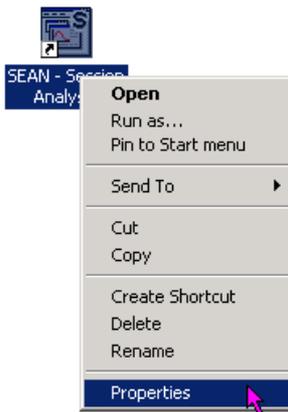


Figure 77 - Properties menu

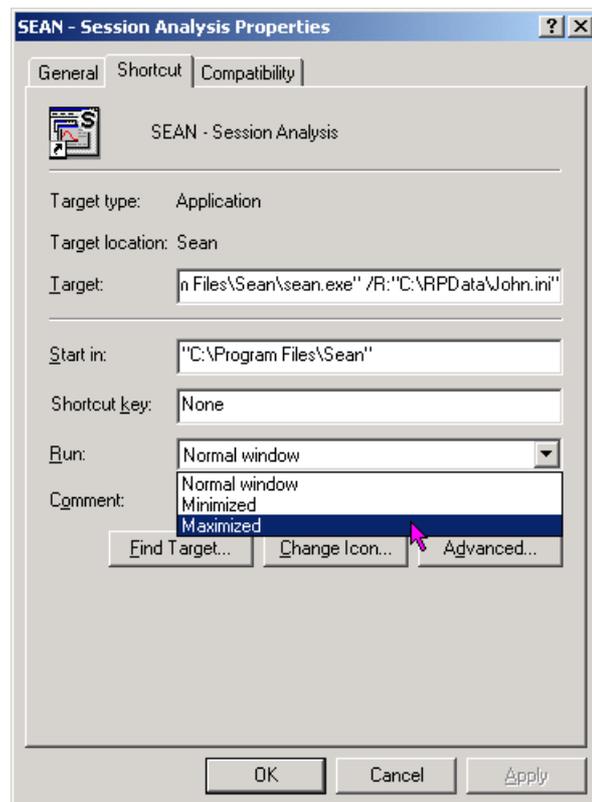


Figure 78 - Properties dialogue

Examples :

- ◆ To let *SEAN* start with the predetermined User file “C:\RPData\John-1K.ini”, type the following in the *Target* box:
“C:\Program Files\Sean\sean.exe” /R:“C:\RPData\John.ini” (see Figure 78).
- ◆ To let *SEAN* start with the *Browse* window, opening the folder “C:\Rowperfect\” by default, type the following in the *Target* box:
“C:\Program Files\Sean\sean.exe” /B:“C:\Rowperfect\”
- ◆ To let *SEAN* start with the predetermined User file “C:\Program Files\Sean\data\interval4x3.ini” with the window layout “Interval.srl”, type the following in the *Target* box:
“C:\Program Files\Sean\sean.exe” /R:data\interval4x3.ini /L:interval

With the *Run* option in the *Properties* dialogue, the initial screen size can be set, e.g. select “Maximised” to let *SEAN* start in a maximised window.

Note: There's no limit to the number of shortcuts that can be made to *SEAN*.

D.32. Windows explorer enhancements

Even when *SEAN* is not running, it can still assist in organising *SEAN* compatible files. It does so with two windows explorer enhancements, which are installed automatically together with *SEAN*:

- ◆ SeanInfo : Displays a summary of any *SEAN* compatible file, when the mouse hovers over it.
- ◆ SeanProp : Adds an extra tab-page to the standard Windows properties dialogue of *SEAN* compatible files.

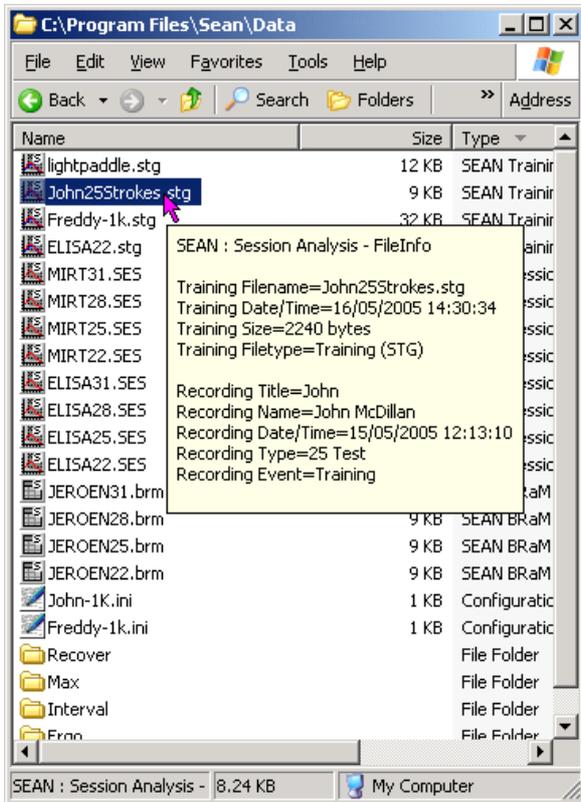


Figure 79 - SeanInfo



Figure 80 - SeanProp

Note: Windows explorer enhancements are only available when one or more file types are registered with *SEAN* (see D.17.7).

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E.4. Frequently Asked Questions

This chapter covers some frequently asked questions.

E.4.1. Connection problems

Q. When connecting to the interface, by closing the *Connect* window, I get an error stating “Comport : no data”. I’m confident the interface is hooked up properly. What’s going wrong?

A. *SEAN* sometimes has some trouble in detecting whether the interface is sending data. To prevent this, give the flywheel a gentle swing when closing the *Connect* dialogue.

E.4.2. Save chart colours

Q. Every time I open a new *Row* window, I need to set the chart colour and line type manually. Can this be saved somehow?

A. When the workout has been set up (name, type, distance / duration etc. are entered), change to the first tab of the *Training* window, and set the colour and style in the *Chart options* dialogue. Then, choose *Save as* from the *File* menu, and save the user data as a STG file. The next time you open a new *Row* window, open this file with the *Open* button in the *New row window* dialogue and save the results under a different file name.

E.4.3. Default training session workout

Q. When I start rowing without setting up or opening a User file, *SEAN* defaults to a 2km countdown workout. Can this default be set-up somewhere?

A. Yes, by saving a default training session file (STG) with the name DEFAULT.STG or SEAN.STG in the folder SEAN data folder.

E.4.4. Race against a previous recorded training session

Q. Can I use the *Race* window to row against a previous recorded training session, or someone else?

A. Not yet.

E.4.5. Use reference curve

Q. How do I set *SEAN* to use a reference curve in the *Row* window?

A. By default, all curves visible in the *Force curves* window, are used as a reference curve in the *Row* window. Thus, to use a reference stroke, just open a STR, SES or STG file and - in case of the SES or STG file - select the appropriate curve to be used as a reference. Then, switch to the *Row* window (or



start a new one) and start rowing.

Right-clicking on the force curve chart in the *Row* window will show a pop-up menu where this behaviour can be switched off (see D.15).

E.4.6. Save a reference curve

Q. How do I scale a previously recorded force curve and save it as a reference for future use?

A. In *SEAN*, open a stroke profile (STR) file, Training session (SES) or SEAN Training file (STG) and open the *Force curves* window. Click on the name of the session in the *Training sessions list* on the right, and browse to the force curve that you would like to serve as a template for future workouts, by using the VCR like buttons. Optionally, use the check boxes *Fixed force* and/or *Fixed length* to scale the curve vertically and/or horizontally. When finished, click the *Save As* button on the toolbar () or select *Save As ...* from the *File* menu, and save the STR file (see also D.23.4).

E.4.7. Old computer hangs during long sessions

Q. My old laptop seems to hang when doing long sessions with *SEAN*. Can anything be done about it?

A. Long sessions means accumulating lots of data. As *SEAN* stores all parameters of all strokes in a session, after 20 minutes (or even less, depending on computer hardware) the PC can run out of memory and processor power. There are 2 ways to prevent this to happen, aside from the obvious “don't do long sessions” :-)

1. Switch of the *Stroke data* chart in the *Row* window, by right-clicking it.
2. Add a line to the SEAN.INI file limiting the number of strokes visible in this chart (see D.15.5). All data will still be stored, but only the last x strokes will be visible during the session.

E.4.8. Using *SEAN* without a serial port

Q. Can I use *SEAN* on a PC without a serial port?

A. Yes and no. We have been able to use *SEAN* through an USB-to-serial adapter, testing several brands and models. However, **not all** cables tested have proven to be usable. Therefore, we suggest to use a serial port when available, and only switch to a USB adapter when strictly needed. Contact us for more details.

E.4.9. Running *SEAN* under Windows XP and Vista with Theme Support

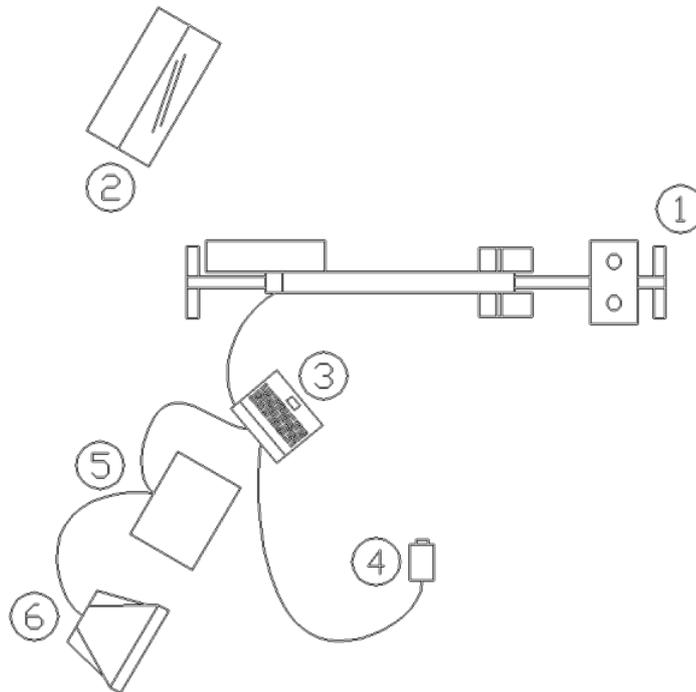
Q. Does *SEAN* support “Themes” on Windows XP and Vista?

A. No. *SEAN* IS however a native Win32 application and runs perfectly on modern Windows versions (XP and up); the lack of Theme support at this stage is just cosmetic.

E.5. Sample system set-up

For good analysis, one starts with a “good eye”. But tools are available to help that eye notice things and detect small deviations in motion, performance etc. We suggest the following set-up for state-of-the-art session analysis:

1. Rowperfect rowing simulator with PC interface or MkIV monitor (of course).
2. Big mirror for the athlete to see him/herself.
3. PC running *SEAN* connected to the interface.
4. Standard video camera attached to the PC using a Video-IN or S-VHS port, or a high speed web-cam connected to an USB port
5. Video recorder for reviewing a session after the work has been done, connected to a Video-OUT or S-VHS port of the PC.
6. A second monitor for the coach, connected to the VCR. Using this, he can see the same video and data the athlete does.



This could result in a set-up like the one below (except for the VCR / Monitor):



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E.7. CARE Reference

At first sight, *SEAN* may look very different from the CARE/DOS based Rowperfect software, CARE.EXE. There are however, also a series of similarities. The following table lists the features of CARE/DOS available in *SEAN*, and where to find them in this manual for more details:

CARE	SEAN	Where to find
User screen	<i>Training</i> window, tab <i>General</i> (for the name) and tab <i>Workout</i> for the training session definition.	See D.2.1 and D.2.2
♦ Save (F8)	Use the <i>Save</i> button (📁) or choose <i>Save</i> in the <i>File</i> menu to save the current training session using the same file name. Use the <i>Save as</i> button (📁) or choose <i>Save as ...</i> from the <i>File</i> menu to use a different name.	See D.9 and D.10
♦ Load (F9)	Use the <i>Open</i> button (📁) or choose <i>Open</i> from the <i>File</i> menu.	See D.5
♦ Restore (F10)	Not available.	
♦ Password (F5)	Not available.	
♦ Color (F6)	Double click the name in a training sessions list or click <i>Options</i> in the <i>Training</i> window, tab <i>General</i> .	See D.1 and D.2.1
Work screen	<i>Row</i> window	See D.15
♦ Quit (Esc)	Click the <i>Exit</i> button (🚪) or choose <i>Exit</i> from the <i>File</i> menu.	See D.13
♦ Evaluate (F1)	<i>Stroke data</i> window.	See D.22
♦ Displays (F2)	Right click the parameter cells in the bottom and/or right side of the <i>Row</i> window.	See D.15
♦ Strokes (F3)	<i>Force curves</i> window.	See D.23
♦ Reset (F4)	Click <i>Disconnect</i> in the lower left corner of the <i>Row</i> window.	See D.15
♦ DOS (F5)	Not available.	
♦ User settings (F6)	<i>Training</i> window, tab <i>General</i> (for the name) and tab <i>Workout</i> for the training session definition.	See D.2.1 and D.2.2
Evaluation screen	<i>Stroke data</i> window.	See D.22
♦ Set X (F1)	Set the X-axis.	See D.22
♦ Set Y (F2)	Set the Y-axis.	See D.22
♦ Set Z (F3)	Set the Z-axis.	See D.22
♦ Save (F8)	Use the <i>Save</i> button (📁) or choose <i>Save</i> in the <i>File</i> menu to save the current training session using the same file name. Use the <i>Save as</i> button (📁) or choose <i>Save as ...</i> from the <i>File</i> menu to use a different name.	See D.9 and D.10
♦ Load (F9)	Use the <i>Open</i> button (📁) or choose <i>Open</i> from the <i>File</i> menu.	See D.5
♦ Text (F4)	Use the <i>Save as</i> button (📁) or choose <i>Save as ...</i> from the <i>File</i> menu and choose a file type with TXT, BRM or XLS extension.	See D.10

CARE	SEAN	Where to find
Strokes screen	<i>Force curves window.</i>	See D.23
◆ Previous (←)	Click the <i>Previous</i> button (←).	See D.23
◆ Next (→)	Click the <i>Next</i> button (→).	See D.23
◆ Set (Space)	Not available. Force curves remain on screen when navigation is completed.	
◆ Save (F8)	Use the <i>Save as</i> button (📁) or choose <i>Save as ...</i> from the <i>File</i> menu to save the current force curve as a STR file.	See D.10
◆ Load (F9)	Use the <i>Open</i> button (📁) or choose <i>Open</i> from the <i>File</i> menu.	See D.5

Table 5 - CARE reference

E.8. CARE, Rpw and SEAN

Besides *SEAN*, there is another Windows based programme available for the Rowperfect, called *Rpw* : *Rowperfect for Windows*. This is a “light” version of *SEAN*, resembling CARE/DOS much more as far as functionality is concerned. The table below summarises the possibilities / features / options for all three programmes:

Feature	CARE	Rpw	SEAN
FILES			
• Read SES files	•	0	•
• Write SES files	•		•
• Read STR files	•	•	•
• Write STR files	•	•	•
• Read BRM files			•
• Write BRM files	•		•
• Read INI files	•	•	•
• Write INI files	•	•	•
• Read STG files		•	•
• Write STG files		•	•
• Read MkIV files (MKS, MKR and MKI)		•	•
• Read SED files			•
• Write SED files			•
• Write TXT files			•
• Write XLS files			•
• Maximum number of training sessions open at the same time	1	2	unlimited
INTERFACES / RECORDING			
• Connect to old (=CARE/DOS) interface	•		•
• Connect to new (=Rpw, MkIV) interface	•	•	•
• Connect to interface through a USB serial adapter		•	•
• Read build-in “demo data”		•	•
• Parameters recorded per stroke	16	25+	25+
ANALYSIS WINDOWS			
• <i>Browse</i> window			•
• <i>Calendar</i> window			•
• <i>Summary</i> window			•

Feature	CARE	Rpw	SEAN
• <i>Intervals</i> window			•
• <i>Stroke data</i> window (“Evaluate screen”)	•	•	•
• <i>Force curves</i> window (“Strokes screen”)	•	•	•
• <i>Row</i> window (“Main screen”)	•	•	•
• <i>Race</i> window			•
CUSTOMISATION			
• Customisable interface (font, colours, ...)	0	0	•
• Customisable chart-axes in <i>Stroke data</i> window (choose values)	•	•	•
• Customisable chart-axes range in <i>Stroke data</i> window (set minimum /maximum values)			•
• Customisable data areas (select columns in the data area in <i>Summary</i> , <i>Interval</i> , <i>Stroke data</i> , <i>Force curve</i> and/or <i>Race</i> windows)			•
• Customisable parameter cells in <i>Row</i> window (choose which parameters to show)	•	•	•
• Number of parameter cells in <i>Row</i> window	8	8	unlimited
• Customisable parameter cells appearance (mini-charts, averages etc.)			•
• Customisable window layout (show / hide data area or training list in <i>Summary</i> , <i>Interval</i> , <i>Stroke data</i> , <i>Force curve</i> and/or <i>Race</i> windows)			•
• Customisable chart-axes in <i>Row</i> window (choose parameters)	•	•	•
• Customisable chart-axes range in <i>Row</i> window (set minimum /maximum values)			•
SPECIALS			
• Calculate average force curve for selected training session		•	•
• Calculate average force curves for all training sessions (4 options)		•	•
• Scale force curves by length and/or force	0	•	•
• View reference curve in <i>Row</i> window	•	•	•
• View video area in <i>Row</i> window			•
OTHER			
• Run multiple copies at the same time on 1 PC			•
• Limited in use by software (license key)			•
• Limited in use by hardware (interface)	•	•	
• Windows Explorer enhancements (tool tips, property sheet)			•
• Internet updater build-in			•

Table 6 - CARE, Rpw and SEAN comparison

[] does not apply

[0] does partially apply

[•] does apply

Rpw is developed by Row-Ware and fully compatible with SEAN. Rpw is marketed, sold and supported by Rowperfect Pty Ltd and agents exclusively.