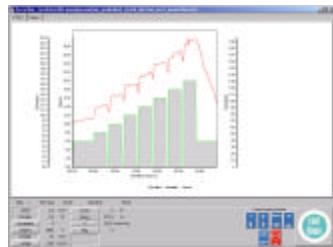


manual

h/p/cosmos para graphics®



**Instruction- & Service manual
h/p/cosmos® para graphics® version 2.6**

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E & OE. Errors and Omissions Excepted. Subject to alterations without prior notice.

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General information

A Application fields

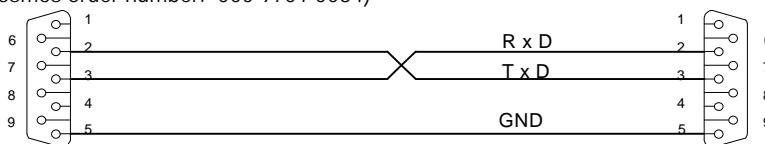
- Control of running machines and ergometers with coscom protocol by user defined programs
- Visualisation of all parameters in tabular and graphical form
- Storing of all data
- Data export in csv-files and in to the software h/p/cosmos para analysis.

Please particularly pay attention to the danger notes of the peripheral equipment.

Neither the manufacturer nor the distributor of this software undertakes any liability for any injuries to persons or damages.

B System requirements

- Personal Computer or laptop / notebook with Pentium Processor or higher
installed operating system Windows 95 / 98 / NT 4.0 (min. ServicePack 4) / 2000 / XP
min. 64 MB RAM, min. 50 MB free memory on HD
VGA-Monitor min. 800 x 600, CD ROM drive
- free RS 232 interface port for connection of any peripheral equipment
for control via USB interface an optional converter is available at h/p/cosmos
for control via USB interface the processor must be Pentium 1.8 GHz or higher
- RS 232 interface cable for connection between the ergometer and PC
(h/p/cosmos order number: 000 9701 0034)



- Running-machine with RS 232 interface and selected coscom protocol

C Safety notes

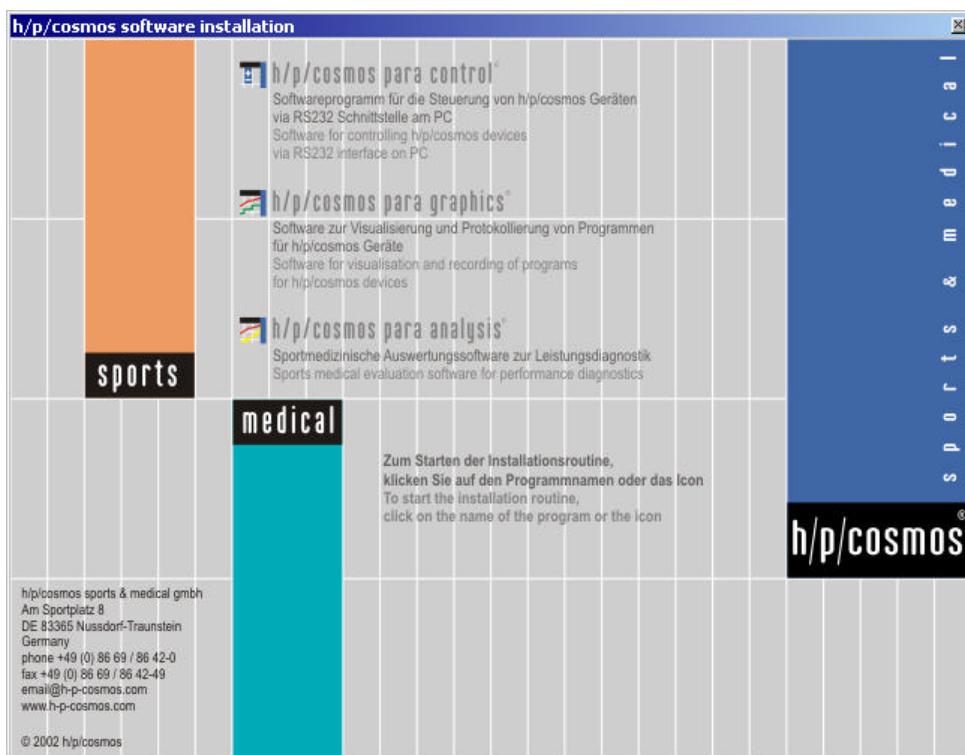
- Follow the safety notes and the instructions of the equipment in the manual closely.
- In case of nausea or dizziness of the athlete, the training has to be interrupted and a doctor has to be consulted immediately.
- In case of troubles (or in suspicion of trouble) with the wireless transmission of the heart rate, the automatic load control must not be used.
- The system may only be used by authorised and trained personnel.
- Pay close attention to the danger precautions of the software, the controlled device and all further peripheral components.
- No other PC software or program than h/p/cosmos para graphics must run on the same computer at the same time due to possible conflicts or interference of other software.

general information

- The max. recording time and controlling time is 6 hours. After a period of 6 hours the running machine or ergometer will be stopped automatically and the data can be saved on the computer.

Installation

- Put the installation CD in your CD drive.
- Provided the installation menu does not show up automatically on your display, execute the file "setup.exe" in the directory „h/p/cosmos para graphics" of the CD and install the software according to the instructions on the display of the PC.
- Use following recommended installation and de-installation path:
c:\h-p-cosmos\h-p-cosmos para graphics
- Use following automatically recommended path for program files and data:
c:\h-p-cosmos\data\h-p-cosmos para graphics\profiles
c:\h-p-cosmos\data\h-p-cosmos para graphics\protocols
c:\h-p-cosmos\program files\h-p-cosmos para graphics
- Switch on the running-machine.
- The coscom protocol has to be activated on the RS 232 / COM1 of the running-machine (see manual optional functions: OPTION 20)
- Connect a COM port of the running-machine and a free RS 232 COM port of your PC (e.g. COM1) via the RS 232 interface cable
- Before using the software the first time, the connection between running-machine and PC needs to be configured. For this, start the software and choose the menu item "Used interface" under "Options" and select the PC RS-232 interface to which the running-machine is connected.
- The symbol h/p/cosmos para graphics is added to the desktop for the fast start. You can alternatively start the program via the Windows start menu:
Start / Programs / h-p-cosmos / h-p-cosmos para graphics.



Operation

A Navigation bar

Basically, h/p/cosmos para graphics can be operated via a navigation bar.

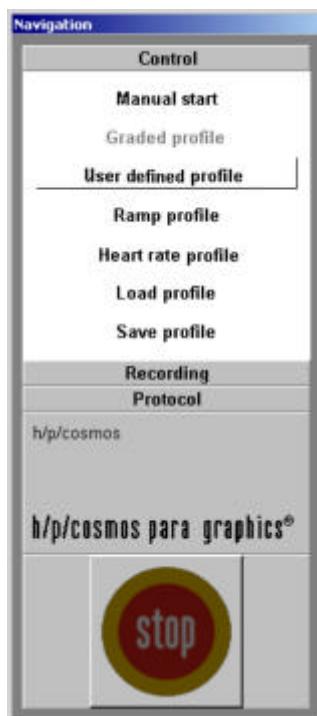
Alternatively, the operation via the menu bar is possible.

The navigation bar is organized as follows:

- Control**
 - Manual start
 - Graded profile
 - User defined profile
 - Ramp profile
 - Heart rate profile
 - Load profile
 - Save profile

- Recording**
 - Start
 - Stop / Save

- Protocol**
 - Load protocol
 - Export protocol
 - Save protocol
 - Close protocol



STOP-Button

Via the permanently visible "STOP"-button (red on yellow background) located below the navigation bar, you can stop the running-machine anytime, e.g., in case the athlete is struggling or an object is retracted.

However, this button is out of function if the ergometer is not connected with the PC. Therefore always press the emergency stop button of the running-machine in case of acute danger.

In this context please also pay attention to the respective safety precautions.

B Control

B1 General Information

In the display control you can create new profiles or load a created profile. When opening the profile construction mode, the corresponding submenu appears in the navigation bar (Graded profile, User defined profile, Ramp profile, Heart rate profile, Load profile).

The max. recording time and controlling time is 6 hours. After a period of 6 hours the running machine or ergometer will be stopped automatically and the data can be saved on the computer.

General notes for the creation of new profiles:

In the tables it is possible to

- copy, insert and attach cells within a column.
- copy a value, by clicking on a cell with the left mouse button, then, click the same cell again and pull the cursor to the target cell or cells
- increment a value, by marking two consecutive cells with the left mouse button. Then, click the lower cell again and pull the cursor to the target cell or cells

With clicking the right hand side mouse button on a cell a menu appears, that allows

- to delete steps
- to copy steps
- to insert steps.

Save

If you press this button after creating a profile, a dialog window appears for saving the profile. With "Options->Data directories" you can define a directory (Option "Directory for profiles"), which is displayed first. You can store the profile under any name. You can also store the profile in another directory or create a new subdirectory to save the profile there.

Execute

If you press this button you get into the record mode automatically. The created profile is loaded there.

Cancel

If you press the button "Cancel" all previous entries for this profile will be deleted and the respective input window will be closed. Then you can select a new profile.

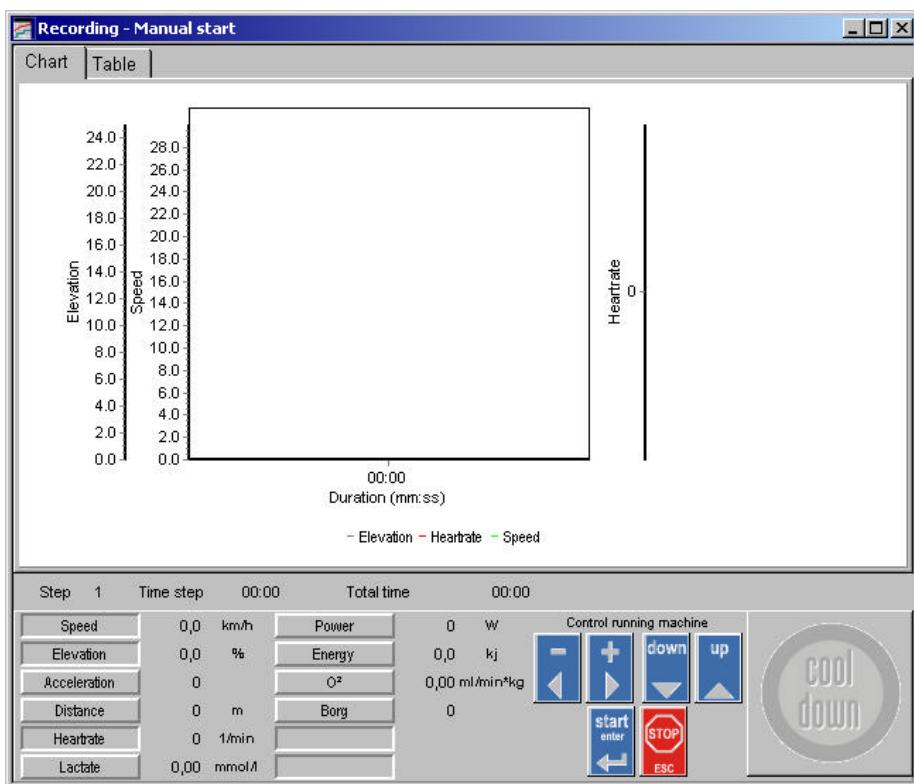
The units of the parameters depend on the choice of settings under "Options->Parameter settings".

B2 Manual start

In this mode the parameters, settings and entries on and from the control panel of the running machine are monitored manually.

The menu "Recording" appears in the navigation bar after selection. The recording can be started by pressing "Start". In this case the monitoring starts independently from the running machine, i.e. the device remains in the previously selected mode. Now the ergometer can also be started by clicking the start button in the control panel for the running machine control. It is also possible to operate the running machine by using the UserTerminal.

The recording can be terminated at any time by clicking on "Stop/ Save" in the navigation bar. The running machine however is not affected by this. Stopping the device and the recording at the same time is done by pressing the Stop-button in the navigation bar or in the control-panel.



The max. recording time and controlling time is 6 hours. After a period of 6 hours the running machine or ergometer will be stopped automatically and the data can be saved on the computer.

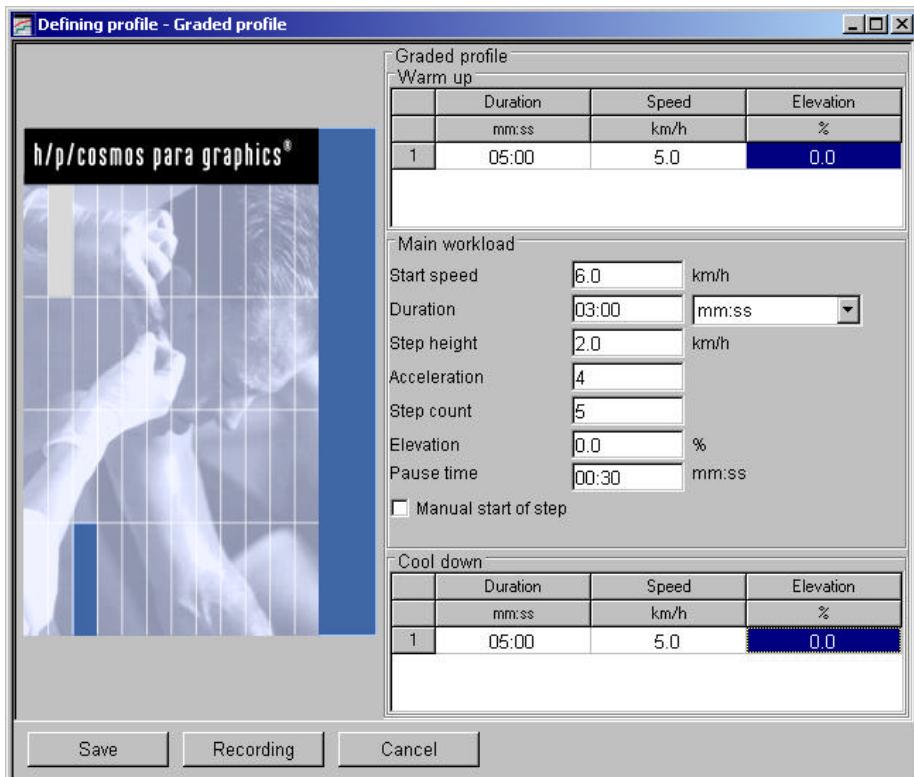
B3 Graded profile

On this worksheet you can create a graded profile with several pre- or after workload steps. The parameters for these steps are defined by duration, speed as well as elevation.

Parameter for the main load steps:

- Start speed: Initial speed of the main load steps.
- Step duration: Time or distance defined step duration.
- Step height (increment): The speed is increased by this value at each new step.
- Acceleration level: Possible values are 1-7 (Acceleration levels)
- Step number: Possible values are 0-n. A value of 0 indicates that the speed is raised up to the maximum speed and the test is ended either by pressing the button "Cool-Down" or the button "Stop".
- Pause duration: As an alternative to the manual start you can enter a predefined pause time in seconds. At a pause time of 0 the next step is started automatically without an interruption.
- Manual start: If this option is activated every step of this profile has to be started manually by pressing the button "Start".

The test ends automatically at a defined number of steps (> 0), after finishing the last step or can resp. be terminated manually by pressing the button "Stop" on the control panel any time. By pressing the button "Cool-Down" the after load phase is immediately initialized (provided that it has been selected before) or the test terminates.



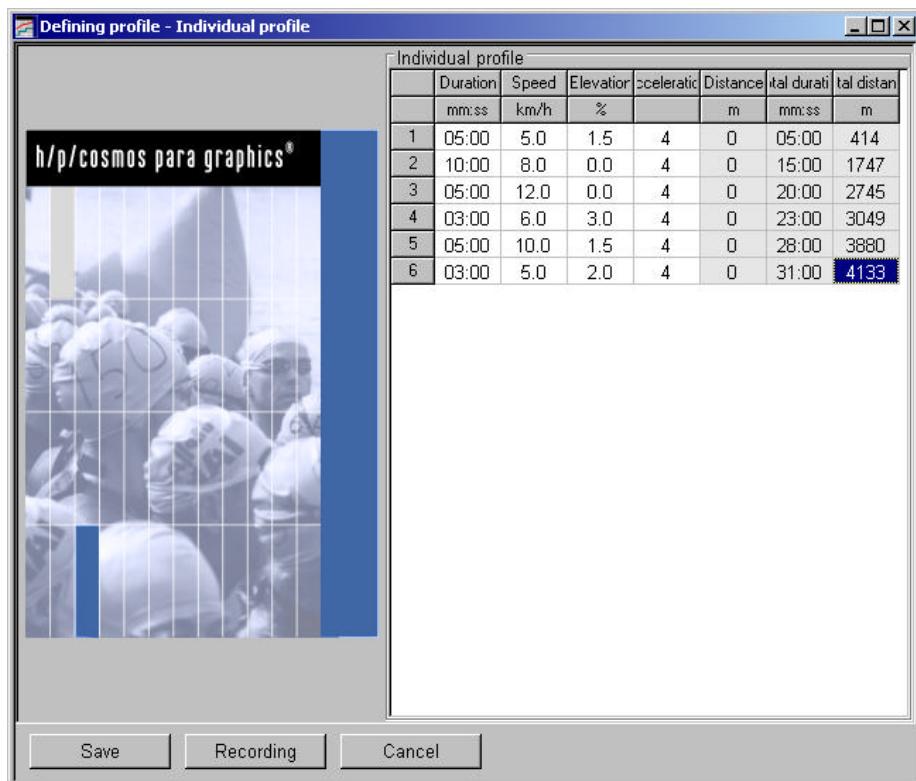
The max. recording time and controlling time is 6 hours. After a period of 6 hours the running machine or ergometer will be stopped automatically and the data can be saved on the computer.

B4 User defined profile

In the user defined profile the following parameters can be set:

- Step duration (t) The duration of the steps is set here. You have the choice between a time or a distance defined step duration.
- Start speed (v) Working speed of the respective step
- Elevation (g) Elevation of the respective step
- Acceleration level (a) Possible values are 1-7 (Acceleration levels)
- Distance (s) Distance of the step (See Step duration).
- Total time (t total) Displays the total time after finishing the respective step
- Total Distance (s total) Displays the total distance after finishing the respective step

By clicking on "1" in the first line with the right hand side mouse button the additional window for the extension of the table resp. the profile opens up. "Insert line" adds a line at the required place, "Attach line" extends the table by the selected number of lines. The test terminates automatically after finishing the last step, resp. can be stopped manually by pressing the button "Stop" on the control panel any time.



The max. recording time and controlling time is 6 hours. After a period of 6 hours the running machine or ergometer will be stopped automatically and the data can be saved on the computer.

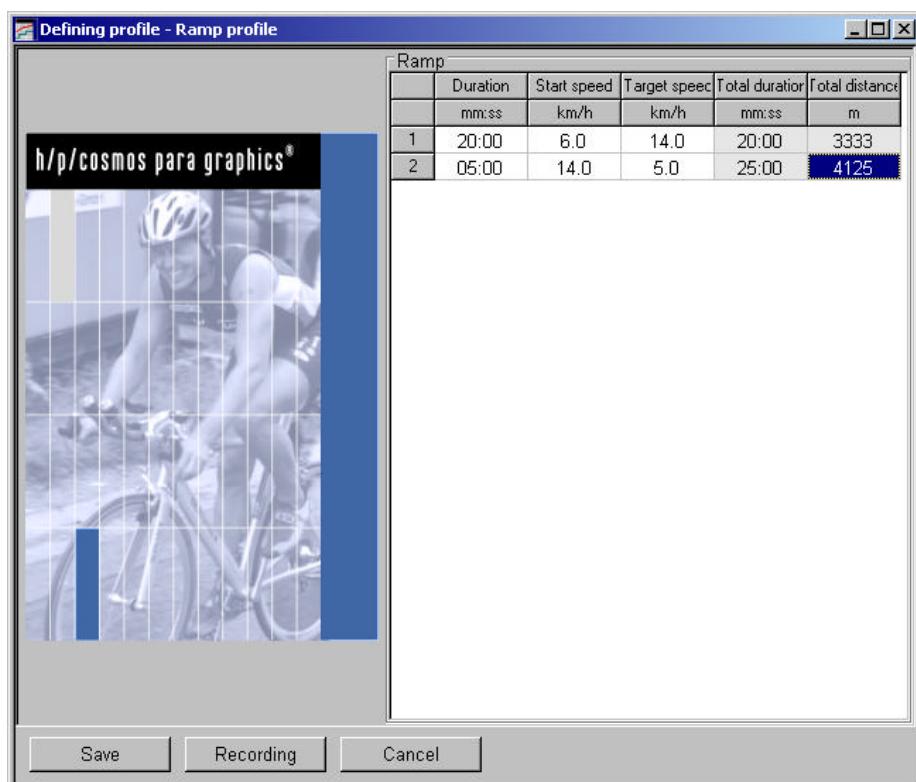
B5 Ramp profile

In the ramp profile the speed of the running-machine is driven up from the start speed to the final speed of the respective step. Automatically, the final speed is the start speed of the following step.

The following parameters can be adjusted by the user.

- Step duration(t) Time in which the target speed is reached
- Start speed (v 0) Speed at the start of the step
- Target speed (v Ende) Speed at the end of the step
- Total time (t total) Displays the total time after finishing the respective step
- Total Distance (s total) Displays the total distance after finishing the respective step

By clicking on "1" in the first line with the right hand side mouse button the additional window for the extension of the table resp. the profile opens up. "Insert line" adds a line at the required place, "Attach line" extends the table by the selected number of lines. The test terminates automatically after finishing the last step, resp. can be stopped manually by pressing the button "Stop" on the control-panel any time.



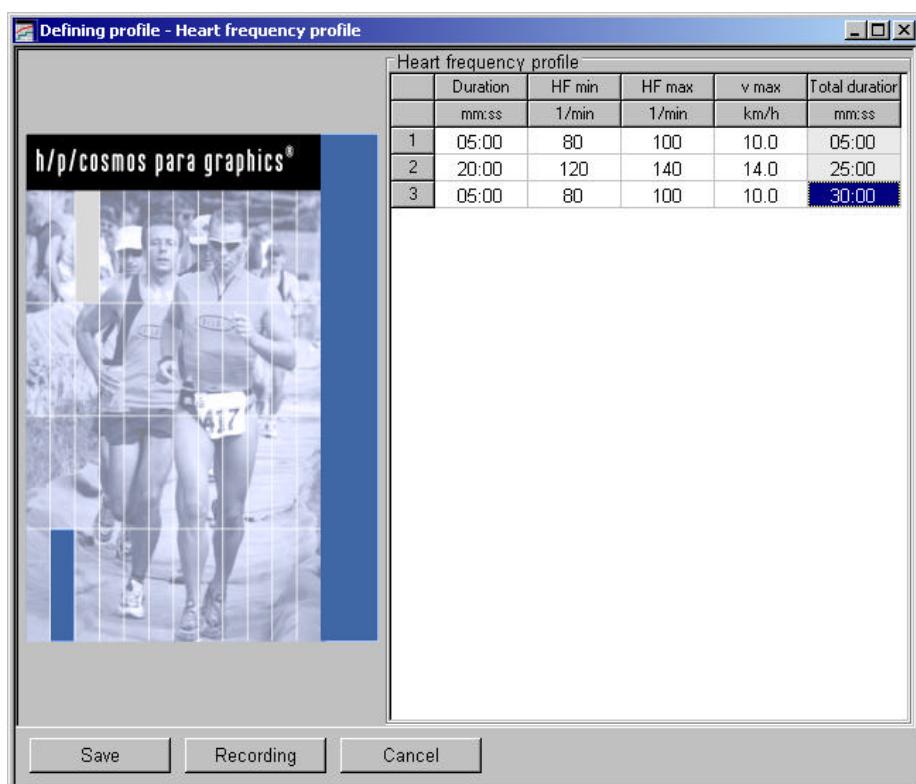
The max. recording time and controlling time is 6 hours. After a period of 6 hours the running machine or ergometer will be stopped automatically and the data can be saved on the computer.

B6 Heart rate profile

The heart rate profile controls the running-machine to enable the subject to exercise in a predefined heart rate zone.

The following parameters can be set:

- Step duration(t) Duration of the step
- Lower heart rate limit (HF min) If the heart rate doesn't get below this value, load is increased
- Upper heart rate limit (HF max) If the heart rate exceeds this value the load is reduced
- Maximum speed (v max) The maximum speed of the step, further increase of the load is done via the elevation
- Total time (t total) Reports the total time after finishing the respective step



For increasing the load, first the speed is increased to its upper limit, then, the elevation is increased. The profile can be terminated by pressing "Stop" in the control panel.

By clicking on "1" in the first line with the right hand side mouse button the additional window for the extension of the table resp. the profile opens up. "Insert line" adds a line at the required place, "Attach line" extends the table by the selected number of lines.

The test terminates automatically after finishing the last step, resp. can be stopped manually by pressing the button "Stop" on the control-panel any time.

In case of troubles (or in suspicion of trouble) with the wireless transmission of the heart rate, the automatic load control must not be used.

The max. recording time and controlling time is 6 hours. After a period of 6 hours the running machine or ergometer will be stopped automatically and the data can be saved on the computer.

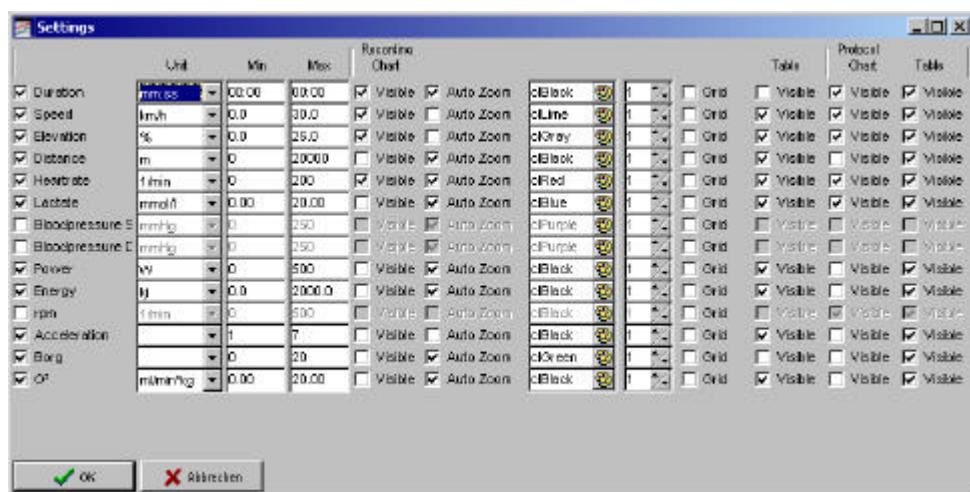
C Recording

Different data is recorded and logged here. If the record mode is opened, the corresponding submenu appears in the navigation bar with the items "Start" and "Stop/Save". The display is subdivided into the following areas.

- Index card "Chart"
- Index card "Table"
- Display of the current values of the device as well as the buttons for controlling the equipment ("Control-Panel").

Below the alternatively visible index cards "Chart" and "Table" is a permanently visible border. The current values can be seen on the left side of this bar, the "Control-Panel" can be found on the right hand side.

You can adjust all important details of the chart and the table with „Options->Parameter settings“:



- Displayed parameters in the chart
- Unit of the parameters
- Value limits of the parameters
- Colour of the parameters
- Display of the grid lines for the parameter

Automatic update of the parameter range in the chart, i.e., the range is updated automatically in case the current values are out of the range.

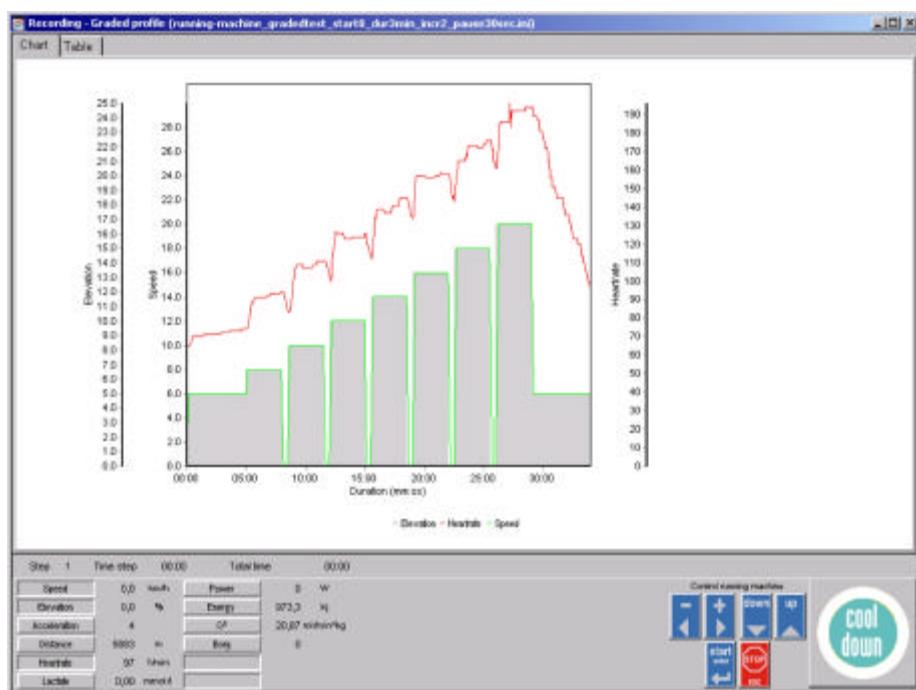
The max. recording time and controlling time is 6 hours. After a period of 6 hours the running machine or ergometer will be stopped automatically and the data can be saved on the computer.

C1 Chart

The active profile is monitored here (speed and elevation) and displayed graphically. This makes a plausibility control of the entered values possible, since errors are visualised.

For zooming a part in the diagram, click on the left upper corner of the desired area with the left mouse button, pull the mouse pointer down to the right hand side lower corner and, then release the mouse button.

For deactivating the zoom function, click on the right hand side lower corner with the left mouse button, pull the mouse pointer up to the left upper corner and then release the mouse button. The movement from the lower right to the upper left is decisive, not the size of the area.

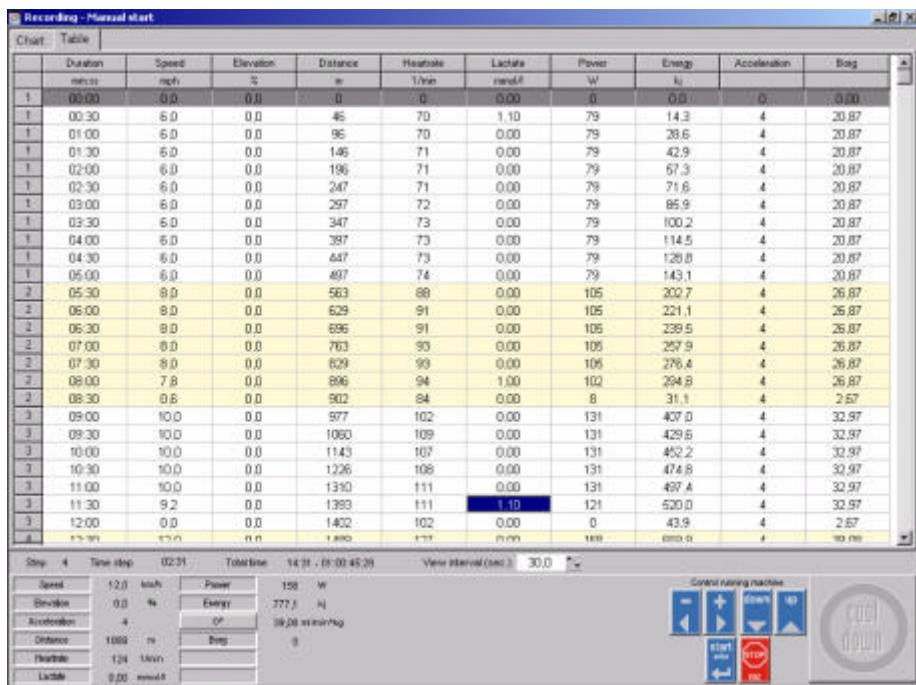


C2 Table

You also can display the parameters in the table instead of the diagram. With "Options->Parameter settings" you can define

- which parameters are displayed in the table
- in which units the parameters should be displayed.

In the lower part of the table you can find an entry field for the time interval of the table - the value is entered in seconds.



The screenshot shows a software window titled "Recording - Manual start". The main area is a table with 11 columns: Duration, Speed, Elevation, Distance, Heartrate, Lactate, Power, Energy, Acceleration, and Borg. The first column has sub-headings "mins" and "secs". The second column has sub-headings "mph" and "%". The third column has sub-headings "m" and "ft". The fourth column has sub-headings "1/min" and "min/km". The fifth column has sub-headings "min/dL" and "mmol/L". The sixth column has sub-headings "W" and "kcal". The seventh column has sub-headings "J" and "kJ". The eighth column has sub-headings "s" and "ms". The ninth column has sub-headings "m/s" and "km/h". The tenth column has sub-headings "0" and "100". The eleventh column has sub-headings "0.00" and "100.00". Below the table, there is a status bar with "Step : 4 Time step : 02:31 Totaltime : 14:31 : 09:00:45.20" and "View interval (sec) : 30.0". At the bottom, there is a control panel with buttons for "Speed", "Braking", "Acceleration", "Distance", "Heartrate", "Lactate", "Power", "Energy", "View interval (sec)", "Control running machine", and "Start/Stop".

All values are alterable in the table (apart from speed, elevation and time).

Through this

- current values can be included (e.g. lactate values, borg values, etc.)
- measuring errors can be corrected (e.g. at the heart rate).

C3 Display of current values and control panel

Under the alternatively visible index cards "Chart" and "Table" is a permanently visible bar. The current values can be seen on the left hand side of this bar, the "Control-Panel" is on the right hand side, which allows to control the running machine during an active profile.

Current Values

Which values are displayed with which units, can also be decided by the user under the Options->Parameter settings.

Control panel

The "Control panel" consists of different buttons which make the control of the running-machine possible during the recording.



Reducing speed

Increasing speed

Reducing elevation

up

Increasing elevation

start
enter

If you press this button the first time the program will be started. In the graded test you can start the next step, provided you have set a manual start.



This button interrupts the current recording, the running-machine stops (speed = 0) and a dialog window for saving the data appears .(See Options >Directories).

The button "cool down" has a function only for the graded test.

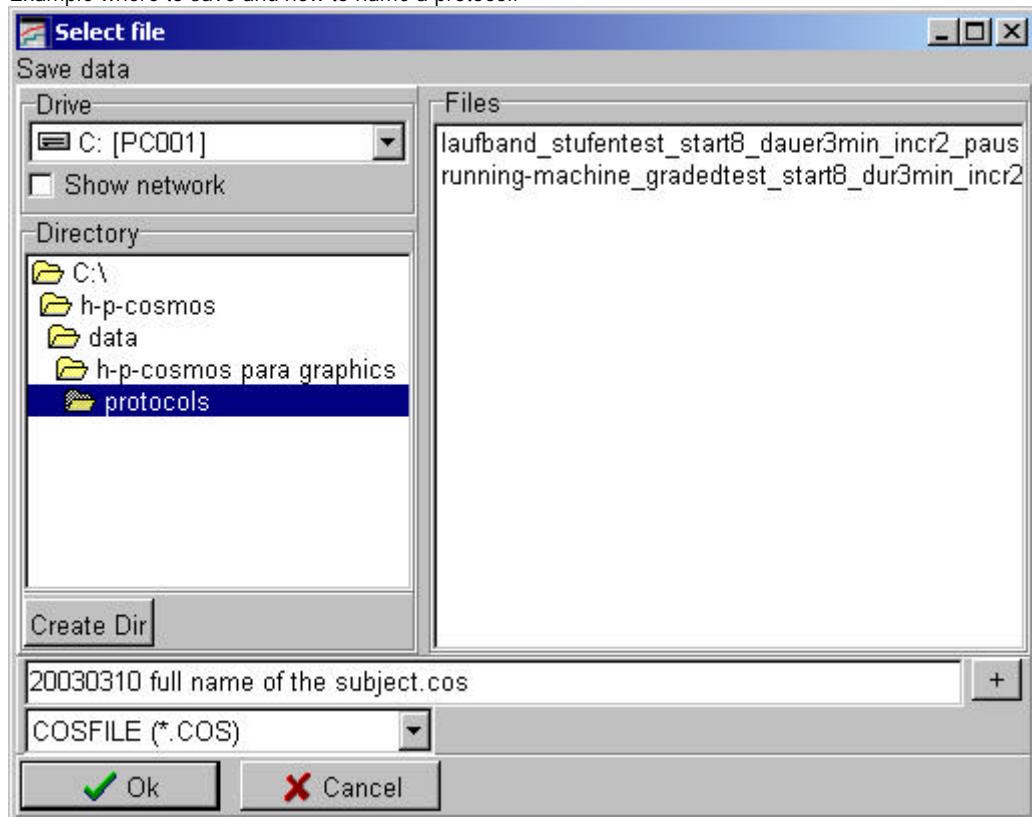


By pressing the button "cool down" the after load phase is immediately initialized (provided that it was set before) or the test terminates. After the cool down phase the running machine stops and a dialog window for saving the data appears.

D Protocol

All recordings can be saved as protocols and chosen again. After finishing a recording resp. a profile the corresponding dialog window appears.

Example where to save and how to name a protocol:



D1 Loading a protocol

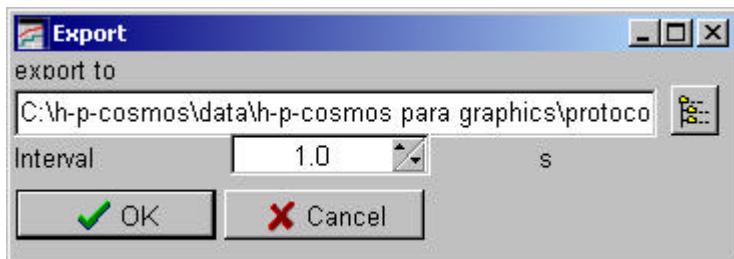
By choosing this menu a dialog window for the selection of a protocol opens. With "Options > Data directories" you can define a directory (Option "Directory for test data"), which is suggested when opening the dialog window

D2 Exporting a protocol

There are different possibilities for the data export:

- Export as .csv-file

(A csv-file is a text file in which the measuring results are separated by a semicolon. These files can be imported in calculation programs like Microsoft Excel). You decide which data has to be exported in the entry field "interval". Interval 3 sec. indicates that the data of the 3rd, 6th, 9th, (n * 3) second are exported. An interval higher than a step duration will skip this data. Entered lactate or borg values will be lost. Therefore export all data by choosing the smallest interval at graded tests.



Example, how a table looks like after export to csv and import in Microsoft Excel program:

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Duration	Speed	Elevation	Distance	Heartrate	Lactate	Bloodpressure Sys.	Bloodpressure Dias.	Power	Energy	rpm	Acceleration	Borg	Q*	User1	User2
2 mm:ss	km/h	%	m	1/min	mmol/l	mmHg	mmHg	W	kj	1/min					
3 00:01	26	0.0	0	114	0.00	0	0	36	0.0	0	4	0	2,67	0.00	0.00
4 00:02	40	0.0	1	116	0.00	0	0	63	1.0	0	4	0	14,88	0.00	0.00
5 00:03	57	0.0	2	116	0.00	0	0	75	1.0	0	4	0	14,88	0.00	0.00
6 00:04	71	0.0	5	116	0.00	0	0	93	1.0	0	4	0	14,88	0.00	0.00
7 00:05	78	0.0	7	115	0.00	0	0	103	3.6	0	4	0	26,43	0.00	0.00
8 00:06	80	0.0	10	113	0.00	0	0	105	3.6	0	4	0	26,43	0.00	0.00
9 00:07	80	0.0	11	113	0.00	0	0	105	3.6	0	4	0	26,43	0.00	0.00
10 00:08	80	0.0	14	112	0.00	0	0	105	5.6	0	4	0	26,87	0.00	0.00
11 00:09	80	0.0	15	112	0.00	0	0	105	5.5	0	4	0	26,87	0.00	0.00
12 00:10	80	0.0	18	112	0.00	0	0	105	5.5	0	4	0	26,87	0.00	0.00
13 00:11	80	0.0	20	113	0.00	0	0	105	7.4	0	4	0	26,87	0.00	0.00
14 00:12	80	0.0	23	114	0.00	0	0	105	7.4	0	4	0	26,87	0.00	0.00
15 00:13	80	0.0	25	115	0.00	0	0	105	7.4	0	4	0	26,87	0.00	0.00
16 00:14	80	0.0	27	116	0.00	0	0	105	9.2	0	4	0	26,87	0.00	0.00
17 00:15	80	0.0	29	116	0.00	0	0	105	9.2	0	4	0	26,87	0.00	0.00
18 00:16	80	0.0	32	117	0.00	0	0	105	9.2	0	4	0	26,87	0.00	0.00
19 00:17	80	0.0	34	119	0.00	0	0	105	11.1	0	4	0	26,87	0.00	0.00
20 00:18	80	0.0	36	120	0.00	0	0	105	11.1	0	4	0	26,87	0.00	0.00
21 00:19	80	0.0	39	121	0.00	0	0	105	11.1	0	4	0	26,87	0.00	0.00
22 00:20	80	0.0	40	123	0.00	0	0	105	12.9	0	4	0	26,87	0.00	0.00
23 00:21	80	0.0	43	125	0.00	0	0	105	12.9	0	4	0	26,87	0.00	0.00
24 00:22	80	0.0	45	126	0.00	0	0	105	12.9	0	4	0	26,87	0.00	0.00
25 00:23	80	0.0	47	126	0.00	0	0	105	14.7	0	4	0	26,87	0.00	0.00
26 00:24	80	0.0	49	130	0.00	0	0	105	14.7	0	4	0	26,87	0.00	0.00
27 00:25	80	0.0	51	131	0.00	0	0	105	14.7	0	4	0	26,87	0.00	0.00
28 00:26	80	0.0	54	133	0.00	0	0	105	16.6	0	4	0	26,87	0.00	0.00
29 00:27	80	0.0	56	133	0.00	0	0	105	16.6	0	4	0	26,87	0.00	0.00
30 00:28	80	0.0	58	133	0.00	0	0	105	16.6	0	4	0	26,87	0.00	0.00
31 00:29	80	0.0	61	133	0.00	0	0	105	18.4	0	4	0	26,87	0.00	0.00
32 00:30	80	0.0	63	133	0.00	0	0	105	18.4	0	4	0	26,87	0.00	0.00
33 00:31	80	0.0	65	134	0.00	0	0	105	18.4	0	4	0	26,87	0.00	0.00
34 00:32	80	0.0	67	134	0.00	0	0	105	20.3	0	4	0	26,87	0.00	0.00
35 00:33	80	0.0	69	134	0.00	0	0	105	20.3	0	4	0	26,87	0.00	0.00
36 00:34	80	0.0	71	134	0.00	0	0	105	20.3	0	4	0	26,87	0.00	0.00
37 00:35	80	0.0	74	134	0.00	0	0	105	22.1	0	4	0	26,87	0.00	0.00
38 00:36	80	0.0	76	135	0.00	0	0	105	22.1	0	4	0	26,87	0.00	0.00
39 00:37	80	0.0	78	136	0.00	0	0	105	22.1	0	4	0	26,87	0.00	0.00
40 00:38	80	0.0	80	136	0.00	0	0	105	24.0	0	4	0	26,87	0.00	0.00
41 00:39	80	0.0	83	136	0.00	0	0	105	24.0	0	4	0	26,87	0.00	0.00
42 00:40	80	0.0	85	137	0.00	0	0	105	24.0	0	4	0	26,87	0.00	0.00
43 00:41	80	0.0	87	138	0.00	0	0	105	25.8	0	4	0	26,87	0.00	0.00
44 00:42	80	0.0	90	138	0.00	0	0	105	25.8	0	4	0	26,87	0.00	0.00

■ Export to the program h/p/cosmos para analysis

The recorded data can be evaluated with the program h/p/cosmos para analysis.

Remark

If you evaluate your data with h/p/cosmos para analysis choose the same directory for data export in h/p/cosmos para graphics ("Options > Data") and for data import in h/p/cosmos para analysis.

D3 Importing a protocol

Here import protocol files of former versions of h/p/cosmos para graphics can be imported. During the import, a backup copy of the original file is created with the file extension ".old".

If requested the original file is replaced by the new version automatically. Otherwise, saving the alterations is not possible. It is important to make a backup before.

E Options

E1 Interface used

Setting for the selection of the interface port used for the connection with the running machine.

E2 Interval for interface

Here the interval for recording the parameters (time, speed, elevation and heart rate) is defined.

Possible values: 0.1 to 999 seconds.



E3 Parameter settings

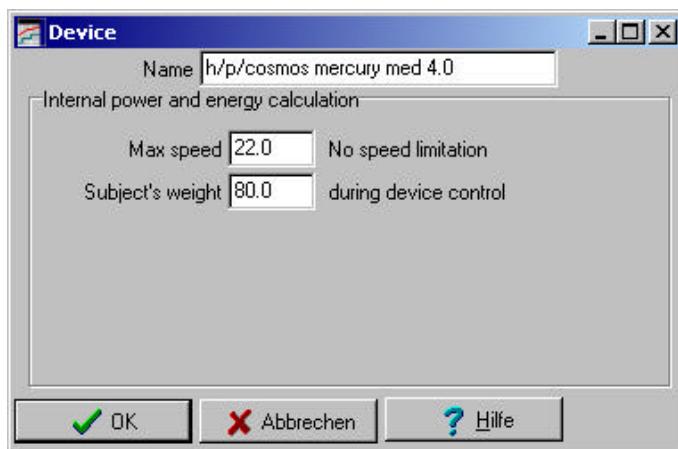
Here any transferred or displayed parameter (time, speed, elevation, heart rate, borg, lactate, blood pressure, power, energy) can be defined:

- Displayed parameter in the chart
- Displayed parameter in the table
- Unit of the parameters
- Limits of the parameters
- Style of the parameters
- Displays of the grid lines for the parameters
- Automatic update of the parameter range in the chart, i.e., the range is updated automatically in case the current values are out of range.



E4 Device name, maximum speed, weight

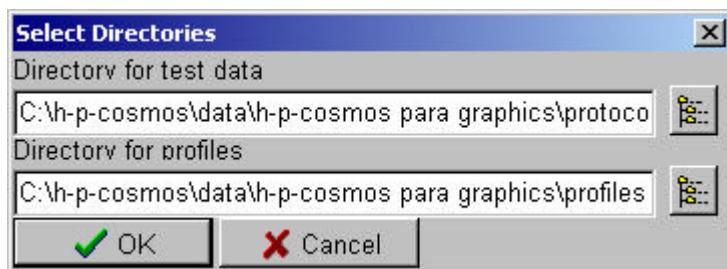
You can assign a name for the equipment to be controlled here. The maximum speed of the running-machine can be entered here as well. This is needed to calculate the distances and the step durations. A wrong value causes differences.



For better calculation of the oxygen consumption, the energy consumption and the power, the weight of the athlete can be entered here.

E5 Data directories

Here a directory for the test data and a directory for the profiles is defined. The chosen directory is suggested, if data or profiles are loaded or saved.



Remark

If you evaluate your data with h/p/cosmos para analysis choose the same directory for data export in h/p/cosmos para graphics ("Options->Data") and for data import in h/p/cosmos para analysis.

E6 Language

The language used in the program and in the help text can be set.

E7 Registration

With the registration of the program you are able to save the data. For this, put the registration floppy disk in the drive and select Options => Registration.

Solving Problems

If the connection between the running machine and the PC could not be established a respective error message appears.



In the following a list can be found of possible causes for malfunctions and some clues for the elimination of these:

- The wrong com port has been set in the options of the running machine
Solution: check the option settings of the running machine (Option 20 for COM 1; Option 21 for COM 2). How to change the protocol settings of the running machine can be found in the manual of the running machine.
- Another program uses the same PC RS-232 interface port (e.g. COM1)
Solution: close this program.
- The cable has been connected to another RS-232 interface port on the PC.
Solution: choose the correct interface in the menu point Options->Interface used->COM 1..6.
- The interface cable is defect or the wrong kind.
Solution: Use an interface cable available at h/p/cosmos.

Should it not be possible to eliminate the malfunction call our service department under +49/8669/8642-25 or contact us via email under service@h-p-cosmos.com.

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