KETTLER

Trainings- und Bedienungsanleitung	deutsch
Training and Operating Instructions	english
Mode d'emploi et instructions d'entraînement	français
Trainings- en bedieningshandleiding	nederlands
Instrucciones de entrenamiento y manejo	español
Istruzioni per l'allenamento e per l'uso	italiano
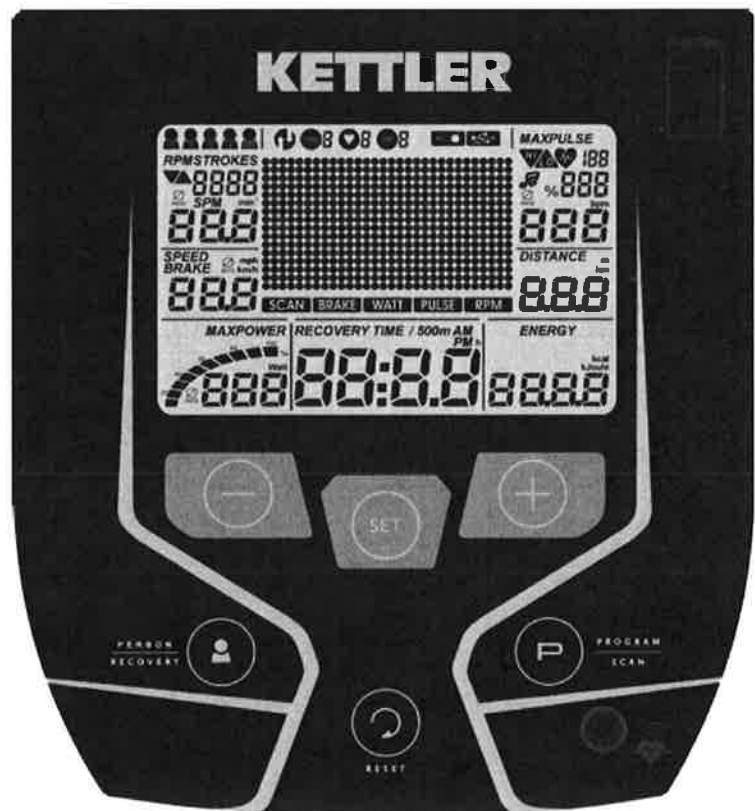
■ ■ ▧   MADE IN GERMANY

Training and Operating Instructions

Table of contents

(G)

In the instruction, this sign refers to the glossary. There the respective term is explained.

Safety Instructions

Note the following points for your own safety:
- The training apparatus must be set up on a suitable, stable surface.
- Before the first use and also after approx. 6 operating days, the joints are to be checked for firmness.
- In order to avoid injuries as a result of incorrect loading or excessive loading, the training apparatus must only be used in accordance with the instructions.
- It is not recommended that the apparatus be set up in damp spaces, because this will in time lead to rusting.
- At regular intervals, check that the training apparatus is in correct working order and that it is in proper condition.
- The safety / technical checks are among the duties of the operator and must be carried out regularly and properly.
- Defective and damaged parts are to be replaced immediately.
  Only use original KETTLER replacement parts.
- The apparatus must not be used until it has been repaired.

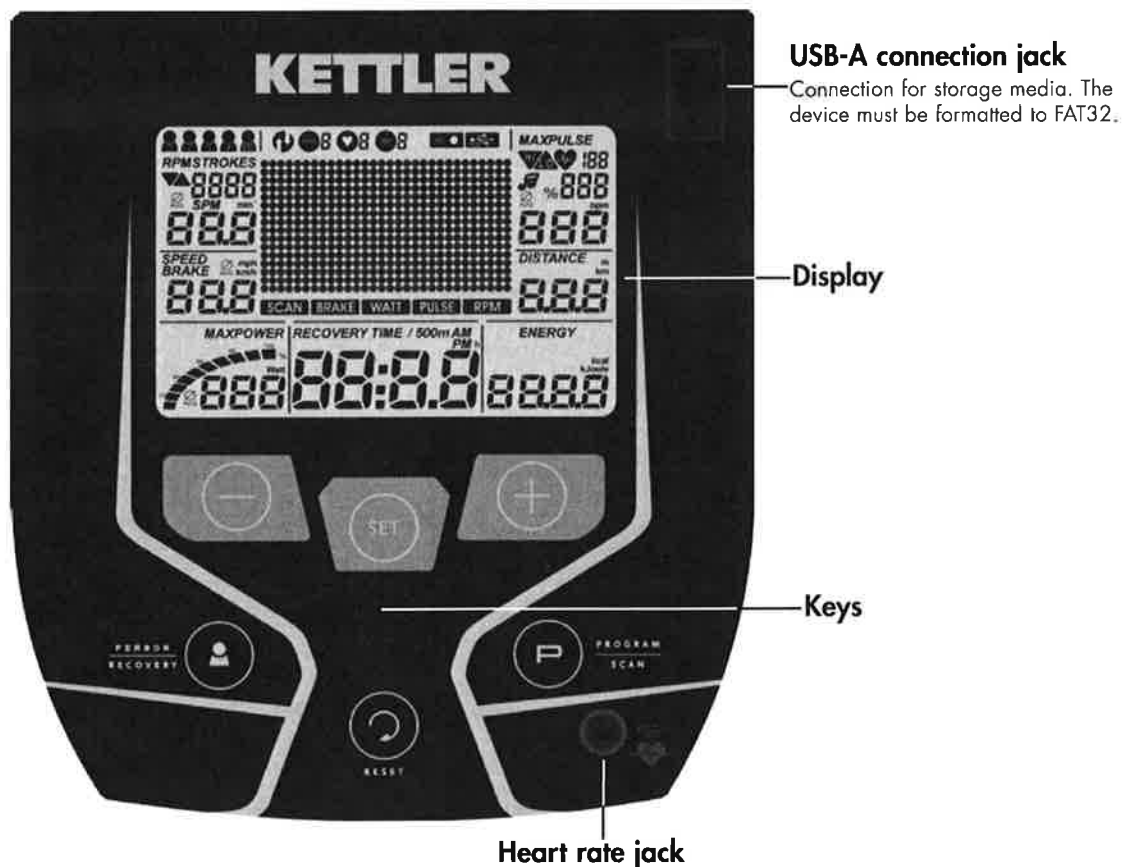- The safety level of the apparatus can only be maintained if it is regularly checked for damage and wear.

For your safety:
- **Before taking up training, have your family doctor advise you on whether or not you are in suitable health for training with this apparatus. The medical findings should be the basis for the structuring of your training programme. Incorrect or excessive training can lead to damage to health.**

Short Description

The device has a functional area with keys and a display with
various symbols and diagrams.

USB-A connection jack
Connection for storage media. The
device must be formatted to FAT32.

Display

Keys

Heart rate jack

The device has the following functions
• Memory for 5 users (4 internally in the display and 1 externally with USB stick)
• Training targets can be saved permanently:
Target heart rate, time, distance, energy expenditure
• Heart rate monitoring with visual and acoustic information:
Maximum heart rate and target heart rate dependent on age
• Background lighting can be selected. Colour changes depending on heart rate events (heart rate light):
Target heart rate achieved or maximum heart rate exceeded
• A fitness grade of 1-6 is calculated on the display with the recovery heart rate after 1 minute
• Programmes for manual and automatic power adjustment and heart rate controlled training.
• Training record can be saved as its own programme and used again for future training.
• Fitness test with result. Training programmes are calculated and offered from the result.
• Select display for speed and distance [KM/H or M/H]
• Select display for energy expenditure [KJoules or Kcal]
• Display for total kilometres covered and total training time of the machine.

Display values
The illustrations show the operation as wheel ergometer.
If the rotation speed corresponds to the example values on the display, the values for speed and distance at the
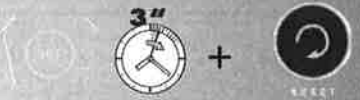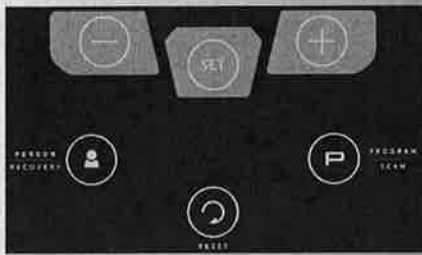cross ergonometers are lower.
At a pedal rate of 60 min⁻¹
Wheel ergometer = 21.3 km/h
Cross ergometer = 9.5 km/h
Speed ergometer:25,5 km/h

Quick Guide

Functional area

The six keys are briefly described below.

More detailed information is provided in the individual chapters. In these descriptions the names of the functional keys are the same.

SET

This key starts the display when it is in standby mode. Programme inputs are activated. The preset data is applied.

SET (press and hold) + RESET (press quickly)

With the combination of the keys, display-specific settings such as date/time, km or miles, background colour, user and factory settings are activated.

Minus – / plus + keys

With these keys values can be changed in the different menus before training and power can be adjusted during training.

- Further "plus"
- or back "minus"
- Press for a sustained period > quick change
- "Plus" and "minus" pressed **together**:
- Power jumps to   **25 Watt**
- Programmes jump to   **original**
- Value input jumps to   **off**

USER / RECOVERY

This key has two functions:

Pressing quickly when idle: A user is selected P1 > P4 > no user = guest > P1 > P4....

Pressing and holding when idle: The data and settings for the user P1 > P4 displayed or the USB stick that is plugged in are displayed.

Pressing quickly during training: The recovery heart rate function (Recovery) starts (only if a heart rate is being recorded).

Reset

The display is deleted ready for a new start with this key. This is only possible when the machine is idle

Programme / SCAN

Pressing quickly when idle: Programmes are selected with this key.

Pressing quickly during training: Display in the DOT matrix is changed.

Pressing and holding during training: The automatic display change SCAN is started or stopped.

Heart rate measurement

Heart rate measurement can be done with 3 sources:

1. Ear-clip (included)

The plug is plugged into the jack;

2. Chest strap without receiver

On this machine the receiver is positioned behind the display. If an ear-clip is plugged in then it must be removed.

(Chest straps are not always included)

The POLAR chest strap T34 without plug-in receiver is available as an accessory (product no. 67002000).

3. Hand grip sensor

(Hand grip sensor is not always included)

Display

The display provides information on the various functions and each of the selected settings modes.

Programmes

Count-up/down / Training record
Manual power adjustment

In both programmes you adjust power during training. In "count-up" mode the values go upwards and in "count-down" mode the values go downwards, e.g. the time, distance, etc. that you have set. The training record can be activated in both programmes. This is saved under **"Prg Record"** as a training profile and can be used for training at a later date.

Prg Record
Saved training record

"Prg Record" is training history that is saved under "count-up" or "count-down".

Programmes 1-6
Programme dependent power adjustment

6 preset power profiles dependent on time or distance, differing in terms of duration and intensity. Power is changed according to profile targets.

HRC1/HRC2 Programmes

HRC = Heart Rate Control (heart rate programme)

In both programmes a target heart rate is reached thanks to automatic power regulation and is maintained over the duration of the training. The target heart rate is either ascertained from your targets or, if no information is available, set at 130. In "HRC 1" the values set by you count upwards, in "HRC 2" the values set by you count downwards.

Test

IPN Test

The programme increases the power and records the increase in your heart rate. A test result is displayed at the end.

Coaching

Health / Power

Once you have completed the IPN test, 24 workouts are put together for you. There are 2 types of training available: Health = health training and Power = power training. If you want to improve your general physical condition then choose "Health". If you want to improve your fitness then choose "Power".

Interface
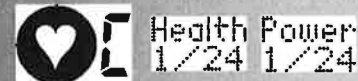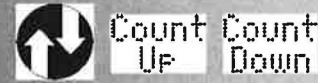
Training and Operating Instructions

Pedalling frequency (RPM)

Prompt:

Slower/faster pedalling

(G)

Average value display (AVG)

RPMSTROKES

▼▲**8888**

Ø AVG **SPM** min⁻¹

88.8

Unit

Value 0 – 199

SPEED

SPEED
BRAKE

Ø AVG mph km/h

88.8

Average value display (AVG)

Unit can be set

Value 0 – 99,9

PULSE

MAXPULSE

Maximum heart rate

Warning (flashes) max. heart rate +1

Target heart rate exceeded +11

Target heart rate undershot -11

Warning sound ON/OFF

Average value display (AVG)

HI ▼ ▲ LO ♥ **188**

%**888**

Ø AVG bpm

888

Heart symbol (flashes)

Target heart rate

Percentage value

Actual heart rate/max. heart rate

Unit

Value 0 – 220

DISTANCE

DISTANCE m km

888

Value 0 – 499

Unit can be set

Power

MAXPOWER

Max. power reached in the HRC programme

Average value display (AVG)

100 80 % 60 Watt 40 20 Ø AVG **888**

Percentage scale

Unit

Value 25 – 400 (600)

TIME

RECOVERY TIME / 500m AM PM h

00:0.0

Hours spent training

Value 0 – 99:59

ENERGY

ENERGY

kcal
kJoule ———— Unit can be set

8 8 8 8 ———— Value 0 – 9999

Profile

G

Text and value display

Performance profile
1 point (height) = 25 Watts
1st line = 25 Watts

30 columns

1 column corresponds 1 minute
or
400 m or 0.2 miles
Cross ergometer:
200 m or 0.1 mile

Quick Start (Introduction)

Trainingsbeginn (ohne Einstellungen)
Press SET key.

The key starts the display again when it is in standby mode and all segments are displayed for a short period of time. Then total kilometres and total training time are quickly displayed.

Then the programme "count-up" is displayed in ready for training mode. The power value shows 25 Watts, the heart rate display shows "P" because no heart rate value has been recorded. All other values are 0.

Beginning to pedal starts the training.

The displays for pedal rotations, speed, distance, energy and time count upwards.

Pressing the "minus" or "plus" key changes the power. The value under "power" is changed in 5 Watt intervals.

Training break or ending the session

Stop pedalling. If the pedal rotations fall below 10 rpm, this is recognised as being a training break. The average values for speed, rpm, power and heart rate (if heart rate recording is active) are displayed with the Ø AVG symbol and the total values for distance, energy and time are also displayed.

Standby operation

If training is not continued and no key is pressed then the display will go into standby mode after 10 minutes. Pressing the "SET" key or starting to pedal will make the display reappear ready for training.
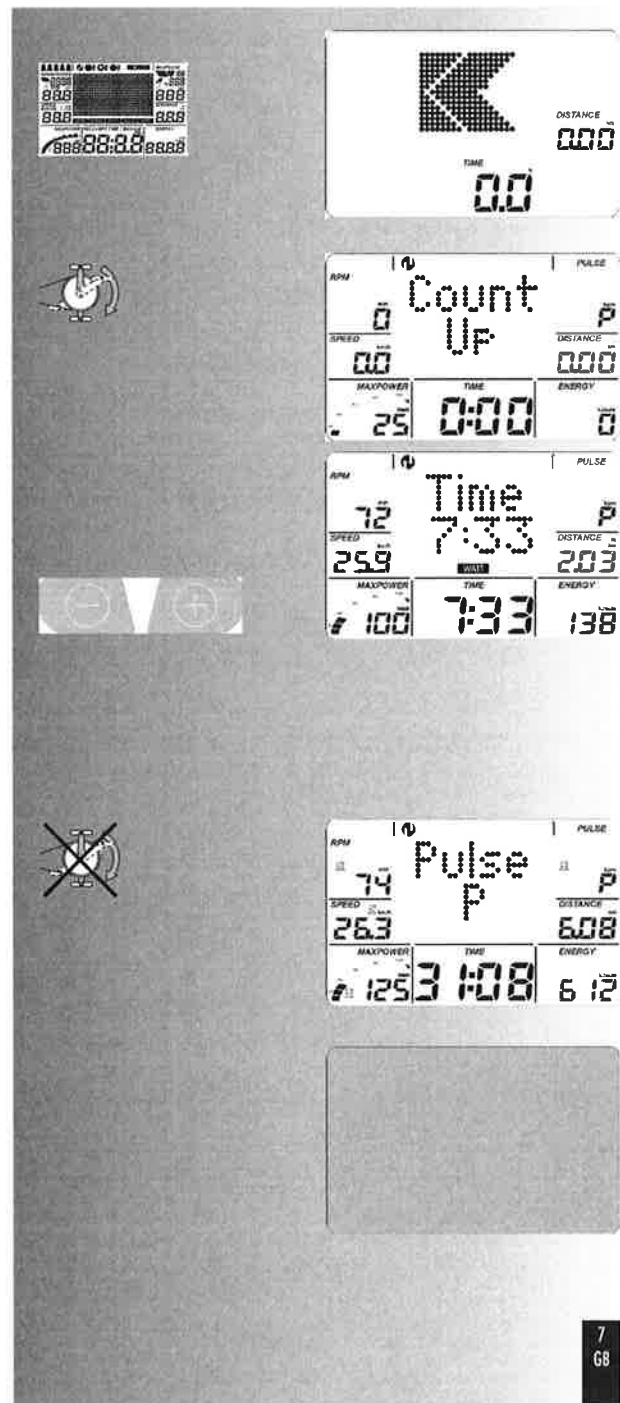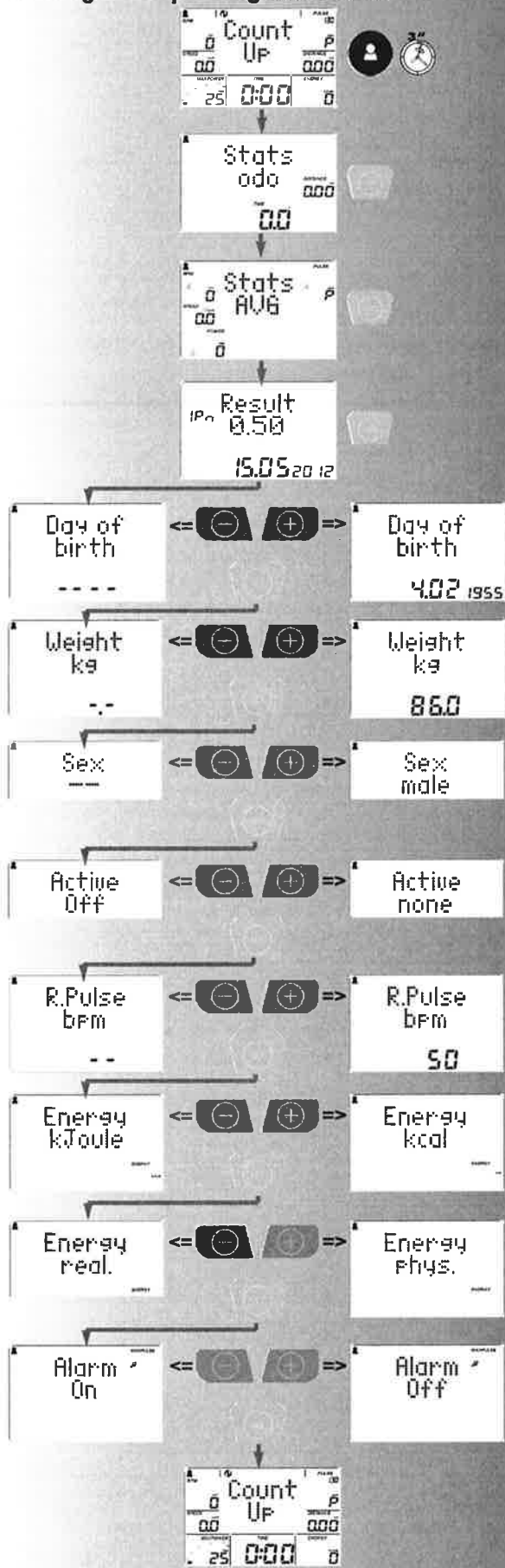
Required Inputs

To make the most of all the options that the machine has right from the start, enter the following inputs and settings before training further:

• Personal data about the people who will use the device. The information is required to calculate heart rate and exercise limits, the fitness test (IPN) and training recommendations (coaching).

• System settings such as date and time. Please check whether these are correct. The workouts are saved on a USB stick with the date and time and should be up-to-date.

User Data and Settings

Press the "user" key until the desired user is displayed.

In this case user.

Hold the "user" key longer until the total kilometres and the total training time appears with the display "Stats odo".

Press the "SET" key and the average training values will appear with the display "Stats AVG".

Press the "SET" key and the date of birth input screen appears with the display "Day of birth".

Press "plus" or "minus" to change the flashing displays.

Pressing "set" closes the input screen and jumps to the next input screen, weight with the display "weight".

Pressing "plus" or "minus" changes the value. Pressing "set" closes the input screen and jumps to the next input screen, gender with the display "sex".

Pressing "plus" or "minus" changes from male to female.

Pressing "set" closes the input screen and jumps to the next input screen, training activity with the display "active". You can input your assessment of your training activities here.

Pressing "plus" or "minus" changes from none to low, medium, high and very high.

Pressing "set" closes the input screen and jumps to the next input screen, resting heart rate with display "R.Pulse". Input your resting heart rate after a night's sleep here.

Pressing "plus" or "minus" changes the value. Pressing "set" closes the input screen and jumps to the next input screen, energy with the display "Energy kJoules". You decide here whether the energy expenditure should be displayed in kJoules or kcal.

Pressing "plus" or "minus" changes the setting. Pressing "set" closes the input

screen and jumps to the next input screen, energy expenditure with the display "Energy real". You decide whether here the energy calculation be displayed with the energy conversion efficiency factor of 16.7% of the trainee (real) or without the energy conversion efficiency factor (phys.).

Pressing "plus" or "minus" changes the setting. Pressing "set" closes the input screen and jumps to the next input screen, alarm sound with the display "alarm". You decide here whether exceeding the maximum heart rate should be signalled by an alarm tone.

Pressing "plus" or "minus" changes the setting. Pressing "set" closes the input screen and jumps to being ready to train in the "count-up" programme.

System Settings

Press and hold the "SET" key and then press the "RESET" key at the same time.

With the combination of keys the settings from date / time / km or miles display / background colour / user configuration are activated following switching on / factory settings.

First the date setting will appear with the display "date". You can set the day, month and year here.

Pressing "plus" or "minus" changes the flashing displays. Pressing "set" closes the input screen and jumps to the next setting, time with the display "time".

Pressing "plus" or "minus" changes the flashing displays. Pressing "set" closes the input screen and jumps to the next setting. You can decide whether kilometres or miles should be displayed here.

Pressing "plus" or "minus" changes from (metric km) to (imperial miles). Pressing "set" closes the input screen and jumps to the next setting, background colour with the display "colour". You can change the display's background colour here.

0=off, 1= light blue, 2=red, 3=green, 4=blue, 5=turquoise.

Pressing "plus" or "minus" changes the colour. Pressing "set" closes the input screen and jumps to the next setting, last person with display "Last Person". You decide here whether the current person be configured after the machine has been switched on or reset.

Pressing "plus" or "minus" changes the setting. Pressing "set" closes the input screen and jumps to the next setting, factory settings with the display "Reset All - / +."

"

Pressing "plus" and "minus" together restores factory settings

and deletes all data and settings. Pressing "set" skips this function. The input is completed.

Firmware Update

At the top left of the display "Reset All - / +" the firmware number is indicated, in this case 3089. On our homepage www.kettler.net > sport > service center you will find any software updates (firmware) for this machine, including installation instructions for these.
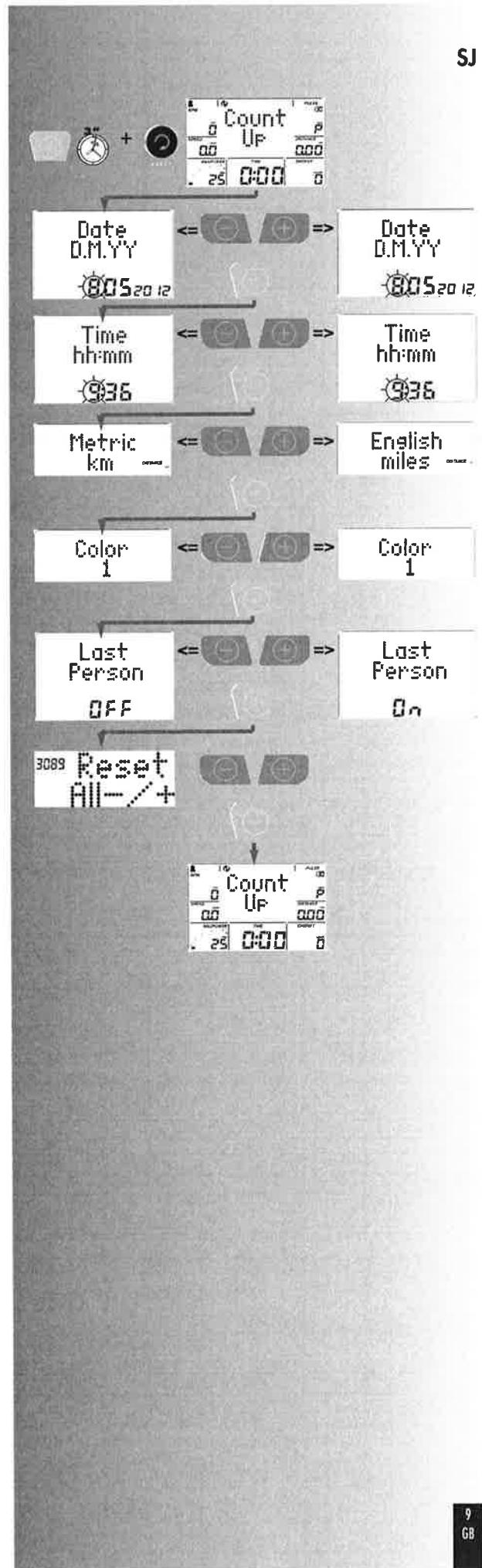
Training

User selection

You can select 5 users. The extra person "USBStick" is created by plugging in a USB stick. The stick must be FAT32 formatted. No additional users can be selected.

The user "Guest" (no user symbol) has no memory. Targets and settings only remain until the next time the machine is switched on.

Information:

If you are training with a USB stick plugged in then the workouts are saved on the USB.

Training selection

The computer is equipped with different training programmes.

1. Training by Power Targets

a)Manual Power Inputs
- (PROGRAMME) "Count-up"
- (PROGRAMME) "Count-down"

Training record (Prg Record)

b)Power Profiles
- (PROGRAMME) "1" – "6"
- (PROGRAMME) "Prg Record"

2. Training by Heart Rate Targets

Manual Heart Rate Targets
- (PROGRAMME) "HRC1 Count-up"
- (PROGRAMME) "HRC2 Count-down"

3. Training with Instruction (coaching)

You must complete the IPN test. Then you will be graded and will receive a training programme with 24 workouts.

Then you will take a new fitness test with new workouts

Training by Power Targets

a)Manual power input

Programme "Count-up"

Start training and all values count upwards.

To change power during training:

Pressing "plus" increases the power in intervals of 5

Pressing "minus" reduces the power in intervals of 5

Programme "Count-down"

Press "PROGRAMME" until the display shows "Count-down"

The programme counts from the values entered to > 0.

If there has been no input then training starts in the programme "count-up".

To start the programme there must be inputs for time, energy or distance as a minimum.

Press "SET": target area

Training record "record"

In these programmes you can record your workout. These are then available as "Prg Record". The function must be newly activated before each recording.

"On" = training record is active. "Off" = deactivated

Confirm with "SET".

Next menu is time target "Time"

Enter values with "plus" or "minus" (e.g. 30:00)

Confirm with "SET".

Next menu is energy target "Energy"

Enter values with "plus" or "minus" (e.g. 800)

Confirm with "SET".

Next menu is distance target "Dist."

Distance target

Enter values with "plus" or "minus" (e.g.7.50)

Confirm with "SET".

Next menu is maximum heart rate input with age display "Age"

This input means that your maximum heart rate can be monitored, if it is exceeded then the colour changes to RED and there is also an alarm tone (if this is activated under user data). In accordance with the calculation (220 - age), the maximum heart rate for a healthy person is calculated. If the date of birth has been entered (under user data) then the age is displayed, in this case 34. If not then "Age Off" is displayed.

Two lines, - -, mean that maximum heart rate monitoring is deactivated

Using the "plus" or "minus" keys you can set values in the - -

If age has been entered then the values can only be reduced!

Confirm with "SET".

Next menu is target heart rate selection "Fat 65%"

This means that your training heart rate can be monitored.

This can be selected using the quick selection from 65% and 75% of the maximum heart rate. The area 40-90% can be set manually.

Press "SET": selection area

Make selection with "plus" or "minus"

Fat burn 65%, fitness 75%, manual 40 - 90%

Confirm with "SET" (e.g. manual 40 - 90%)

Enter values with "plus" or "minus" (e.g. manual 83)

Confirm with "SET" (end target mode)

Display: ready for training with all targets

Or

Target heart rate input

Input of between 40 and 200 serves to determine and monitor a training heart rate not contingent on age (Symbol HI, alarm sound if activated, no maximum heart rate monitoring). The maximum heart rate input must be at "- -".

Pressing "plus" and "minus" together deactivates the maximum heart rate "- -"

Confirm with "SET".

Display: "Pulse Off"

Enter the value with "plus" or "minus" (e.g. 130)
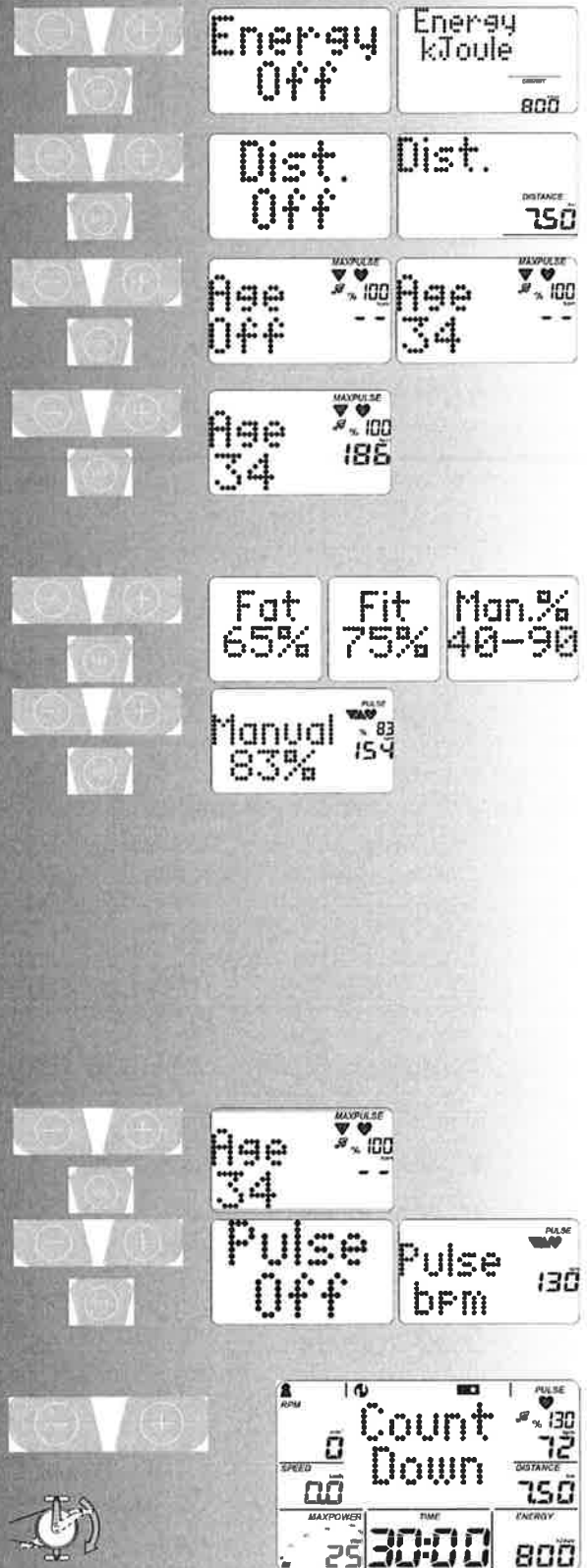
Confirm with "SET" (target mode ended)

Display: Ready for training with all targets set.

Note:

Next time a programme with target options is started, the possible inputs will be applied.

Ready For Training

Change the power with "plus" or "minus". Start training by beginning to pedal. The power set before training is saved."
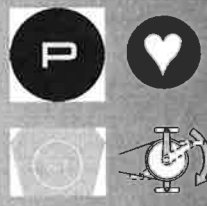
b) Power profiles (PROGRAMME) "1" – "6"
All profiles are selected by pressing "PROGRAMME"

Note:

If the time is over 30 minutes then in the programme view the profile will be consolidated into 30 columns.

Changing Programme Time / Distance

In programmes 1-6, it is possible to set the training time for 20 to 90 minutes and to select the time or distance mode in the target area.

Press "SET": set the training time (time)

Set the time using "minus" or "plus"

Confirm with "SET".

Next menu is time (time mode) or distance mode (dist-mode)

Set mode using "minus" or "plus".

Confirm with "SET".

Display: ready for training with all targets.

Note:

Distance per column is 0.4 km (0.2 miles). Cross trainer: 0.2 km (0.1 miles)

2. Training by Heart Rate Targets

Manual Heart Rate Targets
(PROGRAMME) "HRC1" Count-up"

Press "PROGRAMME" until display: HRC1 appears

Press "SET": target area

Or

Start training, all values count upwards.

Power is automatically increased until the target heart rate is achieved (e.g. 130)

(PROGRAMME) "HRC2" Count-down"

Press "PROGRAMME" until: Display: HRC2 appears

Press "SET": target area

The inputs and adjustment options are the same as those in programme point "Count-down".

Start training

Power is automatically increased until the target heart rate (e.g. 130) is reached

Information:

Starting Power
IIn the HRC programmes, the starting power can be set at between 25 and 100 Watts in the target area.

Enter values using "plus" or "minus" (e.g. 100)

Power is then automatically increased from 100 Watts until the target heart rate (e.g. 130) is reached

Heart rate

At this point the heart rate value can be set using "plus" or "minus" and can be changed during training, e.g. from 130 to 135.

Start training by beginning to pedal.

Note:

KETTLER recommends that heart rate be measured with the chest strap during HRC programmes

During HRC programmes, power is adjusted when the heart rate deviates by +/- 6 beats.

3. Training with Instruction (Coaching)

You must complete the IPN test. Then you will be graded and will receive a training course with 24 workouts. Once completed, you must then do a new fitness test with new workouts.

Test

The IPN test requires your personal data. A power profile and a target heart rate will be calculated and displayed under PULSE (in this case 123). The aim of the IPN test is to give you a training recommendation for further training. From the second level, you must reach the calculated target heart rate in a maximum of 15 minutes for this. Once it is reached, the heart rate display flashes. You must continue training until the end of the level, then the result will be displayed. A speed range is connected to the test and you should train within it. If "RPM" and the pedalling frequency flashes then you have to pedal more slowly or more quickly. The arrows under "RPM" show this. A training minute is displayed with 2 columns.

Information:

The result is saved under the personal data.

If you do not achieve the target heart rate or if you reach it in the first interval then "Failed Retest" is displayed. You must then increase or reduce your input under training activity and do the test again.

If the user is younger than 17 or no personal data has been inputted then the test is not available and "IPN Age<17" is displayed.

Health / Power

Once you have completed the IPN test, 24 workouts are compiled. There are 2 types of training available: **Health** = health training or **Power** = power training. If you want to improve your general physical condition then select "Health". If you want to improve your fitness then select "Power". A speed range is connected to the 2 types of training and you should train within this. If "RPM" and the pedalling frequency flash then you have to pedal more slowly or more quickly. The arrows under "RPM" show this.

Setting the Training Time

Press "SET": set the training time (time)

Set the time using "minus" or "plus"

Confirm with "SET".

Note

1. Before the first IPN test it is recommended that you do a familiarisation phase of 4x30 minutes within 2 weeks. It is recommended that you do this at an intensity with which you feel comfortable and with a pedalling frequency of 50-60 rpm.

2. The first test should be done when you are well rested and have no acute health problems (it is recommended that you have a training break of at least one day before). Your resting heart rate should have been ascertained in advance, by getting the average from at least 3 measurements taken immediately upon waking.

3. After the 24 workouts are complete or after 12 weeks, it is recommended that you do another test to check the training intensities. For this, the resting pulse should be ascertained again in accordance with the rules set out above and the specifications set out above should be complied with.

4. After the 24 workouts or after a new test has been completed, a new block of 24 workouts takes place.
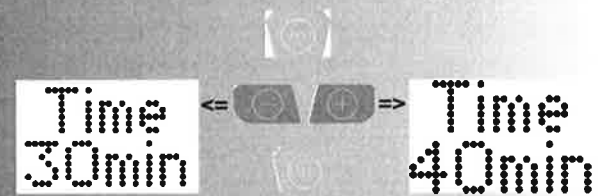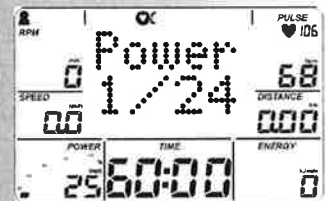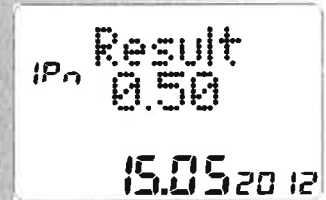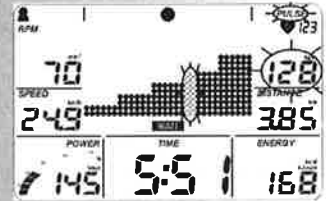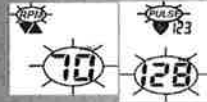
5. If you change between health and power training then the workouts done until that point will not be taken into consideration.

General rules:

For health training it is recommended that 2 workouts be done per week.

For power training it is recommended that 3 workouts be done per week.

When possible, there should not be a break of longer than 7 days between workouts. However, there should be a break of at least 1 day between workouts and no more than 5 workouts should be completed per week. Following illness or a training break of less than 3 weeks then the training block should be continued from the current position. If you take a training break of more than 3 weeks then it is recommended that a new test be taken.

If you take a beta blocker then there is no point in you doing the test and it is not recommended that you do so!

People under the age of 17 are not permitted to take the test.

Training Functions

Changing the Display during Training

Adjustment: manual

With "PROGRAMME" the display changes in the following sequence: Time / RPM / Speed / Dist. / Power / Energy / Heart Rate / (Profile) / Time ...

Adjustment: automatic

(SCAN)

Hold the "PROGRAMME"- key until the "SCAN" symbol appears in the display. The display changes in 5 second intervals. The SCAN function ends by pressing the "PROGRAMME", RECOVERY key or by taking a break from training.
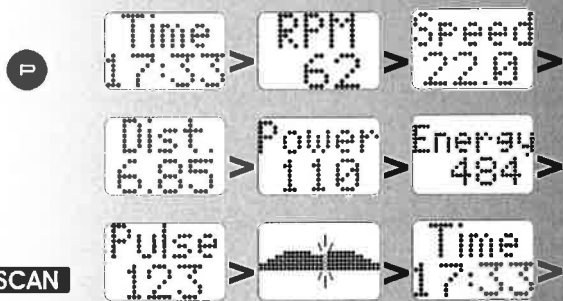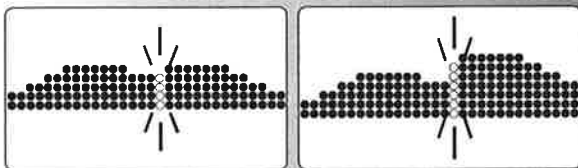
Adjusting the Power Profile

If the power is adjusted during the programme then the change takes effect from the flashing column and to the right. The columns to the left show the power values done and remain unchanged.

Change to Speed-dependent Operation from Operation not Dependent on Speed

This function is dependent on the model.

Press "SET" during training. The change to speed-dependent operation from operation not dependent on speed will be made.

Display: two arrows under "RPM"

If you press "SET" again the operation will go back to speed-dependent operation.

Information:

Changing from operation that is speed-dependent to operation not dependent on speed is only possible in the "Count-up" and "Count-down" programmes. If training is stopped then the machine will return to operation not dependent on speed.

Training Break or Ending a Session

At less than 10 pedal rotations/min or by pressing "RECOVERY" the machine recognises a training break. The training data achieved is displayed. Speed, power, rotations and heart rate are shown as average values with the Ø symbol.

Change to current display with "plus" or "minus".

The training data is displayed for 10 minutes. If you do not press any keys and do not train during this time then the machine will go into standby mode.

Restarting Training

If you recommence training within 10 minutes then the last values will continue to be counted up or down.

RECOVERY – Function

Recovery Heart Rate Measurement

At the end of training press "RECOVERY".
The machine measures your heart rate for 60 seconds.

If you press "RECOVERY" then your current heart rate value will be saved under "RPM"; your heart rate value after 60 seconds will be saved under SPEED. The difference between the two values is shown under "Power". A fitness grade (e.g. F 1.1) is determined from this. The display will be closed after 20 seconds.
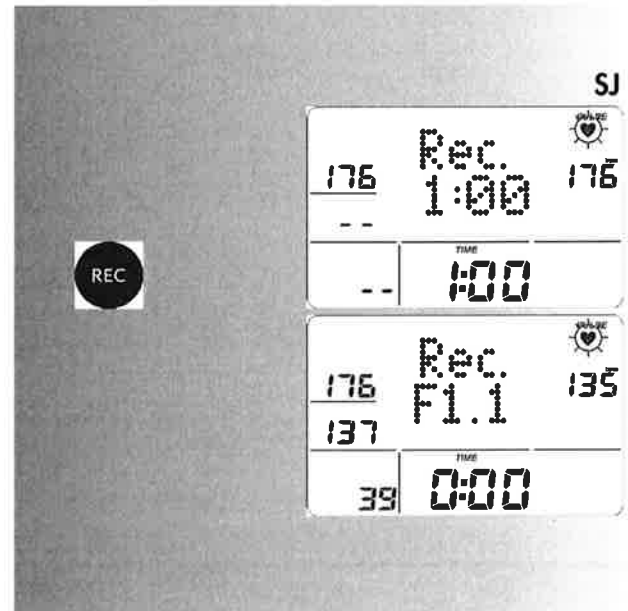
"RECOVERY" or "RESET" stops the function. If no heart rate is recorded at the start or the end of the time then an error notification is shown.

Display for pulse events

				Exceeding			
Value / Input			%	HI ▼	⚠ LO	MAX	♪
Maximum pulse —Off	80-210		✔	+1		+1	+1
Target pulse	Fat vurning	65%					
or	Fitness	75%	✔	+11	–11*		
or	Manual	40-90%					
►Target pulse	40-200			+11	–11*		

*Comment: appears only if the target pulse was achieved once

For undercutting the entered target pulse (-11 beats), the *symbol* "LO" is displayed.

For exceeding (+11 beats), the *symbol* "HI" is displayed.

For exceeding the maximum pulse, the "HI" arrow is blinking and the lettering "MAX" is displayed.

HRL Traffic Light Function = Heart Rate Light
Display colours and their meaning

The function has 3 colours: blue, green and red. In order to provide prominent information on heart rate events, the colours are set as follows:

Red background light (colour=2)
Target heart rate monitoring is active.
The heart rate has risen to be out of the target heart rate monitoring range (+11 beats) (same as the HI arrow display)
The maximum heart rate has been exceeded during maximum heart rate monitoring (same as MAXPULSE display).

Green background lighting (colour=3)
Target heart rate monitoring is active and training is underway.
The heart rate has reached the target heart rate and remains within the target heart rate monitoring range (-/+ 10 beats)

Blue background lighting (colour=4)
The target heart rate monitoring is active and training is underway.
Heart rate has fallen below the heart rate monitoring range (-11 beats) (same as the LO arrow display)

General notes

System sounds

Switching on
On switching on, a short sound is emitted during the segment test.

End of program
An end of program (profile programs, countdown) is signaled by a short sound.

Maximum pulse exceeding
If the set maximum pulse is exceeded by one pulse beat, 2 short sounds are emitted every 5 seconds.

Error output
For errors, e.g. recovery not executable without pulse signal, 3 short sounds are emitted.

Automatic scan function switching on and off
On activation and deactivation of the automatic scan function, a short sound is emitted.

Recovery

In the function the centrifugal mass is slowed down automatically. Further training is unsuitable.

Calculation of the fitness grade (F):

$$\text{Grade (F)} = 6.0 - \left(\frac{10 \times (P1-P2)}{P1} \right)^2$$

P1 = load pulse, P2 = recovery pulse
F1.0 = very good, F6.0 = insufficient

Switchover time/distance
For the programs 1-6, the profile per column can be switched over from the time mode (1 minute) to the distance mode (400 meters or 0.2 miles) in the defaults section. Cross trainer ergometer: (200 meters or 0.1 miles)

Profile display during training
At the beginning, the first column is blinking. After completion, it moves on to the right.

For profiles over 30 minutes up to the middle (column 15), then the profile is shifted from the right to the left. If the profile end appears in the last column (column 30), the blinking column moves further to the right until program end.

Speed-independent operation
(constant power)
The electromagnetic eddy-current brake regulates the braking torque for changing pedal speed to the set power.

Arrows up/down (Speed-independent operation)
If a power rate cannot be achieved with speed (e.g. 400 Watts with 50 pedal revolutions), the up or down arrow prompts faster or slower pedaling.

Average value calculation
The average value calculation takes place per training unit.

Notes on pulse measurement
Pulse calculation starts, when the heart in the display is blinking simultaneously to your pulse beat.

With ear clip
The pulse sensor works with infrared light and measures the alterations of the translucency of your skin, which are caused by your pulse beat. Before you clamp the pulse sensor to your earlobe, rub it well 10 times to increase circulation.

Avoid disturbing pulses.

- Attach the ear clip carefully to your earlobe and search for the most suitable point for measuring (heart symbol blinking without interruption).
- Do not execute your training directly under strong incidence of light e.g. neon light, halogen light, spot, sun light.
- Completely exclude vibrations and wobbling of the ear sensor including the cable. Always fix the cable to your clothing by means of the clip or even better to a headband.

With chest strap (accessory)
Not always included in delivery, available from authorised dealers.

The Cardio-Pulse-Set with Polar chest strap is available as an accessory (item no. 67002000).

With hand pulse
An extra-low voltage generated by contraction of the heart is recorded by the hand sensors and analyzed by the electronic equipment

- Always grip the contact surfaces with both hands
- Avoid jerky gripping
- Keep your hands still and avoid contractions and rubbing on the contact surfaces.

Interferences at the training computer
Press the reset key

Information on the interface
The training programs "KETTLER World Tours", Art.-Nr. 7926-800, which is available at your specialist dealer, makes possible to control this KETTLER device by means of a PC /notebook via the interface. For further information and for information on software updates (firmware) of this device, go to

http://www.kettler.net > Sport > Service-Center

Training instructions

Sports medicine and training science use bicycle ergometry, among others, for examination of the functionality of the cardio-vascular and respiratory system.

Whether your training achieved the desired effects after some weeks you can determine as follows:

1. You achieve a certain stamina with lower cardiovascular performance than before
2. You keep a certain stamina with the same cardiovascular performance over a longer period.
3. After a certain cardiovascular performance you recover faster than before.

Guide values for the stamina training
Maximum pulse: maximum load means the achievement of the individual maximum pulse. The maximally achievable heart rate depends on the age.

To that applies the empirical formula: the maximum heart rate per minute corresponds 220 pulse beats minus years of age.

Example: age 50 years > 220 − 50 = 170 pulse/min.

Weight: a further criterion for determination of the optimal training data is the weight. The nominal default for maximum load is 3 Watts/kg body weight for men and 2.5 for women. Furthermore, it must be observed, that from age 30 on capability

decreases: for men approx. 1 % and for women 0.8 % per year of age.

Example: man; 50 years; weight 75 kg
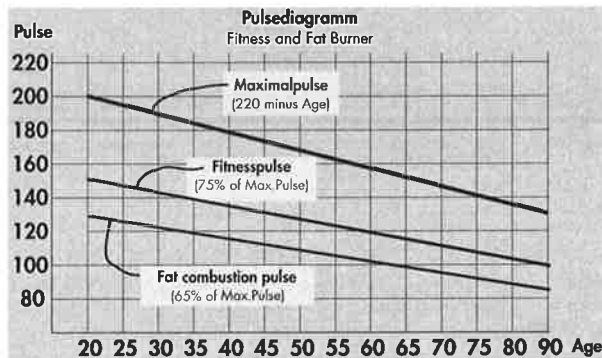
> 220 – 50 = 170 pulse/min. maximum pulse

> 3 Watts x 75 kg = 225 Watts

> Minus "age discount" (20 % of 225 = 45 Watts)

> 225 – 45 = 180 Watt (nominal default for maximum load)

Load intensity

Load pulse: the optimal load intensity is achieved at 65–75 % (comp. diagram) of the individual cardiovascular performance. This value changes depending on the age.

Scope of load

Duration of a training unit and its frequency per week:

The optimum scope of load is given, when over a longer period 65–75 % of the individual cardiovascular performance is achieved.

Empirical rule:

Training frequency	Duration of training
daily	10 minutes
2–3 times a week	20–30 minutes
1–2 times a week	30–60 minutes

You should choose the Watts power such that you are able to stand the muscle load over a longer period.

Higher powers (Watt) should be yielded in connection with an increased pedaling frequency. A too low pedaling frequency of less than 60 rpm results in a pointedly static load of the musculature and thus to early exhaustion.

Warm-up

At the beginning of each ergometer training unit, you should for 3-5 minutes pedal with a slowly increasing load to warm and to get your heart/circulation and your musculature moving.

Cool-down

The same importance has the so-called "cooling down". After each training unit you should continue pedaling against a slight resistance for approx. 2-3 minutes.

The load for your further stamina training should basically be increased over the scope of load, e.g. instead of 10 minutes your training is 20 minutes or instead of 2 times a week 3 times a week. Beside individual planning of your cardio training you can fall back on the training programs integrated in the training computer (comp. page 9 cont.).

Glossary

Age
Entry for calculation of the maximum pulse.

Dimension
Units for display of km/h or mph, kjoule or kcal, hours (h) and power (Watt)

Energy (real.)
Calculates the energy turnover of the body with an efficiency of 16,7% to provide the mechanical power. The remaining 83,3% does the body convert to heat.

Energy (phys.)
Calculates the energy turnover of the device, physicaly

Fat burning pulse
Calculated value of: 65% MaxPuls

Fitness pulse
Calculated value of: 75% MaxPuls

Glossary
A collection of attempts for explanation.

HI symbol
With "HI" displayed, a target pulse is too high by 11 beats. With HI blinking, the maximum pulse is exceeded.

LO symbol
With "LO" displayed, a target pulse is too low by 11 beats.

Manual –
Calculated value of: 40 – 90% MaxPuls

MaxPulse(s)
Calculated value of 220 minus years of age

Menu
Display in which values are to be entered or selected.

Power
Current value of the mechanical (braking) power in Watts, which the ergometer converts into heat.

Profile
Change of performance over time or distance represented in the points field.

Programs
Training possibilities requiring manual or program-determined performances or target pulses.

Percent scale
Comparison display between current power and maximum power (400/600W).

Points field
Display area with 30 x 16 points for representing performance profiles as well as text and value displays.

Pulse
Recording of the heartbeat per minute

Recovery
Recovery pulse measurement at the end of training. From start and end pulse of one minute the deviation and a fitness grade are determined. For the same training, the improvement of this grade is a measure for increase in fitness.

Reset
Deletion of display contents and restart of display.

Interface
For data exchange with a PC with KETTLER software.

Control
The electronic equipment controls the power or the pulse for manually entered or default values.

Performance table

Target pulse
Manual or program-determined pulse value, which is to be achieved.

Date	Restpulse	Stress pulse	Recovery pulse	Slope	Time (min)	Distance (km)	Energy consumption (Kcal)	Fitness	Mark