

SWIM ERGOMETER

Operating Instructions
[rev 1.23]

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Introduction

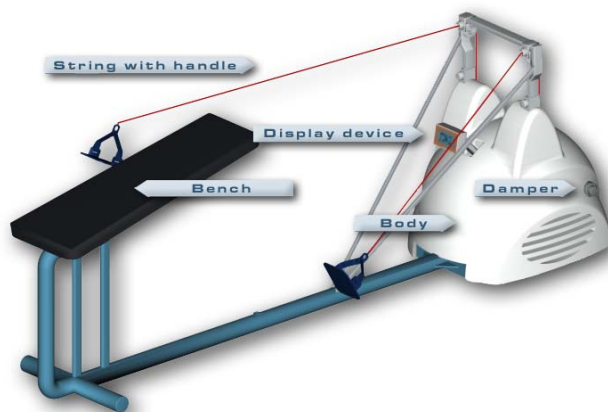
The **SWIM ERGOMETER** is a brand new product which gives recreational and top-athletes the best opportunity to simulate the motion stereotype of swim sport for test and training. The complexity of the smooth and gentle motions increases the muscles strength and flexibility of the upper body.

It also offers the optimal cardio vascular training. The unlimited range of resistance is given through air displacement turbine. This break system allows the using of the **SWIM ERGOMETER** independent from age or fitness-level. The load is regulated by the pulling effort. The working position is adjustable for all body height.

The **SWIM ERGOMETER** is quality engineered using the heavy-duty component. This ergo meter could be disassembled in two parts for convenient transportation or storage.

The **SWIM ERGOMETER** optimal and cost effective training machine provided with an electronic unit **PERFORMANCE MONITOR** (Display Device) for monitoring time, movement rate, force and power. Performance monitor take signals from strain gages sensors for accurate measuring of force and power.

Swim ERGOMETER



Package Includes

- Swim Ergometer with Central Display Unit (Display Device)
- Battery Charger
- Serial Cable
- CD ROM with PC software (EXPERT) for Win98/ WinME/ Win2000/ WinXP

Minimum System Requirement

- Processor: Pentium (Intel, AMD) > 433MHz
- Memory: 64MB (minimum), 128MB+ (optimum)
- Storage media: 40GB hard disc
- Resolution 1024x768
- RS232 (serial port) or USB with converter (USB-RS232)
- OS: Windows 98, Me, 2000, XP
- Recommended: Laptop or desktop PC with multimedia configuration, rewriteable media (CD or DVD writer)

Battery Charge

Plug the power plug into a convenient mains socket. After connecting the charger with the device, the charging indicator signals that the battery is charging.

Charging time

Approx. 12h of charging time.

Attention

The charger is for indoor use only. The charger should be disconnected from the mains when not in use. Do not plug in the charger in case of damaged cabinet or power plug. Never open the charger.

System Mounting

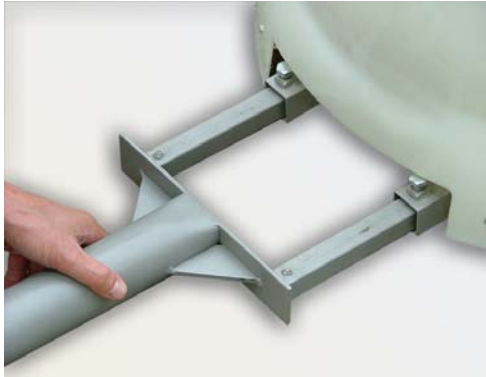
- Main parts



- Step 1



• Step 2



• Step 3





- Step 4



- Complete System



Performance Display Device

The **Display Device** is designed to be menu driven and self-explanatory. Via the menu system it's also possible to adjust all the parameters, to switch data recording on/off, to choose the desired display during the work and to transfer the recorded data to a PC for further analysis in an easy and simple way using the **EXPERT** software package.

When the device is connected to a PC, it is possible to do the software adjustments, to memorize and to follow the complete work on the **Swim Ergometer** in the **REMOTE** mode.

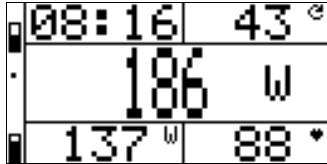
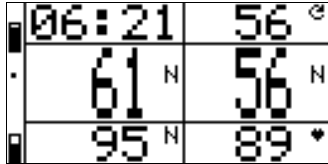
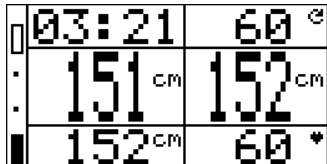
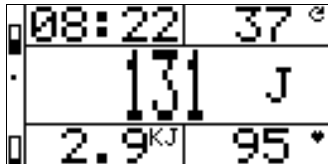
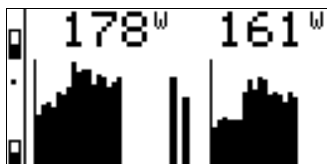


Display Device Main Characteristics

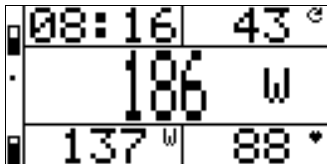
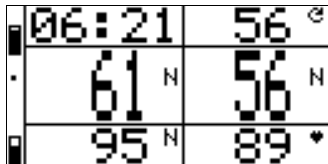
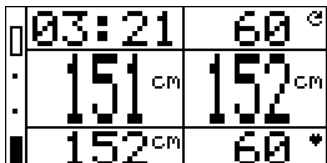
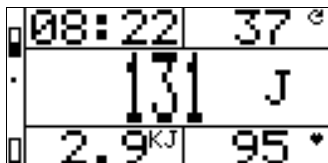
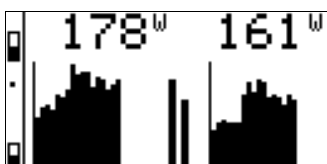
- Backlight
- Graphic display
- Rechargeable battery with about 20 hours of autonomy
- After switching ON, the last screen settings appear
- Navigate the functions using menus
- Display options including graphical or numerical data
- Time
- Stroke rate
- Power
- Work
- Force
- Heart rate
- Choose from a variety of units - **Power** [W], **Force** [N], **Pull-length** [cm] or **Energy** [J] - to be displayed with bigger fonts in the middle of the display. Switch between the units during a workout using UP/DOWN buttons
- Two modes for presentation of the measured and calculated parameters are available: TEXT MODE and GRAPH MODE
- Heart rate with Polar chest belt and receiver
- Pre-programming the workouts with time, rest time and numbers of intervals
- Store workout data on the board memory or just work without recording
- Recall function
- Memory status
- Battery status
- PC COM port interface (Serial port)
- Real time monitoring on the performance monitor or PC

Menu Structure

MONITOR	Start monitoring
	[When in monitor use UP/DOWN buttons to change display type]
	[When in Graph mode, use ENTER button to change graph type]

• POWER (W)		• FORCE (N)	
• LENGTH [cm]		• ENERGY (J)	
• GRAPH			

TRAINING	Start training session defined in SETUP/TRAINING
	[During training session, use UP/DOWN buttons to change display type]

• POWER (W)		• FORCE (N)	
• LENGTH [cm]		• ENERGY (J)	
• GRAPH			

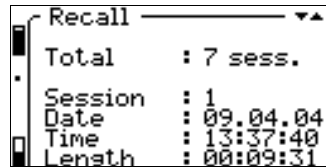
RECALL

Recall saved sessions

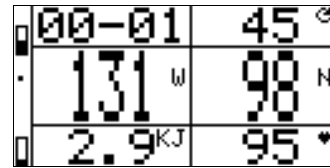
[Use UP/DOWN buttons to select desirable recorded session (Pic. 1)]

[Use ENTER button to see values in recorded session (Pic. 2)]

• Pic. 1



• Pic. 2

**SETUP****MONITOR**

Monitor Setup



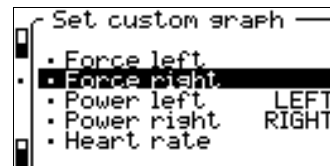
Backlight (ON/OFF) switch backlight ON/OFF using ENTER button

Mode (POWER, FORCE, ENERGY, GRAPH) switch display mode using ENTER button

Style (FORCES, POWER & PULSE, CUSTOM) only for GRAPH display mode

Custom graph (Force left, Force right, Power left, Power right, Heart Rate) - Picture 3

[Use UP/DOWN and ENTER buttons to select parameters for LEFT and RIGHT chart]

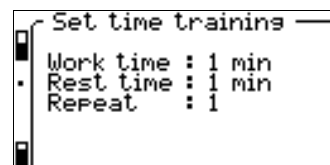
**TRAINING**

SET TIME TRAINING

Work time: (1 to 60 min) use UP/DOWN to select Work time, then press ENTER

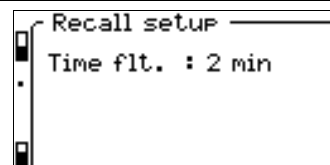
Rest time: (1 to 60 min) use UP/DOWN to select Rest time, then press ENTER

Sets: (1 to 60) use UP/DOWN to select number of Sets, then press ENTER

**RECALL**

RECALL SETUP

Time filter: (1 to 10 min) use UP/DOWN to select time filter



MEMORY

MEMORY SETUP

Delete all: use this function to delete all sessions

- ENTER for DELETE
- ESCAPE for CANCEL

Delete last session: use this function to delete only last *session*

- ENTER for DELETE
- ESCAPE for CANCEL

Sample/sec : switch sample rate or turn off sessions recording using ENTER (10, 25, 50, 100, OFF)



SET ZERO STATE

Set ZERO values before starting measurements

PROPERTIES

Shows values of main parameters

(use UP/DOWN to show other properties pages)

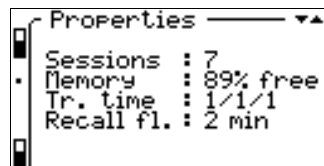
Session: (0-255)

Memory: (Show memory status - % FREE)

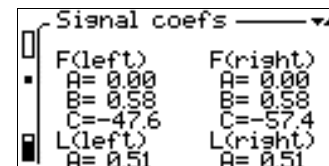
Training time: (Work time/Rest time/Sets)

Recall filter: (0-10 min)

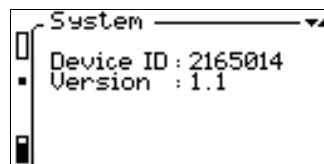
- Properties



- Signal coefs

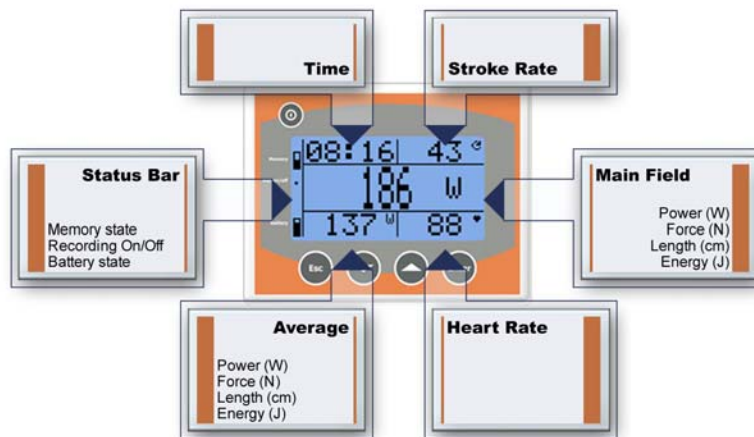


- System



Display Fields

Display Device is functionally organized. In the left part of the display there is a Status Bar showing the most important device parameters (Memory and Battery status, recording on/off indicator). Menu and measured parameters are showed in the main part of the display.



Using only 4 buttons in the right part of the display (ENTER, ESCAPE, UP, DOWN) it is possible to perform all the monitor functions. It makes working with the device easy and simple.

UP/DOWN	to move up and down in the MENU
ESC	to delete a selected option or to leave a selected menu
ENTER	to activate a selected option

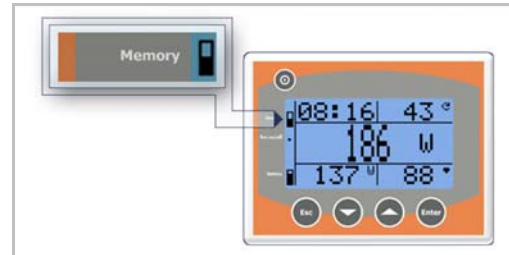
Status Bar

There are three indicators in the Status Bar (left side of display):

- Memory
- Rec on/off
- Battery

Memory indicator

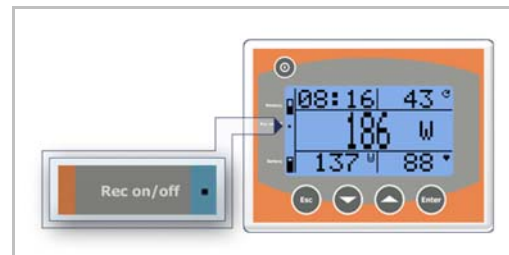
- Memory Indicator shows the momentary memory condition. It is presented in form of bar that is drawn black in the case of full memory, or is empty in the case when memory is free (empty). Capacity depends of defined sampling rate.



Sample rate	High (100 samples /sec)	Medium (50 samples/sec)	Low (25 samples/sec)	Very Low (10 samples/sec)
Capacity	14' 30" (870 sec)	29' (1740 sec)	58' (3480 sec)	145' (8700 sec)

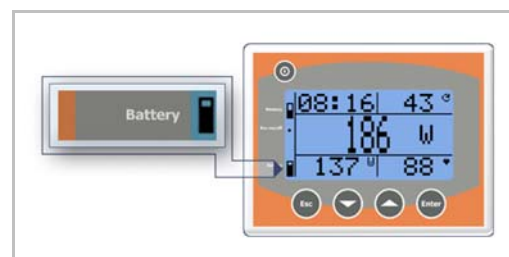
Record on/off indicator

- Record on/off shows the state of signals recording. In the case when recording is switched on, in Status Bar is presented black point. When the recording is switched OFF, field near "Record on/off" mark in Status Bar, is empty.



Battery indicator

- Battery Indicator shows the momentary battery condition. As in the Memory case, indication is presented with Bar. When the battery is full, bar is filled with black colour. In the other case (empty battery), Bar near "Battery" mark is empty. If the indicator on the **Display Device** is indicating **Battery low** (empty bar), the device has enough power for about 30 minutes.



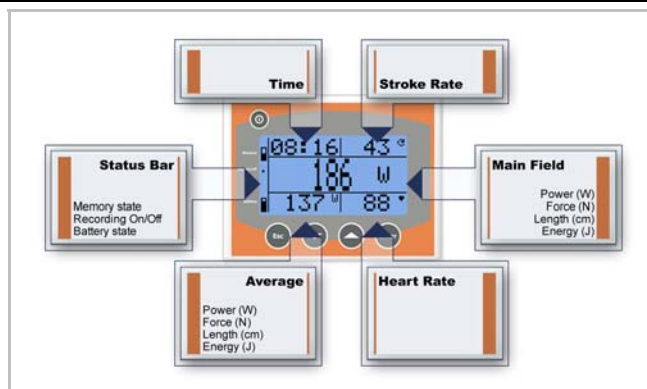
Display Device Modes

Two modes for presentation of the measured and calculated parameters are available:

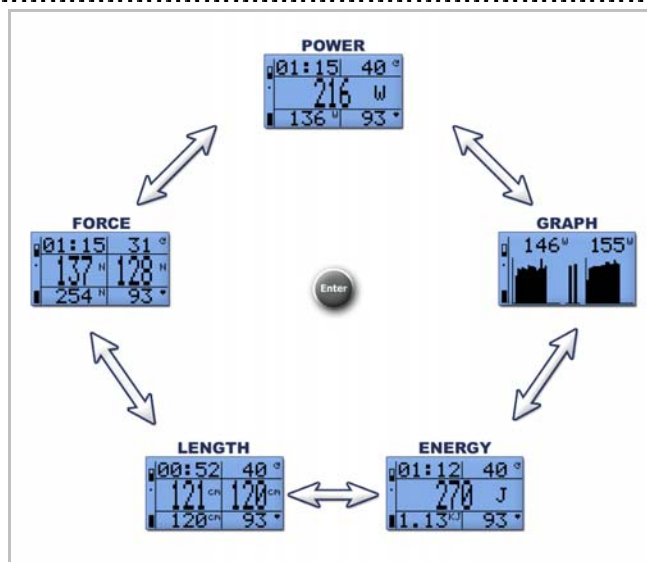
- Text mode
- Graph mode

Text mode

- In text mode, it is possible to follow five parameters at the same time. Display is divided to more separated fields.
- Time, Stroke and Heart Rate are standard fields that are presented in all text modes. Main and Average field could be switched to different views pressing UP and DOWN buttons.



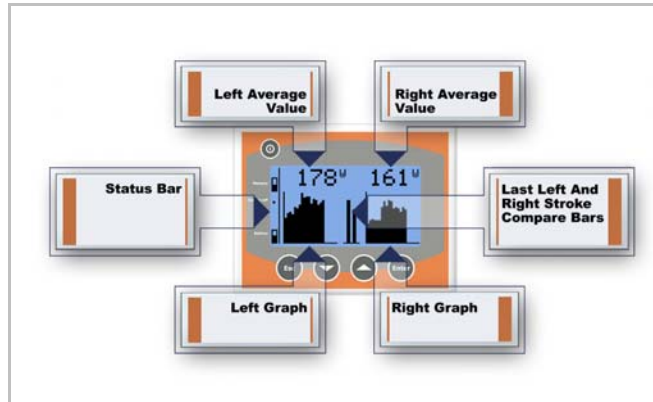
- Following views are available: Power [W], Forces [N], Energy [J], Graph mode.



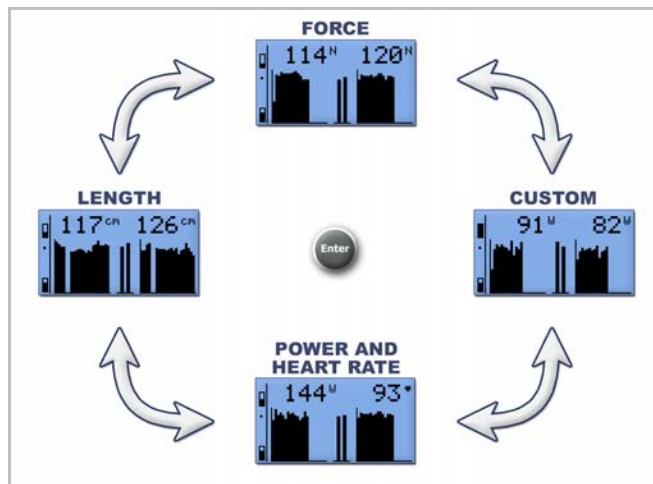
Graph mode

In graph mode, two parameters can be followed at once. They are presented in Bar form.

In the upper part of the display (Left & Right Average Value) are numerical values of the measured parameters (POWER, FORCE...) and these values are refreshed after each stroke. Left & Right Graph represent graphical interpretation of the measured parameter. Two bars at the middle of the display are presentation of the last stroke, shown separately to allow easy comparison of two sides (left & right force, left & right power etc.).



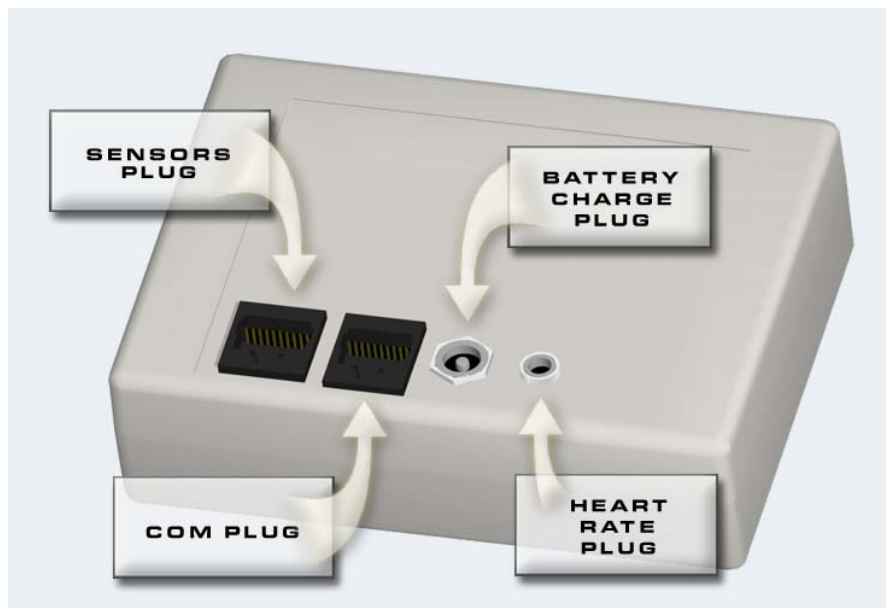
In graph mode, three different views are available. Two of them are predefined (Forces, Power & HR). The last one is Custom mode. Switching through views can be done by pressing ENTER button.



Plugs

There are the following plugs on the back side of the Central display unit:

- *Heart rate plug*
- *Battery charge plug*
- *Serial plug (com plug)*
- *Sensors plug*



Some Rules Of How To Use the Display Device

- To turn the device **ON** or **OFF** press and hold the button **ON/OFF**
- For lower battery consumption, turn the backlight **OFF**

SETUP >> MONITOR >> Backlight

- **Backlight** - Press ENTER to switch backlight ON/OFF



- To enter a repeat mode (UP or DOWN commands are repeated constantly) press and hold the button UP or DOWN
- To enable saving of the signals to memory, sample rate must be defined to one of the following values: 10, 25, 50 or 100. In this case, **REC on/off** indicator in the status bar will be turned ON (black POINT).

SETUP >> MEMORY >> Samples/Sec

- Pressing the ENTER button the sample rate will change (100, 50, 25, 10, OFF) consecutively



Sample rate	High (100 samples /sec)	Medium (50 samples/sec)	Low (25 samples/sec)	Very Low (10 samples/sec)
Capacity	14' 30" (870 sec)	29' (1740 sec)	58' (3480 sec)	145' (8700 sec)

- If the **REC on/off** indicator (Status bar) is turned ON, values with defined sample rates (10, 25, 50, 100 samples per second) will be memorized, starting with the 3rd stroke in new session (the first two strokes are test strokes).
- While in the monitor or training mode, use buttons UP/DOWN to change display mode (Power, Forces, Pulling lengths, Energy, Speed, /500m, Graph).
- After 30 seconds of inactivity in the started session, the session will be automatically finished.
- To reset a system, press all four buttons in the PROPERTIES menu. After that press the button ENTER to reset or ESCAPE to cancel. When the system is reset, all the variables (Recall filter, Training definition etc.) get default values.

NOTE: RESET option is used ONLY if the system starts to work improperly

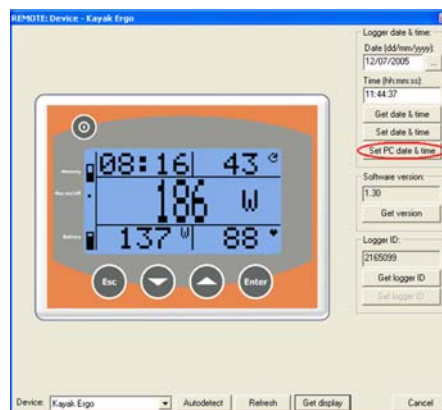
- During a session in the graph mode, press the ENTER button to change a mode (Forces, Pulling lengths, Power & HR, Power & Speed, Custom)
- To use the monitor only for training (without sessions recording) turn the recording OFF

SETUP >> MEMORY >> Samples/Sec

- **Samples/Sec** - Press ENTER to select OFF option



- To set a time and date on Display Device, connect Display Device with serial cable to PC, switch the Display Device ON, start EXPERT software (REMOTE dialog) and press "Set PC date & time" button.



- Two chosen parameters, defined in the “Set custom graph”, will be shown in the Graph (Custom) mode.

**SETUP >> MONITOR >> MODE (GRAPH) >> STYLE (Custom) >>
Set custom graph**

- Use UP/DOWN buttons to go through parameters
- Use ENTER button to switch wanted parameter to be shown LEFT or RIGHT



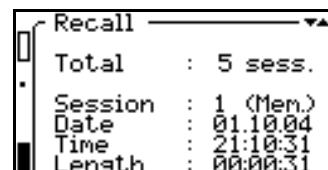
- If the system is inactive for 4 minutes, the device will be automatically turned off.
- To follow and record a signal in the Real-time mode (Monitoring) by a PC in Expert software, connect the device with serial cable to PC, activate monitor or training mode on the Display Device and to start Monitor option in Expert software

Memory Capacity

Data recorded during a session is put in the Main memory. Its capacity depends on the sampling rate (table below). The Memory indicator in the Status bar shows the fullness of this memory.

This data can be transferred to PC for further analyse in **Expert** software.

- The Recall memory has 30 hours capacity. Average values per minute of the following parameters (Power, Force, Energy, Stroke rate, Heart rate) are memorized in this memory. Data from this memory can't be transferred to PC. You can see this data only on the Display device monitor using UP/DOWN buttons.

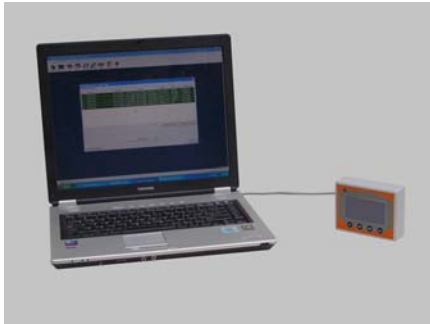


Sample rate	High (100 samples/sec)	Medium (50 samples/sec)	Low (25 samples/sec)	Very Low (10 samples/sec)
Capacity	14' 30'' (870 sec)	29' (1740 sec)	58' (3480 sec)	145' (8700 sec)

(NOTE! Only sessions with the (Mem.) mark in the Recall can be transferred to a PC (picture below). If the Memory status (in the Status bar) indicates that memory is full, later recorded sessions will not have a (Mem.) mark and cannot be transferred to PC.

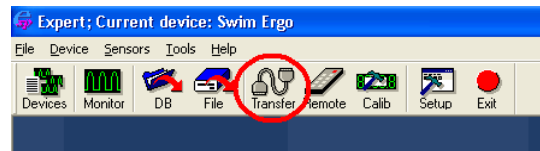
Transfer of data from Display Device to PC

To download data from the **Display Device** use: Charge/Serial port plugged on one side and PC serial port plugged on another side.

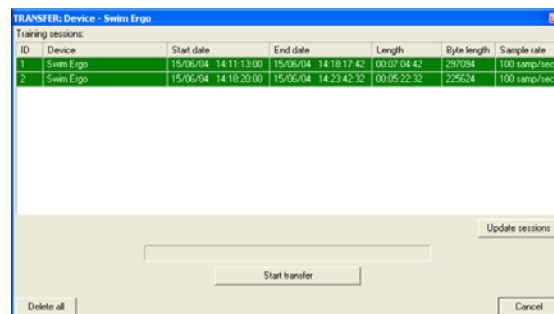


Use the following steps.

- Connect Display Device and PC with serial cable
- Switch Display Device ON
- Start Expert software
- Open transfer dialog



- After device is defined, information about stored data appears on the screen.



All the sessions memorized in **Display Device** are listed with the parameters of **Start** and **End** date as well as **Length** of the session.

- Select session(s) you want to download.
- Press button "Start transfer". In the dialog "Basic data" it is necessary to put personal data and press OK button.

No.	Last name	First name	Birthyear	Ni.	Date	Time	Device
1	SMITH	JOHN	1975				

If the name is still in the list (left-down table), with double-click on wanted name, data will be automatically filled in all needed fields.

- After downloading, data is stored on your hard disc in Personal File. Personal files are in the directory, which is defined in the SETUP. Usually, that directory is in C:\ProgramFiles\WEBA Expert\PersonalFiles.

Personal Files are files with .pdb extension and contains all parameters of training. Personal Files names are standardised and formed as follows:

DEVICE NAME_PERSON NAME_DATE_TIME.pdb

The name of the file can give you the reconstruction of the basic parameters. For example:

SWIERG_SMITH_JOHN_08042004_1309.PDB

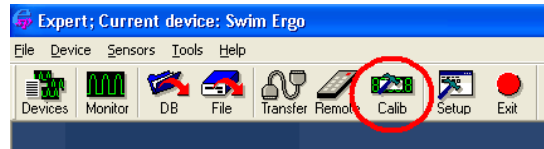
The training is done on the Swim Ergometer device, the name of the person is JOHN SMITH, the file is created on 08.04.2004. at 13:09. Extension .PDB is an abbreviation for the Personal File Database.

Transfer of calibration coefficients to Swim Ergometer Display Device

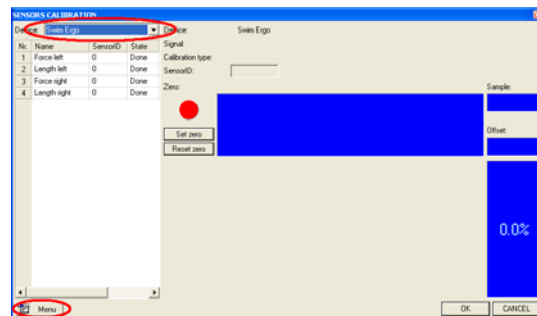
In the case when the new calibration of the force and length sensors has been done, it is necessary to transfer the new calibration coefficients to Display Device.

Calibration coefficients are coming in file with .CDB extension. To complete transfer, please follow the next procedure:

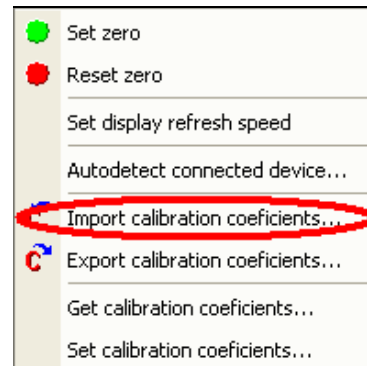
- Start Expert software and go to “Calib dialog”



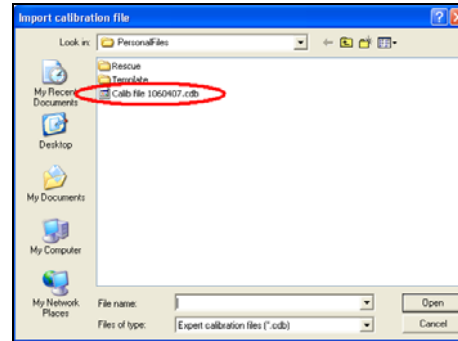
- In calibration dialog, select Swim Ergometer in Device combo box, then press the down-left button “Menu”



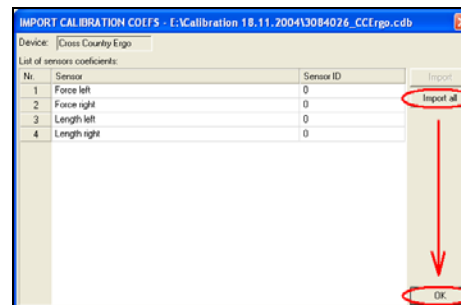
- Call “Import calibration coefficients” function



- Open calibration file with needed calibration coefficients (for example: "Calib file 1060407.cdb")

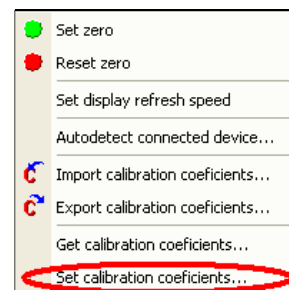


- Press "Import all" button and than "OK"

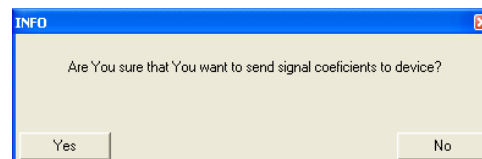


With this procedure coefficients are imported in "Expert" software. Next step is to transfer the coefficients to "Swim Ergometer" Display Device.

- Switch the Display Device ON.
- Connect Display Device & PC with serial cable
- In calibration dialog press the down-left button "Menu"
- Call "Set calibration coefficients" function



- Press OK button in next dialog



With this is procedure of calibration coefficients completed. After all, it is needed to do Set zero on the machine ("Set zero state" in main menu on the Display Device) and the system is ready for use.

Troubleshooting

Symptom:	Possible Cause:	Remedy:
The Display Device is off and won't come on.	Damaged charger cable. Empty or dead batteries.	Try to recharge the batteries. If this does not work, Call WEBA company.
Display Device is connected to PC by a serial cable, but there is no communication.	Proper COM port is not defined.	Define in dialog SETUP (EXPERT software) the correct COM port.
Display Device is connected to PC by a serial cable, but there is no communication.	Device defined in the EXPERT software does not correspond to a connected device (ex. KAYAK ERGO defined, SWIM ERGO connected).	Choose the proper device in EXPERT software (dialog DEVICES)
Polar belt and a receiver are connected, but there is no pulse signal.	Distance between the belt and the receiver is too long.	Reduce the distance between the belt and the receiver.
During training a device does not show values in the monitor and training mode.	Offset values lost.	Define the offset values again. Put back strings into initial position and press the command «Set zero state» on the Display Device.
Session is not recorded	Check Memory status and if the option REC on/off in the Status bar is activated and	If the option REC on/off is not activated, activate it in the SETUP >> MEMORY >> Sample/Sec (press the button ENTER and chose 100, 50, 25 or 10 sample\sec). If the memory indicator shows that a memory is full, delete a memory: SETUP >> MEMORY >> Delete all (or delete Last session).
Pulse beats irregularly values	Loss of contact caused by pressure that body and Polar belt make on the bench.	