

# ERGOFIT

Qualität in Bewegung.



Owner's manual

# CARDIO LINE 400

# CARDIO LINE 400

Please read this manual carefully before use and keep it in a safe place for future reference



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Development and production of all devices of the MED series according to the European Medical Device Directive 93/42/EWG. They thus show the CE marking and the number of the notified body.

**CE0297**

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This owner's manual has been created with great care. Please inform us of any detail that does not correspond to your training tool to allow for the quickest possible remedy of any possible discrepancy.

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Version: CARDIO LINE 400-20211215

Dear customer,

we are glad that you have decided to purchase an ERGO-FIT training tool. You are now the owner of a sophisticated and exclusive training system that combines highest technical standards with practice oriented ease of use.

You will find important information on the operation and use of your training machine in this owner's manual. We recommend that you read this owner's manual carefully before training in order to become familiar with your training device quickly and to understand its correct and safe use.

Should you have any questions that are not answered in this manual, please contact us. The ERGO-FIT team is always there for you!

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**Please note:**

This owner's manual contains information on multiple gym machines.  
There may be variations in detail according to the type of machine!



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## 1 General information

### 1.1 Cardio equipment at a glance

ERGO-FIT's CARDIO LINE 400 offers you a cardio machine range dedicated to train the cardiovascular system. It allows for training of smaller muscle groups. ERGO-FIT cardio machines offer you best training possibilities, regardless of your age, gender or state of fitness.

Among others, the optimal load regulation and the precise training control are highlights of the whole product line. In addition, the quiet operation, the ease of use and the customisation demonstrate ERGO-FIT's focus: A high technical standard, optimal training possibilities and precise training control, combined with customerfriendly ease of use.

However, technology alone is not all that is required to develop outstanding training machines. They also need to meet biomechanical and sports medical requirements. Priority is given to the human being. Thus, a sophisticated training and testing system can only be developed by combining technical electronic expertise with the latest advances in sports medicine and coaching science. ERGO-FIT clearly met this target.

Our CARDIO LINE is divided in

- ⊗ **CARDIO LINE 400:** training machines especially designed for use in a gym.
- ⊗ **CARDIO LINE 400 MED:** training machines especially designed for medical purposes.

The lifetime of the equipment is 6 years.

#### Advantages and benefits

Regular training on these machines reduces the risk of cardio-vascular diseases and increases physical capacities in an optimal way - even at an advanced age. Your workout machine represents an indispensable tool in injury prevention and rehabilitation. You will feel fit, more agile, more attractive, and more balanced.



## 1.2 General information on this manual

This manual provides you with helpful information, regardless of if you are already familiar or have no experience with ERGO-FIT training machines.

It is structured in such a way that you can find the desired information in the table of contents easily and thematically. In addition, a short manual has been produced for those users who are already familiar with ERGO-FIT training machines. However, if you belong to this user group and wish to read the short manual only, you should review the safety information first.

The manual will give you many hints and tips, which will familiarise you with your cardio machine's features and allow you to become an experienced user very quickly.

You should always keep this manual easily accessible. This saves you from having to make unnecessary and time-consuming queries and enables you to fix any possible error rapidly.

## 1.3 Scope of delivery

Please check if the delivery is complete and inform our sales department immediately of any missing parts.

Please ensure that the following parts are included in your delivery:

1. The correct type of training machine (model, series)
2. One mains connection cable for each unit (CYCLE 407/457 MED/457 MED SPO<sub>2</sub>; CYCLE 400/450's mains cable is firmly connected with the machine)

*Please note that accessories (e.g. POLAR-sender) are not included in the delivery and need to be ordered separately.*

## 1.4 Disposal

These machines are appliances according to the Electronic Equipment Act. They do not belong into the regular household waste but must be disposed of by a certified company. For more information on responsible bodies please see

stiftung elektro-altgeräte register (EAR)

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## Chapter 2      Short manual

**Please note:**

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## 2 Short manual

After delivery of your cardio machine, please check first if the serial number (see type label) is identical with the one indicated on the delivery note and if all components listed in chapter 1.3 („Scope of delivery“) are included in the delivery (not available on CARDIO LINE 400 MED).

After the machine has been connected to the mains and switched on, the software version is shown on the display. Thereafter the main menu will appear.

The control panel contains the PLUS, MINUS, START and STOP buttons in this order. The big monochrome display is illuminated and shows the elapsed training time (min:s), your present heart rate, the performance in Watts, the speed range (1/min), the speed (km/h, not available on CYCLE 400/407 MED/457 MED SPO<sub>2</sub>), the distance (m or km) as well as calories burnt.

When you switch on your cardio machine, the main menu will always appear first on the display. The choice „MANUAL“ is selected automatically. Press the START-button to confirm this. You are now in the manual mode.

In this mode, you can work out for any amount of time and choose any strain level that pleases you by pressing the PLUS and MINUS buttons. The workout parameters will be displayed for the full training session.

If you would like to end the training session, please press the STOP-button. The training parameters remain on the display. Press the STOP-button again to return to the main menu. The display will also return to the main menu automatically after 2 minutes if no action is carried out.

Danger! For workouts in other modes, please read the detailed instructions.

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**Please note:**

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## **3 Destination of the product**

### **3.1 Product lines**

In order to meet our customers' desires and to implement technical innovations, ERGOFIT developed the following product lines.

#### **3.1.1 CARDIO LINE 400**

The machines of this product line are stationary exercise machines primarily dedicated to train the cardiovascular system. They are especially designed for home use (EN 957 HA). They allow for management, control, and documentation of the workout.

#### **3.1.2 CARDIO LINE 400 MED**

The machines of this product line are stationary exercise machines that are designed for precise performance diagnostics in addition to training the cardiovascular system, diagnostics and therapy of cardio-vascular diseases and performance diagnostics in competitive sports. These product lines fulfil medical requirements and therefore need to allow for precise measuring technology besides pure fitness training. Explicit assessment of the results provides optimisation of health training and allow for its continuous documentation. To ensure measuring accuracy, metrological controls need to be carried out on these machines at regular intervals (every second year, in compliance with MPBetreibV).

### **3.2 Models**

All models of the CARDIO LINE 400/400 MED are exercise bike ergometers designed for cardiovascular training. A cyclic kicking movement produces the strain. The training strain is controllable to provide optimal cardiovascular system load. The CYCLE is equipped with various features in order to attain an optimised adaptation to the customer's individual needs.

#### **3.2.1 CYCLE 400**

The CYCLE 400 is equipped with a manually controllable programme, a heart rate controlled cardio exercise programme, and 5 predefined profiles as well as the option to exercise in gearshift mode.

#### **3.2.2 CYCLE 407 MED**

The CYCLE 407 MED is equipped with a manually controllable programme, a heart rate controlled cardio exercise programme, and 2 predefined WHO-profiles as well as the option to do countdown training in manual or heart rate controlled mode.

### **3.2.3 CYCLE 450**

The CYCLE 450 is equipped with a manually controllable programme, a heart rate controlled cardio exercise programme, several predefined profiles as well as individual user profiles, 3 test programmes and the option to exercise in gearshift mode.

### **3.2.4 CYCLE 457 MED**

The CYCLE 457 MED is equipped with a manually controllable programme, a heart rate controlled cardio exercise programme, several predefined profiles as well as individual user profiles, 3 test programmes, 1 WHO-profile that can be modified, the option to do countdown training in manual or heart rate controlled mode. Furthermore, the machine can be controlled by ECG equipment. An external connection (RS 232) is standard equipment on the CYCLE 457 MED.

### **3.2.5 CYCLE 457 MED SPO<sub>2</sub>**

The CYCLE 457 MED SPO<sub>2</sub> is equipped with a manually controllable programme, a heart rate controlled cardio exercise programme, several predefined profiles as well as individual user profiles, 3 test programmes, 1 WHO-profile that can be modified, the option to do countdown training in manual or heart rate controlled mode. Furthermore, the machine can be controlled by ECG equipment. The CYCLE 457 MED SPO<sub>2</sub> comes standard with an external connector (RS 232) and a SPO<sub>2</sub> module.





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**Please note:**

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## 4 Transport and set up

### 4.1 Transport

In order to avoid damage, ERGO-FIT machines are transported by ERGO-FIT GmbH & Co. KG directly or by an authorised freight forwarding company. After delivery, packaging will be collected and disposed of professionally. If ERGO-FIT machines are delivered by a freight forwarder, the customer must dispose of the packaging himself or can send it back to ERGO-FIT GmbH & Co. KG. (The customer is responsible for the transportation costs).



The machines do not have any shipping locks!

To place the CYCLE at the desired location, please consider the following aspects:

1. Position yourself so that you can see the display.
2. Grasp the seat with both hands and slightly lift the machine. You can now roll it easily to the desired position.

### 4.2 Set up and the right place for set up

Place the mains cable between the casing and the foot frame to protect it against damage during transport.



Move the machine to its future location and mount the foot caps.

Danger! Mount the foot caps first before laying the cable underneath the foot frame: Lay the cable underneath the foot frame to the rear end of the machine. Make sure not to pinch the cable between the casing and the foot frame or between the casing and the floor!

**CORRECT****WRONG**

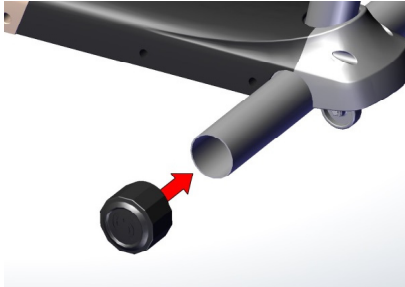
- ⊗ Make sure that the surface underneath the machine is level and horizontal.
- ⊗ The adjustable feet underneath the machine are designed to compensate for minor unevenness. Adjust these feet to attain a stable position on the floor and prevent tilting of the machine.
- ⊗ Please make sure the distance between each machine is at least one metre, or you might experience errors of the POLAR heart rate receiver.
- ⊗ High-frequency and magnetic disturbance signals (e.g. radios, TV sets, mobile phones etc.) in close proximity to your cardio machine area may also interfere with the pulse transmission.
- ⊗ In rare cases, strong electromagnetic fields in some locations may interfere with the transmission of the heart rate (e.g. high voltage circuit or tramway contact wires).
- ⊗ In case of interference or if you suspect there is interference with the heart rate transmission, do not, under any circumstances, use the machine for a cardio controlled workout (in CARDIO mode).
- ⊗ Set up the machine so that power switch and plug can easily be disconnected.



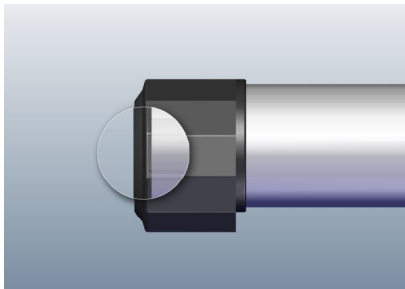
Please note that the adjustable feet of the CYCLE are equipped with plastic protection caps. In exceptional cases (e.g. when using strong cleaning agents), this may leave marks or stains on the floor.

**Niveauregulierung:**

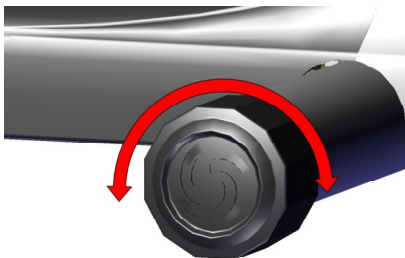
Bitte achten Sie bei der Aufstellung des Gerätes auf einen sicheren Stand. Beachten Sie hierfür nachfolgende Schritte.



1. Attach the provided foot caps by clipping them on the corresponding tubes.



2. Push the foot caps all the way to the stop.



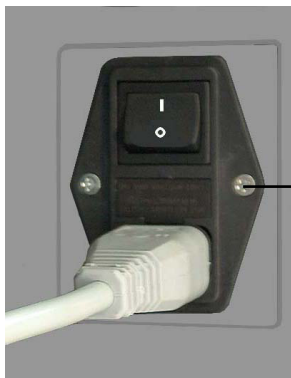
3. Adjust the foot caps by twisting them in either direction to avoid rocking movements of the workout equipment .

### 4.3 Ambient temperature

- ⊗ Your ERGO-FIT exercise machine may be used at an ambient temperature of +10°C to +40°C, a relative humidity of 30 to 70% (non-condensing) and an atmospheric pressure of 700 hPa to 1060 hPa without causing any problems.
- ⊗ When switched off, the ERGO-FIT machine may be stored at a temperature between -30°C to +50°C.

### 4.4 Power connection

1. Carry out a visual inspection of the mains connection cable and the connectors (power input module on CARDIO LINE 400 MED only) before starting the machine. Damaged power cords and connectors need to be replaced immediately.
2. Damaged power cords and connectors need to be replaced immediately. Take the mains connection cable and plug it into the appropriate power input module (see figure, CARDIO LINE 400 MED only). Plug the other end of the cable into the mains socket.
3. Switch on your exercise machine by pushing the button located on the power input module (CARDIO LINE 400 MED, I = switch on, O = switch off) or by pushing the foot actuated switch on the power cord (CARDIO LINE 400)..



*Power input module  
with mains plug*

4. After your exercise machine has been connected to mains and switched on, it automatically carries out an operating check. During this operating check, you will be able to read the software version of the unit on the display. Thereafter the main menu will appear.
5. Stand on the side of the control panel (view onto the display) and check if the display works. If this is not the case, make sure you followed the steps above correctly. In addition, verify if there is electricity in the mains socket.

#### 4.4.1 Power supply

Use your exercise machine only on earthed (grounded) mains sockets with 230 V~/50-60 Hz (see chapter A). If you have any doubts about the power supply at the setup location, ask your electricity supplier. Only use customary 10 ampere automatic circuit breakers (type B tripping characteristic). In the rare event that these automatic circuit breakers should switch off when you switch on your machine, the circuit needs to be fused with 10 A lead fuses or with a different type of tripping characteristic. In case of doubt, ask your electrician.

Before connecting your ERGO-FIT exercise machine to your power supply system, compare the data on the type label (next to power input module) on the allowable voltage and grid frequency with your local data.



Always connect your machine directly to the power outlet. Do not use extension cables or multi-outlet power strips unless they are EN 60601-1 certified.

We recommend DC-isolated cables for the connection of external equipment to a CARDIO LINE 400 MED machine.

#### 4.4.2 Cabling

If you have connected more than one ERGO-FIT machine to one main switch, please switch each machine on and off individually.

- ⊗ Install the cable in such a way that no one can step on it or trip over it.
- ⊗ Do not place any objects on the cable as it might become damaged.

### 4.5 Potential compensation



To avoid disturbances, a potential compensation cable may be attached to the machine. This potential equalisation is not standard equipment. If required, ask the service to install this feature. In this case, communicate with the service department or the field staff. As some machines are already prepared for the potential compensation feature, on-site installation is possible.

#### 4.5.1 Position of the potential compensation clamp



The potential equalisation clamp is located underneath the front wheel cover. Never connect the potential compensation line to the water or gas supply line or any other kind of pipe. Always use the appropriate potential compensation connection only.

## 4.6 Components (Illustrations similar)

### 4.6.1 CYCLE 400



- 1 Seat
- 2 horizontal seat adjustment
- 3 Seat height adjustment
- 4 Mains cable outlet
- 5 Pedals
- 6 Adjustable feet
- 7 Control panel & display
- 8 Handlebar (equipped with electrodes for hand heart rate)
- 9 Book support

### 4.6.2 CYCLE 407 MED



- 1 Seat
- 2 horizontal seat adjustment
- 3 Seat height adjustment
- 4 Power input module
- 5 Pedals
- 6 Adjustable feet
- 7 Control panel & display
- 8 Handlebar
- 9 Book support

4.6.3 CYCLE 450



- 1 Seat
- 2 horizontal seat adjustment
- 3 Seat height adjustment
- 4 Mains cable outlet
- 5 Pedals
- 6 Adjustable feet
- 7 Control panel & display
- 8 Handlebar (equipped with electrodes for hand heart rate)
- 9 Book support

4.6.4 CYCLE 457 MED/457 MED SPO<sub>2</sub>



- 1 Seat
- 2 horizontal seat adjustment
- 3 Seat height adjustment
- 4 Power input module
- 5 Pedals
- 6 Adjustable feet
- 7 Control panel & display
- 8 Handlebar
- 9 Book support

Not shown is the SPO<sub>2</sub> module included with version 457 MED SPO<sub>2</sub>.



## Chapter 5 Start-up

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**Please note:**

This owner's manual contains information on multiple gym machines.  
There may be variations in detail according to the type of machine!

## 5 Start-up

### 5.1 Switch on

- ⊗ Before switching on your exercise machine (CARDIO LINE 400 MED), make sure the mains plug is connected to the mains socket.



If you have connected more than one machine to one main switch, please switch each machine on and off individually, or technical disturbances may occur if all machines are switched on at the same time.

- ⊗ Now switch on your machine by pushing the switch located on the power input module. Push the switch into the I-position. The machine is turned off when the switch is in the 0-position (only on CARDIO LINE 400 MED). The CARDIO LINE 400 is switched on by pushing the foot actuated switch.
- ⊗ The illumination of the display shows you immediately if the machine is switched on.

### 5.2 Switch off

- ⊗ Switch off your machine by pushing the switch located on the power input module. To do so, push the switch into the 0-position (CARDIO LINE 400 MED) or by pushing the foot actuated switch (CARDIO LINE 400).



Make sure that the switch on/switch off intervals are longer than 30 s. Otherwise disturbances might occur.

### 5.3 The right training technique

Regular training on these devices reduces the risk of cardiovascular diseases and increases personal performance in an optimal way. You should also ensure that you train optimally from a biomechanical point of view. This chapter provides relevant considerations for the use of exercise bike ergometers.



When exercising with your training machine, make sure not to step on its casing. Stand on the designated surfaces only.

1. Gauge the proper seat height first. The height of the seat is essential for your sitting comfort and especially for the radial runout. To gauge the right seat height, sit on the seat and put one heel on a pedal. In the lowest pedal position, you should be able to extend your leg completely.
2. CYCLE 400/407: To adjust the seat, stand next to the exercise machine and turn the knob on the seat tube anticlockwise. Now pull the knob out of the punched matrix located on the seat tube until you can move the seat tube.

To lock the seat at the desired height, let the knob snap into the seat tube again. Lock the seat tube by turning the knob clockwise.

3. CYCLE 450/457/457 SPO<sub>2</sub>: To adjust the seat height, stand next to the exercise machine and pull the adjustment lever located on the seat tube upwards. The integrated pneumatic spring will automatically lift the seat. To lower the seat, loosen the adjustment lever and push the seat downwards into the desired position with the help of your body weight. To lock the seat at the desired height, bring the adjustment lever back to its initial position.
4. To adjust the seat horizontally, loosen the clamp lever underneath the seat by turning it anticlockwise. Now the seat is continuously adjustable. Lock the seat by turning the clamp lever clockwise.
5. During CARDIO training, make sure the number of rotations is higher than 50 rpm (performance > 25 W); otherwise, the strain of the machine becomes too great. Please look at the speed range (the up arrow on CYCLE 450/457/457 SPO<sub>2</sub> or the right arrow on CYCLE 400/407 means you should pedal faster whereas the down arrow on CYCLE 450/457/457 SPO<sub>2</sub> or the left arrow on CYCLE 400/407 asks you to pedal more slowly). The higher the number of rotations, the lower the strain on the joints.
6. Maintain the training position described here for the whole workout.

## 5.4 The control panel

One of ERGO-FIT's main goals is to produce particularly user-friendly exercise machines. For this reason, all the CARDIO LINE 400/400 MED machines are equipped with a user guidance system that is simple and easy to understand. In addition, all control panels in a series are designed homogeneously to provide you with easy use and comfort. Consequently, once you know how to operate one machine, you will know how to operate all the others of the same series.

There are two different types of displays: A small monochrome display (CYCLE 400/407 MED) and a large monochrome display (CYCLE 450/457 MED/457 MED SPO<sub>2</sub>).

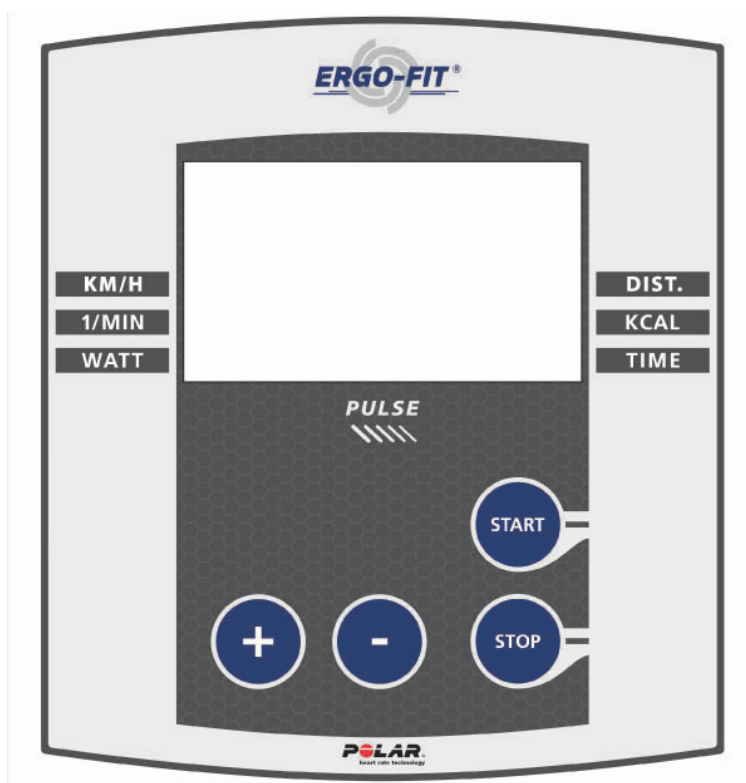
The control panel consists of a display and buttons. Before you take a closer look at the control panel, you should note the following aspects:

1. Do not prop up your body on the control panel or the display to avoid damage.
2. Do not exert pressure on the display.
3. Only press the buttons lightly. The button press is confirmed by a beep.

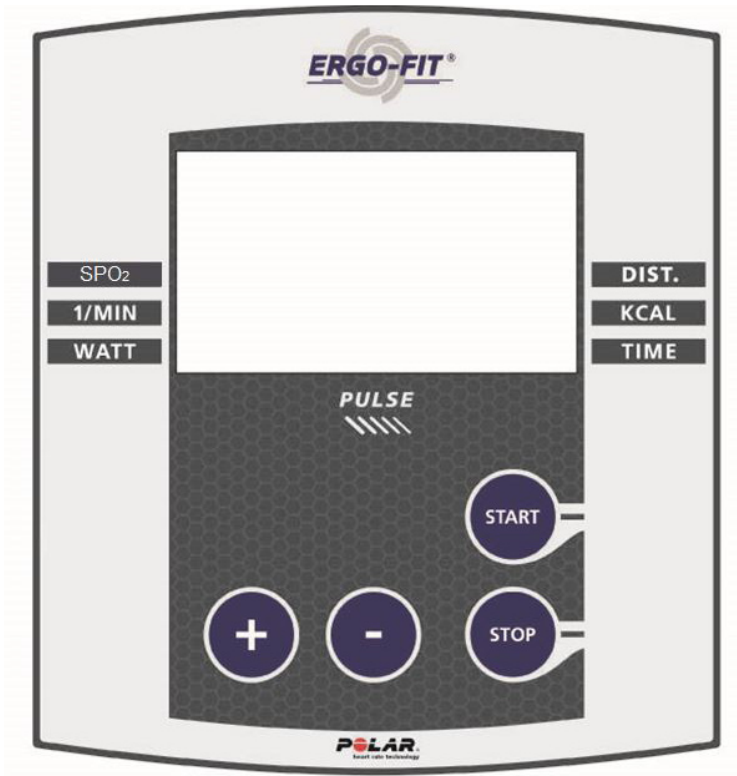


Cockpit CYCLE 400/407 MED (small monochrome display):



**Cockpit CYCLE 450-457 MED (large monochrome display):**

**Cockpit CYCLE 457 MED SPO<sub>2</sub> (large monochrome display):**



**5.4.1 The buttons**

The following buttons are installed on the control panel:

- ⊗ PLUS-button: Increase the strain or change parameters..
- ⊗ MINUS-button: Decrease the strain or change parameters.
- ⊗ START-button: Change the training mode or confirm set or changed parameters.
- ⊗ STOP-button: Stop functions or the machine.

### 5.4.2 The display

The machines of the CARDIO LINE 400/400 MED are equipped with a large (CYCLE 450/457 MED/457 MED SPO<sub>2</sub>) or a small monochrome display (CYLCE 400/407 MED).

In the section below you will find - depending on the model - information on the displays, measuring units and their meanings.

#### Training parameters

Model	Display	Meaning	Unit
CYCLE	DIST.	Distance covered	m,km
	1/MIN	Number of revolutions per minute	1/min
	KM/H	Speed	km/h*
	WATT	Power produced currently	Watt
	POINTS	ERGO-FIT cardio points	Points
	KCAL	Calories burnt (average)	kcal
	TIME	Training time	00:00 (min:sek)
	PULSE	Current heart rate with POLAR-sender or hand heart rate(only CYCLE 400/450)	1/min
	SPO <sub>2</sub>	Oxygen saturation	%***
	Flashing heart	heart rate signal received**	

\* Parameter „KM/H“ only CYCLE 450/457 MED

\*\* If an „E“ is displayed instead of the heart rate the heart rate monitor does not function correctly or it does not receive any heart rate values (see chapter 6.4)

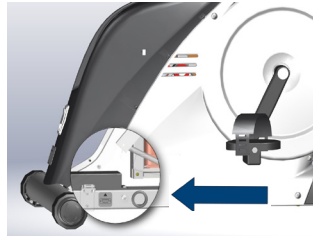
\*\*\*Parameter „SPO<sub>2</sub>“ only CYCLE 457 MED SPO<sub>2</sub>

### 5.4.3 Connections

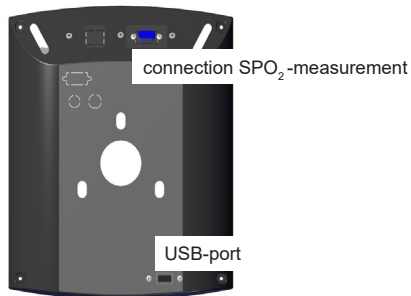
- ⊗ CYCLE 457 MED is provided with a RS232 port (position see following figure) This 9 pin port is located at the back of the cockpit and is used to connect an ECG.



- ⊗ The CYCLE 457 MED SPO<sub>2</sub> is equipped with a RS232 interface (beneath the device, see following figure) and a SPO<sub>2</sub> connection (rear of the cockpit).



**Cockpit CYCLE 457 MED SPO<sub>2</sub> (back):**



**SPO<sub>2</sub>:**

Connect the 9-pin cable to the corresponding connector. To disconnect just pull the plug from the connector.

**Please note:**

For the SPO<sub>2</sub> module only use finger clips that have been accepted by the manufacturer. You can order them at Ergo-Fit.



## Chapter 6      Operation

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**Please note:**

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There may be variations in detail according to the type of machine!

## 6 Operation

### 6.1 Modes of operation

When you switch on your training machine, the main menu and the programme selection will always appear first on the display. The choice „MANUAL“ is selected automatically. Push the PLUS and MINUS buttons to change the training mode. Confirm this with START. The following modes can be chosen (depending on the model):

	CYCLE 400	CYCLE 407 MED	CYCLE 450	CYCLE 457 MED / MED SPO <sub>2</sub>
MANUAL	X	X	X	X
PROFILES	X		X	X
CARDIO	X	X	X	X
GEARSHIFT	X		X	
WHO-PROFILES		X		X
COUNTDOWN		X		X
TEST			X	X
ECG-CHOICE				X

To return from the submenu to the main menu, just press the STOP button once or repeatedly.

#### 6.1.1 MANUELL



Danger! If you have a cardiac pace maker, you should exercise in MANUAL mode only!.

1. Push the PLUS/MINUS buttons until the programme MANUAL is selected. Confirm your choice with the START button.
2. You are now entering training mode. You may change the strain intensity in steps of 5 Watts by pushing the PLUS and MINUS buttons. If you want to change the strain intensity substantially, press and hold the PLUS or MINUS button.
3. Stop the training by pressing the STOP button. The training parameters remain on the display. By pushing the STOP-button one more time, you will return to the main menu. The display will also return to the main menu automatically after 1 minute if no action is carried out.

In the MANUAL mode, you can choose any minimum/maximum strain you like. The lower/upper strain limit is the following:

Model	Power Range	Steps	Rotational Speed
CYCLE 400	0-400 W *	5 W	20-120 rpm
CYCLE 407 MED	0-400 W *	5 W	20-120 rpm
CYCLE 450	0-400 W *	5 W	20-120 rpm
CYCLE 457 MED	0-400 W *	5 W	20-120 rpm
CYCLE 457 MED/MED SPO <sub>2</sub>	0-400 W *	5 W	20-120 rpm
* Default setting is 25 W; the strain can be reduced to a minimum of 0 W by pushing the MINUS button.			

CYCLE 407/457 MED: Please note that this model does not comply with the standard DIN VDE 0750-238 when used with a strain level below 25 W!

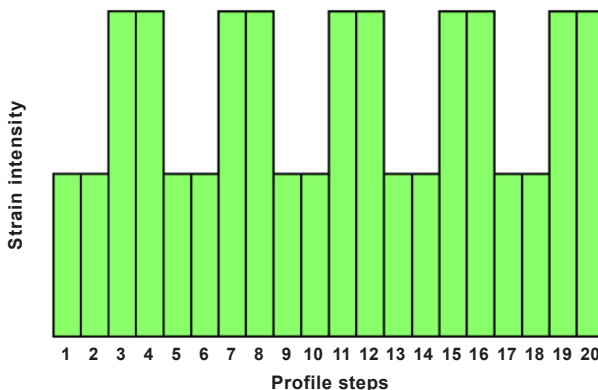
### 6.1.2 PROFILES

You can choose between performance profiles (load profiles, fixed profiles), gradient profiles (gearshift/only on CYCLE 450) and heart rate profiles (heart rate/only on CYCLE 450 and CYCLE 457 MED, CYCLE 457 MED SPO<sub>2</sub>), depending on the model.

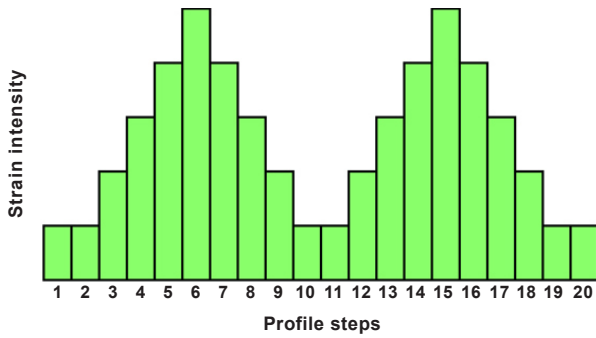
**Performance profiles (CYCLE 400, CYLCE 450, CYCLE 457 MED, CYCLE 457 MED SPO<sub>2</sub>):**  
Choose between five predefined profiles (fixed profiles P1 - P5) and four individual user profiles (load profiles/only on CYCLE 450 and CYCLE 457 MED). The profiles differ in their sequences of alternating strain levels, comparable with a hilly landscape.

The 5 predefined profiles (P1 - P5) are:

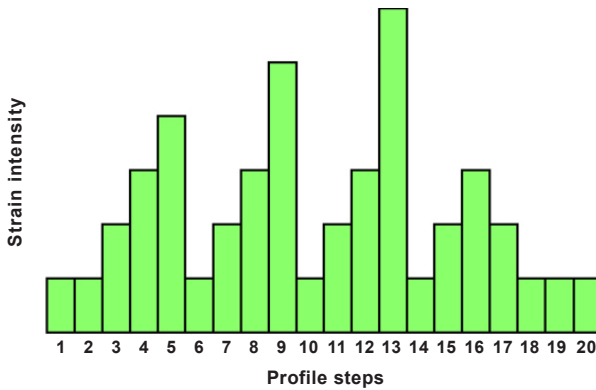
Profile 1:



Profile 2:

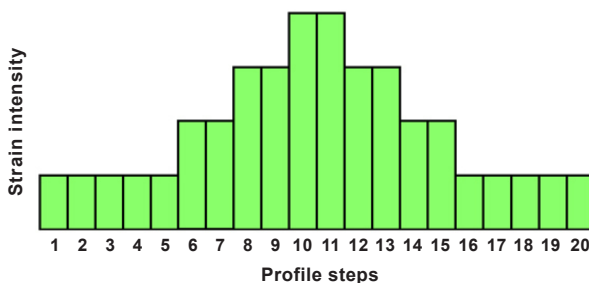


Profile 3:



Profile 4:



**Profile 5:****Gradient profiles (gearshift/CYCLE 450):**

Choose between four individual user profiles.

**Heart rate profiles (CYLCE 450, CYCLE 457 MED, CYCLE 457 MED SPO<sub>2</sub>):**

Choose between four individual user profiles.

**How to choose a predefined user profile (P1 - P5):**

1. Push the PLUS/MINUS buttons until the programme PROFILES is selected. Confirm your choice with the START button.
2. In the submenu „PROFILES“, choose a profile with the PLUS and MINUS buttons. Confirm your choice with the START button. Use PLUS/MINUS buttons on CYCLE 450, CYCLE 457 MED and CYCLE 457 MED SPO<sub>2</sub> to switch between Profile Selection and Profile Editor, confirm with START, then select the appropriate profile type (fixed profiles, load profiles or heart rate) using PLUS/MINUS buttons and again confirm with START.
3. Now you need to determine the maximum strain intensity. Push the PLUS and MINUS buttons to set the strain and confirm with START.
4. Now choose the maximum training time. You can choose different training durations of 10 to 60 minutes by pressing the PLUS and MINUS buttons (default time: 10 minutes). Confirm your choice again with the START button.
5. You are now entering training mode. You can change strain intensity within the limits of the pre-assigned strain intensity range by pushing the PLUS and MINUS buttons at any time.
6. The timing will also be displayed in the profile (in italic letters). The training will stop automatically after the chosen duration has elapsed. You can also stop the training by pressing the STOP button at any moment. On CYCLE 450, CYCLE 457 MED and CYCLE 457 MED SPO<sub>2</sub> the profile distance is repeated until the workout is stopped by pushing the STOP button. In all cases, the training parameters (dist., kcal, km etc.) remain on the display. Pushing the STOP button again will return you to the main menu.

**How to create a new user profile (A-D) (CYCLE 450/CYLCE 457 MED/MED SPO<sub>2</sub> only)**

1. Push the PLUS/MINUS buttons until the programme PROFILES is selected. Confirm your choice with the START button.
2. Select the Profile Editor using PLUS/MINUS buttons, confirm selection with START.
3. Push the PLUS and MINUS buttons to choose the type of profile first (load profile, heart rate, gearshift). Confirm this with START.
4. Now push the PLUS/MINUS buttons until the desired user profile (A-D) is selected. Push the START button to open the changing level.
5. Press START again to change the profile.
6. On the changing level you can set the strain intensity per strain level. Push the PLUS and MINUS buttons to set the strain (default: begin profile step 1). Press the START and STOP buttons for choosing the profile step. Press the STOP button at profile step 1 or press the START button at profile step 20 to enter the main menu. Your changes are saved.
7. From the main menu, select the PROFILE program again using the PLUS or MINUS button, confirm by pressing the START button, then confirm PROFILE SELECTION with START. Select the desired profile with the PLUS or MINUS button and confirm by pressing the START button. The four user profiles will appear (except for „Gearshift“ profile, see Point 10). Make your selection using the PLUS or MINUS button and confirm with START. Procedures that follow are described in Points 8-10.
8. If you selected the „Load profiles“ profile type, you can change the start load using the PLUS/MINUS buttons. Now confirm with the START button and set the maximum exercise time. By pressing the PLUS or MINUS button, you can select different exercise times, from 10 to 60 minutes in duration (default time - 20 minutes). Press the START button to confirm. See Point 11.
9. If you selected the „Heart rate“ profile type, you can set the maximum exercise time here. By pressing the PLUS or MINUS button, you can select different exercise times, from 10 to 60 minutes in duration (default time - 20 minutes). Press the START button to confirm. Now the cardio parameters are displayed. You can also change the start load using the PLUS/MINUS buttons. Press the START button to confirm. See Point 11.
10. If you selected the „Gear change“ profile type (CYCLE 450 only), you can now enter your weight using the PLUS/MINUS buttons. After you confirm with the START button, the four user profiles will appear. Make your selection using the PLUS or MINUS button and confirm with START. You can now set the maximum exercise time. By pressing the PLUS or MINUS button, you can select different exercise times, from 10 to 60 minutes in duration (default time - 20 minutes). Press the START button to confirm. See Point 11.
11. You are now entering training mode. You can change strain intensity within the limits of the pre-assigned strain intensity range by pushing the PLUS and MINUS buttons at any time. The timing will also be displayed in the profile (in italic letters).

12. On CYCLE 400, the training will end automatically when the chosen duration has elapsed. You can also stop the training by pressing the STOP button at any moment. On CYCLE 450, CYCLE 457 MED and CYCLE 457 MED SPO<sub>2</sub>, the profile distance is repeated until the workout is stopped by pushing the STOP button. Pushing the STOP button again will return you to the main menu.

### 6.1.3 CARDIO

Heart rate controlled training (cardio training) controls the optimal intensity of the user's workload. For a CARDIO workout (heart rate controlled training) on the machines of the CARDIO LINE 400 MED, you need a chest band with a POLAR sender. This is the only way to measure your heart rate and control the strain automatically. A simultaneous use of chest strap and SPO<sub>2</sub> module for heart rate monitoring is not possible, because the signal of the chest strap always has priority. We recommend the use of the chest strap for heart rate controlled training because it is designed for this purpose and because the movement of the hands or slipping of the finger clip can cause inaccuracies that make a controlled training impossible. On models of the CARDIO LINE 400 HOME, the heart rate can also be assessed through the hand pulse. The same restrictions apply as for the SPO<sub>2</sub> module. The CARDIO mode allows for strain control according to the actual heart rate so that the set training heart rate will be maintained during a workout sequence.

*Users who have a cardiac pace maker or take heart drugs (e.g. beta-blockers) should not exercise in Cardio mode!*



#### You need to set the following parameters before training:

PULSMAX = heart rate upper limit during training  
 PULSMIN = heart rate lower limit during training  
 STARTING STRAIN = initial strain at the beginning of the workout

#### How to proceed when training:

1. Push the PLUS/MINUS buttons until the programme CARDIO is selected. Confirm your choice with the START button.
2. You are on Cycle 457 in the „CARDIO SELECTION“ sub-menu. Here you can choose between CARDIO and CARDIO COUNTDOWN. If you select CARDIO COUNTDOWN, see Section 7.1.6; otherwise go to Point 3. All other cycle versions are located directly in the Cardio Program.
3. Now change the age using the PLUS or MINUS button and confirm with START.
4. Set the heart rate upper limit first. Modify the default value (depending on entered age) with the PLUS and MINUS buttons (the heart rate lower limit will change synchronously). After choosing your individual heart rate upper limit, confirm with START.
5. Now you can modify your heart rate lower limit with the PLUS and MINUS buttons (default: difference of ten beats from the heart rate upper limit.). Reconfirm your choice with START.
6. Now set the starting strain for your exercise (Preset 25W). Again, use the PLUS and MINUS buttons and confirm with START for this purpose.
7. The display now shows the CARDIO mode. Your current heart rate is assessed. The training starts with the first strain level.

The load can be changed even during exercise using the PLUS or MINUS button.

8. Stop the exercise by pressing the STOP button. The training parameters (Watt, 1/ min etc.) remain on the display. On the CYCLE 450/457 MED/457 MED SPO<sub>2</sub> model, the gradient of the heart rate will be shown also. The training sequence is marked by two horizontal lines. On CYCLE 457 MED, the average speed is displayed by pressing the START button. Pushing the STOP button again will return you to the main menu.

#### 6.1.4 GEARSHIFT (CYCLE 400 / 450 only)

In this mode, you can exercise for any amount of time. The integrated gearshift allows you to adjust the strain and thus, to simulate realistic cycling.

1. Press the PLUS/MINUS buttons on the main menu until the programme GEARSHIFT is selected. Confirm your choice with the START button.
2. Press the PLUS and MINUS buttons to enter your body weight and press the START button.
3. You are now entering training mode. In this mode, press the PLUS and MINUS buttons to change the gears at any time and thus, to modify the strain. The change will be displayed for 5 seconds. Furthermore, the gradient can be displayed by pressing the START button. You can modify the gradient settings by pressing the PLUS and MINUS buttons. By pushing the START-button one more time, you will return to the gear selection.
4. Stop the training by pressing the STOP button. The training parameters remain on the display. By pushing the STOP-button one more time, you will return to the main menu. The display will also return to the main menu automatically after 1 minute if no action is carried out.



If the operational range of the brake is exceeded, an exclamation mark will be displayed next to the performance display. This indicates that the displayed performance does not correspond to the performance on the crank handle. Please modify the speed or the gear to return to the correct performance.

#### 6.1.5 WHO-PROFILES

The WHO profiles are step profiles defined by the World Health Organization (profiles with stepping strain increase). On CYCLE 407 MED, you can choose between two predefined profiles; on CYCLE 457 MED/457 MED SPO<sub>2</sub>, the user profile can be set individually.

##### Please proceed as follows (CYCLE 407 MED):

1. Push the PLUS/MINUS buttons until the programme WHO-PROFILES is selected. Confirm your choice with the START button
2. Select the desired time in the sub-menu by pressing the PLUS or MINUS button (2 min or 3 min), confirm with the START button. Then select the load level (25 W or 50 W) and press START again. (Use STOP to switch between the lines)
3. You are now in the „WHO PROFILE“ training mode. Press the STOP button to stop the strain phase and to proceed to the recovery phase. By pushing the STOP-button one more time, you will return to the main menu.



**Please proceed as follows (CYCLE 457 MED/MED SPO<sub>2</sub>):**

**You need to set the following parameters before training:**

Initial strain:	Strain of the first strain level [W]
Time:	Duration of each strain step [min]
Strain step:	Intensity of each strain step [W]
Recovery:	Strain in recovery phase [W]

1. Push the PLUS/MINUS buttons on the main menu until the programme WHO-PROFILES is selected. Confirm your choice with the START button.
2. Press the PLUS and MINUS buttons to modify each of the parameters. Press STOP to change to the next parameter. After setting the parameters, confirm this with START. The modified parameters will be saved for other applications.
3. You are now in the training mode. Press the STOP button to stop the strain phase and to proceed to the recovery phase. By pushing the STOP-button one more time, you will return to the main menu.

The automatic strain increase in the WHO profiles can be interrupted during operation by pressing the START button. The displayed information changes from ACTIVE to HOLD. In the HOLD mode, the performance can be modified manually with the PLUS and MINUS buttons. If you want to reactivate the automatic strain increase, press the START button again. The display changes from HOLD to ACTIVE. In both modes, you can change from the strain phase to the recovery phase by pressing the STOP button. The display changes to PASSIVE. This allows the doctor to adjust the strain for his patient more precisely than before.

### **6.1.6 COUNTDOWN (CYCLE 407 MED/CYLCE 457 MED/MED SPO<sub>2</sub> only)**

In this mode you can manually customize the workout and workout time. The timer counts down the set workout time. You can choose Manual-Countdown or Cardio-Countdown:

**Manual-Countdown:**

1. Push the PLUS/MINUS buttons on the main menu until the programme COUNTDOWN (for 400/407 CARDIO COUNTDOWN) is selected. Confirm your choice with the START button.
2. Reduce or increase the time to the desired training duration by pressing the PLUS and MINUS buttons. Confirm this with START.
3. You are now entering training mode. You may change the strain intensity by pushing the PLUS and MINUS buttons at any time.
4. The training will stop automatically after the chosen duration has elapsed. However, you can stop the exercise at any time by pressing the STOP button. The training parameters remain on the display. By pushing the STOP button one more time, you will return to the main menu. The display will also return to the main menu automatically after 1 minute if no action is carried out.

**Cardio-Countdown:**

1. Navigate the main menu by pressing the PLUS/MINUS buttons until the CARDIO program (for 400/407 CARDIO COUNTDOWN) is marked. Press the START button to confirm your selection. For Cycle 400/407, see Point 3.
2. The „Cardio Selection“ sub-menu appears. Use the PLUS/MINUS buttons to select the CARDIO COUNTDOWN program. Press the START button to confirm your selection.
3. Use the PLUS/MINUS buttons to change the age setting and confirm with START.
4. Reduce or increase the time to the desired training duration by pressing the PLUS and MINUS buttons. Confirm this with START.
5. First, set the upper heart rate limit. You can change the default value (depending on the entered age) with the PLUS or MINUS button (the heart rate lower limit changes its value synchronously). If you set your individual heart rate upper limit for the exercise session, confirm your entry with the START button.
6. Now you can change your heart rate lower limit using the PLUS or MINUS button (default setting - 10-stroke difference from the upper heart rate limit). Confirm again with the START button.
7. Now you must set the start load (default 25W) for the exercise session. To do this, press the PLUS or MINUS button and confirm with START.
8. The display changes to the CARDIO mode. Your current heart rate is determined. Exercise session starts with the first load level.
9. Pressing the STOP button stops the exercise session early. The training parameters (Watts, 1/min, etc.) remain for reading. CYCLE 450/457 MED/MED SPO<sub>2</sub> also displays the heart rate curve graphically. The exercise area is indicated by 2 horizontal lines. When the START button is pressed, CYCLE 457 MED displays average speed. You can return to the main menu by pressing the STOP button.
10. The training will stop automatically after the chosen duration has elapsed. The training parameters remain on the display. By pushing the STOP-button one more time, you will return to the main menu. The display will also return to the main menu automatically after 1 minute if no action is carried out.

### 6.1.7 TEST (CYCLE 450 MED, CYCLE 457 MED/MED SPO<sub>2</sub> only)

These tests are step tests. The data resulting from these tests are recommendations only and not suitable for diagnostic purposes!



In order to carry out a test, you need a chest strap with POLAR transmitter or a SPO<sub>2</sub> module to measure your heart rate. Otherwise, the heart rate cannot be assessed. An assessment of the hand pulse may only be carried out for monitoring purposes!



#### **In the training mode TEST, you can choose from three different test programmes:**

Depending on your age, actual fitness or health conditions, you need to choose one of the preset heart rates (130, 150, and 170).

A PWC test is a submaximal test with a preset heart rate:

PWC 130 = heart rate: upper limit of 130, untrained test person of advanced age

PWC 150 = heart rate upper limit of 150, untrained younger test person

PWC 170 = heart rate upper limit of 170, trained test person

On PWC 130, the initial strain is 25 W; on PWC 150 and PWC 170, the initial strain is 50 W each. The strain increases by 25 W (PWC 130) and by 50 W (PWC 150, PWC 170) every two minutes. An assessment will only be carried out after the set heart rate has been reached and the set strain step has been ended.

The test result will be a Watts/kg value. With this value and the PWC classification table (see Chapter A7 „Test evaluation“), you can assess your actual fitness level.

#### **How to carry out a test:**

1. Push the PLUS/MINUS buttons until the programme TEST is selected. Confirm your choice with the START button.
2. You are now within the „TEST selection“ submenu. Choose the desired test programme with the PLUS and MINUS buttons and confirm this with START.
3. Now enter your body weight. For this purpose, press the PLUS and MINUS buttons. Confirm this with START.
4. Press the PLUS and MINUS buttons to enter your age and press the START button.
5. The display now shows the RESTING PULSE ASSESSMENT mode. Your current resting heart rate will be assessed. This takes about 15-20 seconds. Your resting heart rate is displayed.
6. If the assessment is successful, the test will start after a few seconds. The display changes to operating mode and starts with the first strain step.
7. As soon as your heart rate exceeds the set upper limit (130, 150, 170), the test ends automatically after completion of the strain level.
8. The training parameters remain on the display after the test is completed. By pushing the STOP button one more time, you will return to the main menu.

### 6.1.8 Default Settings and ECG CHOICE

For changing the default settings, you can use the following buttons:

PLUS: You can you can navigate in the menu and increase settings

MINUS: You can you can navigate in the menu and decrease settings

START: You can confirm your selections or settings

STOP: You can cancel a function or leave the menu

#### Language settings:

In the main menu simultaneously press PLUS and MINUS to open the "Service" menu. Select the function "Language". Here you can change the language.

#### Date and Time settings:

In the main menu simultaneously press PLUS and MINUS to open the "Service" menu. Select "Time and Date". Here you can change the settings.

#### External Control of the Training Bike:

An external connection (RS 232, serial interface) is standard equipment on the CYCLE 457 MED/MED SPO<sub>2</sub>. Connect the training bike to an external device (ECG, computer etc.) using an interface cable. (Please note! The interface cable is not included in the delivery!) Then you must select the data protocol.

#### Selecting the Data Protocol:

In the main menu simultaneously press PLUS and MINUS to open the "Service" menu. Select "RS232". Press PLUS/MINUS to select the protocol (00, 01, 02 etc.) and confirm with START. The protocol selection is stored. Press STOP to return to the main menu. When the Initialize icon appears above the interface the training bike automatically changes to external control mode. For further control additional icons are displayed. Unknown commands are listed as " / ".

*Please note! Some ECG devices cannot be connected with the CYCLE 457 MED/MED SPO<sub>2</sub>. Call +49 (6331) 2461-0 for more information.*

## 6.2 Behaviour after operation

No special notices need to be observed at the end of the training on a CYCLE model of the CARDIO LINE 400/400 MED. Just stop the training. There is no further risk due to free rolling.

### 6.3 Function control

Function test: How to proceed:

#### Brake function

- ⊗ Switch on the exercise machine. The illumination of the display shows you immediately if the machine is switched on.
- ⊗ Choose the MANUAL mode and increase the set performance (see Chapter 6.1.1).
- ⊗ Move the crank handle at the lowest speed range (observe the arrows!). The strain increases. Increase the speed range to its maximum. The strain will decrease. If this is the case, it may be assumed that the operation independent from the rotational speed works fine.

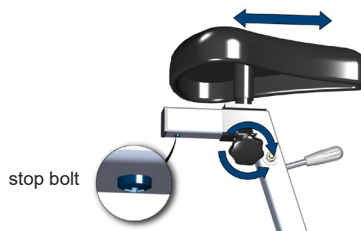
#### Heart rate

- ⊗ Check the function of the heart rate measurement (see chapter 4.2). Remember that you will need a POLAR transmitter set (transmitter, chest strap) or a SPO<sub>2</sub> module (use the POLAR transmitter set and the SPO<sub>2</sub> module as described in chapter 6.4).
- ⊗ Check the function of the heart rate measurement by grasping the hand heart rate electrodes with both hands. The heart rate value is displayed (only on CARDIO LINE 400 HOME). If no heart rate value is displayed, wet your palms and check again.

#### Other functions

- ⊗ Make sure that the seat can be adjusted easily.
- ⊗ Check the horizontal adjustment of the seat:
 

Loosen the star grip counterclockwise, move it to the desired position, fix it by turning the star grip clockwise. It must not be possible to move the seat horizontally after closing the star grip, even with greater effort.
- ⊗ Make sure that the stop bolt is located on the underside of the seat post and firmly screwed in. Loosen the seat by turning the star grip counterclockwise and push it as far back as possible. It must be attached to the stop bolt and must not slip off the seat post. (See also supplement sheet „Warranty clauses“)



## 6.4 Heart rate measurement

For optimal training results, we recommend controlled training by heart rate measurement. In this regard, the POLAR sender allows for constant displaying and monitoring of the heart rate.

### 6.4.1 Belt and transmitter

Please note: Heart rate controlled training with the POLAR pulse belt is not a medical application. The pulse rate is displayed only for the information of the user and therapist.

Wet the electrodes (the two rippled rectangular areas on the bottom side) carefully before use. To provide optimal skin contact, you may use a contact gel as it is used in ECG measurements. Adjust the length of the band to have a close but comfortable fit against the skin underneath the chest muscle. The band should not loosen during exercise. Please also make sure that the belt is fastened with the correct side up - the POLAR logo needs to be readable correctly when looking at it. You should also make sure that the two band electrodes are not buckled.



A pulse measurement is only possible if the chest band fits correctly. Otherwise, the display shows an „E“ on the position of the pulse indication (incorrect or no pulse transmission). In this case, please check again the correct fit of the chest band.

The sender (the electrodes in particular) should be cleaned and dried after use with warm water and a mild soap for hygienic reasons. Never brush the electrodes! Do not use alcohol for cleaning!

### 6.4.2 Contact heart rate

CARDIO LINE 400 HOME devices provide contact heart rate measurement.

Heart rate can only be measured and displayed if both hands are on the contact heart rate electrodes. If an „E“ is displayed instead of the heart rate the heart rate monitor does not function correctly or it does not receive any heart rate values. Heart rate measurement is not possible. Moisten the palms of your hand and try again.

Contact heart rate measurement might be difficult if the user has dry or rough hands or if the contact to the electrodes is interrupted, e. g. by moving the hands.

The following points must also be noted:

- ⊗ Disinfect the hand pulse electrodes only with a damp cloth, in no case wet!
- ⊗ Increasing the hand pressure does not lead to any effect, it can cause damaging of the electrodes!

ERGOFIT suggests telemetric heart rate measurement (POLAR belt and transmitter) for exact values.

#### **6.4.3 Operating range of the POLAR sender**

The operating range of the sender is approx. 80 cm. If you have more than one ERGOFIT exercise machine, make sure to keep a distance of at least 100 cm between them to avoid interference of the senders.

*Note: We cannot guarantee for medically correct heart rate values, but the obtained values are a good basis for a safe workout.*

#### **6.4.4 Battery of the POLAR sender**

If the heart rate transmission only works within a short distance between the sender and the receiver or not at all after a prolonged operation, it is possible that the sender's battery is depleted (the battery usually lasts for approx. 2500 hours). In this case, please send the sender and the depleted battery to the following address.

**POLAR Electro GmbH Deutschland**  
**Am Seegraben 1**  
**D-64572 Büttelborn/Klein-Gerau**

Your sender will be returned to you with a new battery at a charge. Do not try to change the battery yourself!

#### **6.4.5 Potential interference**

- ⊗ Screens, electric motors
- ⊗ High voltage lines (including tramway contact wires)
- ⊗ Fluorescent tubes in close proximity
- ⊗ Central heating radiators
- ⊗ Other electric devices (e.g. mobile phone)

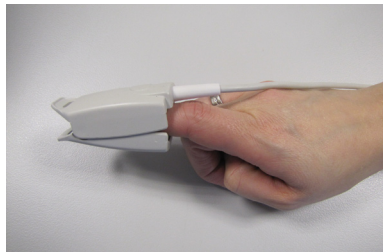
The problem can usually be addressed by moving the machine a few metres away from the source of interference. In some cases, it is sufficient to change the position of the machine by a few degrees.

If the heart rate is displayed irregularly despite faultless technical conditions, check your heart rate manually. In case of doubt, you should see your doctor.

#### 6.4.6 SPO<sub>2</sub> measurement

With Cycle 457 MED SPO<sub>2</sub> you can also measure the oxygen saturation (SPO<sub>2</sub>). This is only possible during workout (e.g. manual workout).

The SPO<sub>2</sub> module must be correctly connected to the machine (see chapter 5.4.3. Connections). Attach the finger clip to forefinger, thumb or little finger.



The patient's skin on the finger must be dry and clean. Open the clip and put the finger as far as possible into the opening. Release the clip to lock it. Guide the cable along the arm and fasten it with tape, if necessary. Now you can perform the measurement.

Do not move the hand during the measurement. The measurement will now be performed automatically and permanently. The display shows the measurement values (70% to 100%) as well as the heart rate (20 to 300 BPM in whole beats (1 bpm)). These values will be displayed until you remove the finger clip or disconnect the SPO<sub>2</sub> module.

Please note:

- ⊗ With an oxygen saturation between 70% and 100% the maximum deviation of the measurement values is 2,3%.
- ⊗ The maximum heart rate deviation is +/- 3bpm.

Please review the additional safety and operational instructions in this manual!



## Chapter 7 Training

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**Please note:**

This owner's manual contains information on multiple gym machines.  
There may be variations in detail according to the type of machine!

## 7 Training

### 7.1 The effect of training

The demands of today's lifestyle in modern societies are not enough to remain in good conditional shape. Cardiovascular diseases are still the most common cause of death.

This fact should make cardiovascular training a top priority.

All training activities during which the heart rate increases for 15 to 20 minutes or longer are called „aerobic“.

### 7.2 Cardiovascular training

To get the most benefit out of your training, you should be familiar with some training principles.

Your fitness depends to a great extent on your body's ability to provide your muscles with oxygen. Oxygen is the key to the energy stored in the muscles.

Let us take a closer look at some of the factors crucial to this process: The heart and its role as a complex pump is responsible for the smooth blood flow in the body.

Regular aerobic training will increase the heart's stroke volume, i.e. it will transport more blood through your body with every beat. Accordingly, the heart works more efficiently not only during training, but also at rest.

When oxygen enters the lungs, it will be mixed with blood in tiny „air sacs“, the so-called alveoli. Regular aerobic training will improve the efficiency of the alveoli and thus, more oxygen will enter the bloodstream and be transported to the muscles.

Haemoglobin is the substance of the blood that absorbs the oxygen. Regular aerobic training will increase the part of the haemoglobin in the blood, which in turn allows your muscles to be better supplied with oxygen.

It is a fact that heart diseases are much less common in people who train regularly.

Overall, it may be said that regular training improves the amount of oxygen supplied to the muscles and the risk of heart disease decreases. For this reason, ERGO-FIT cardio exercise machines are used in both gyms and rehabilitation centres.

### 7.3 Strain parameters

The intensity of your training programme should be suitable for your heart rate. It can only be assessed by a targeted performance evaluation. Our cardio training machines allow you to check your heart rate constantly even during training.

If you are a training beginner, it is advisable to train in the lower part of your aerobic training zone until your fitness begins to improve.

### 7.4 Training routine - aspects to be considered

If you exercise for the first time or restart training after a longer break, your training routine should include the following stages (example):

1. **Warm up:** Exercise for five minutes and with little strain to prepare your body optimally for training.
2. **Stretching:** Get off the exercise machine and stretch the muscle groups you are going to target during training.
3. **Main sequence:** Now you are well prepared for the aerobic phase, which should last a minimum of 15 to 20 minutes. Your target is to maintain your heart rate continuously at the correct strain level.

### 7.5 Weight reduction: the benefits

Most beginners primarily wish to reduce body weight, the adipose tissue. Regular training stimulates the metabolism, which leads to a higher burning of calories, both during training and at rest.

Most beginners get the most aerobic benefit from a strain level of 70 % of the maximum heart rate. Increasing fitness requires an adaptation of training intensity. However, the assumption „The harder the training the greater the progress in fitness“ is wrong.

If a certain strain limit is exceeded, the benefits from aerobic training drop dramatically because the body can no longer provide the muscles with oxygen and instead produces large amounts of lactic acid, and this will make us stop training very fast.

A strain level just below the anaerobic threshold enables us to exercise substantially longer. This way, we will burn a lot of fat and simultaneously strengthen our aerobic system optimally.

## 7.6 Training tips

During training on our exercise machines, your heart rate should not exceed a certain upper limit. Training in the aerobic range requires us to train below this limit. It can be set according to a doctor's specifications, tests in performance diagnostics or general rules of thumb.

The heart rate upper limit is calculated using the following rule of thumb:

$$180 - \text{age} = \text{Heart rate upper limit}$$

As an example, a 50-year-old man would have a maximum heart rate of 130 beats per minute and a 30-year-old person of 150 bpm etc.

## Chapter 10    Troubleshooting

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**Please note:**

This owner's manual contains information on multiple gym machines.  
There may be variations in detail according to the type of machine!

## 10 Troubleshooting

Despite the high quality of our ERGO-FIT products, occasional disturbances might occur in rare cases. The target of this chapter is to inform you of the possible causes of these disturbances and to give you the possibility to avoid them. If you assume a technical defect, the machine must no longer be used for safety reasons. If you cleared a defect yourself, it would be very helpful for us if you communicate this defect to us immediately. This allows us to record the failure in the model's documentation file, and this in turn allows for quality improvement.



For safety reasons, unplug the machine before any work is carried out or the machine is opened!

### 10.1 Identifying the cause of failure

Malfunctions often have a simple cause. However, defective components are sometimes at fault. This chapter provides you with guidelines to resolve possible problems. If the recommendations listed are not successful, please contact our service department immediately. Our service team will be pleased to help you.

#### **Please proceed as follows in case of failure:**

The machine does not work (no audible sound when switching on, blank display)

- ⊗ The fuse box is located on the machine's power input module. Pull out the fuse box and check if a fuse is defective (CARDIO LINE 400 MED).
- ⊗ Did you use an extension cable or a multi-outlet power strip? Always connect your machine directly to the mains socket.
- ⊗ Check the mains socket. Plug in a different electric device to check the mains socket.
- ⊗ Pull the mains plug out of the mains socket and visually inspect the mains cable.

An error message appears on the display

- ⊗ Write down this message immediately after the appearance of the error message.
- ⊗ Assess the frequency of this error. If yes: when and how often does the error occur?
- ⊗ Check if more electric devices were connected in parallel. If so, which?
- ⊗ Check if a button has been pressed when the error message was displayed.

- ⊗ If you were not present when the error message was displayed, ask the user about the exact progress of events.
- ⊗ If an error message appears on the display, please ask our service team

**Possible malfunction of the SPO<sub>2</sub> module:****No oxygen measurement**

- ⊗ Wrong sensor

**SPO<sub>2</sub> measurement returns zero**

- ⊗ Operating voltage too high or too low.
- ⊗ Operating temperature too high or too low.
- ⊗ Malfunction because of alternating electric voltage.
- ⊗ Too much ambient light.





## Chapter A      Appendix

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**Please note:**

This owner's manual contains information on multiple gym machines.  
There may be variations in detail according to the type of machine!

## A Appendix

### A.1 Customer service

If you cannot correct a malfunction yourself, please get in touch with our customer service.

Service: Phone: +49 (6331) 2461-20 international  
+49 (6331) 2461-45 international  
+49 (6331) 2461-23 national  
+49 (6331) 2461-27 national  
+49 (6331) 2461-29 national  
Fax: +49 (6331) 2461-55  
E-Mail: service@ergo-fit.de

Repairs of ERGO-FIT machines are carried out by highly qualified and competent service technicians. Only original spare parts are used for repairs.

### A.2 Spare parts

Spare parts and current exploded views are available from ERGO-FIT's service department:

Service: Phone: +49 (6331) 2461-20 international  
+49 (6331) 2461-45 international  
+49 (6331) 2461-23 national  
+49 (6331) 2461-27 national  
+49 (6331) 2461-29 national  
Fax: +49 (6331) 2461-55  
E-Mail: service@ergo-fit.de

When ordering, please provide the following information:

- ⊗ Model
- ⊗ Serial number
- ⊗ Name of the spare part
- ⊗ Number of the spare part

### A.3 Technical specifications

This chapter provides the technical specifications for your cardio exercise machine. The specifications are listed in separate charts for each model of the CARDIO LINE 400 series.

## A.3.1 CARDIO LINE 400

Model	CYCLE 400	CYCLE 450
Supply voltage 48-60 Hz	220 - 240 V ~	220 - 240 V ~
Power input	0,4 A	0,4 A
Safety standard	DIN EN 60335-1	DIN EN 60335-1
Device standard	EN 957 HA	EN 957 HA
Protection class	II	II
Tested for use in	Home use	Home use
Accuracy	10%, EN 957 HA	10%, EN 957 HA
Brake system	Eddy current brake	Eddy current brake
Moment of inertia	11 +/- 2kg·m <sup>2</sup>	11 +/- 2kg·m <sup>2</sup>
Dimensions in cm (L/B/H)	120/62/140	120/62/140
Weight	approx. 49 kg	approx. 49 kg
Speed range	20 - 120 l/min	20 - 120 l/min
Power range	0 - 400 W	0 - 400 W
Steps	5 W	5 W
Trainig programmes	MANUAL, PROFILES, CARDIO, GEARSHIFT	MANUAL, PROFILES, CARDIO, GEARSHIFT
Test programmes	-	PWC 130, PWC 150 and PWC 170
Display parameters	WATT, PULSE, TIME, KM/H, DIST., I/MIN, KCAL	WATT, PULSE, TIME, KM/H, DIST., I/MIN, KCAL
POLAR heart rate measuring	1 channel	1 channel
Heart rate dependent strain control	with POLAR sender or hand pulse	with POLAR sender or hand pulse
Activation	rpm-dependent	rpm-dependent
Max. body weight	180 kg	180 kg
Interfaces	-	-

**A.3.2 CARDIO LINE 400 MED**

Model	CYCLE 407 MED	CYCLE 457 MED/MED SPO <sub>2</sub>
Supply voltage 48-60 Hz	220 - 240 V ~	220 - 240 V ~
Power input	0,4 A	0,4 A
Fuses	T 1,6 A	T 1,6 A
Safety standard	DIN EN 60601-1	DIN EN 60601-1
Device standard	DIN VDE 750-238	DIN VDE 750-238
Protection class	I	I
Tested for use in	Medical therapy	Medical therapy
Accuracy	5%, DIN VDE 750-238	5%, DIN VDE 750-238
Brake system	Eddy current brake	Eddy current brake
Moment of inertia	11 +/- 2kg·m <sup>2</sup>	11 +/- 2kg·m <sup>2</sup>
Dimensions in cm (L/B/H)	120/60/140	120/60/140
Weight	approx. 49 kg	approx. 49 kg
Speed range	20 - 120 l/min	20 - 120 l/min
Power range	0 - 400 W	0 - 400 W
Steps	5 W	5 W
Trainig programmes	MANUAL, PROFILES, CARDIO, COUNTDOWN	MANUAL, PROFILES, WHO-PROFILES, TEST, CARDIO, COUNTDOWN, ECG SELECT
Test programmes	-	PWC 130, PWC 150 und PWC 170
Display parameters	WATT, PULSE, TIME, KM/H, DIST., l/MIN, KCAL	WATT, PULSE, TIME, KM/H, DIST., l/MIN, KCAL
POLAR heart rate measuring	1 channel	1 channel
Heart rate dependent strain control	with POLAR sender	with POLAR sender
Activation	rpm-independent	rpm-independent
Max. body weight	180 kg	180 kg
Interfaces	-	RS 232  SPO <sub>2</sub> module (only 457 MED SPO <sub>2</sub> )

## A.4 Electromagnetic Emission and Interference Immunity

ERGO-FIT machines were developed in accordance with DIN EN 60601-1-2: 2015 standard for electromagnetic interference, requirements and tests. This standard provides basic safety information and covers the essential performance characteristics in the presence of electromagnetic disturbances and the electromagnetic disturbances emanating from the medical devices, depending on the electromagnetic environment in which the machines are used. Locations for the intended use of ERGO-FIT devices are professional healthcare facilities, except in the vicinity of RF surgical equipment and outside the RF shielded room of a ME system for magnetic resonance imaging, as well as in home healthcare areas (e.g. medical practices that are associated with the public supply network).

As is the case with any electrically operated device, 100% fault-free operation cannot be guaranteed. Interactions or disturbances may occur in certain areas with high intensity interferences. The following warnings should be observed:

### WARNING:

- ⊗ Danger of malfunction! Avoid operating the machine immediately next to other devices or when stacked with other devices. If such use becomes necessary, ERGO-FIT equipment and other equipment must be monitored to ensure proper operation.
- ⊗ Possibility of increased electromagnetic emissions and reduced electromagnetic immunity of this device! Danger of malfunction! Do not use accessories or cables other than those specified or supplied by the manufacturer (machine connection cable, interface cable (network))
- ⊗ Deteriorated performance of the machine!  
Portable RF communications equipment (including such accessories as antenna cables and external antennas) must be at least 30 cm (12 inches) away from any part of the ERGO-FIT system, including the cables specified by the manufacturer.

Please also refer to Chapter 7.5 Heart Rate Measurement and Other Hazard Notices. If electromagnetic interference should occur in connection with a device, we recommend the following measures:

- ⊗ Change the orientation or location of the neighboring device.
- ⊗ Increase the distance between the devices.
- ⊗ Connect the monitor and the other devices to sockets of different circuits.
- ⊗ Contact the manufacturer or a service technician.

These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

**Electromagnetic emission and immunity, compliance and test level**

ERGO-FIT products are intended for use in the areas specified above. Please make sure to only use the product in appropriate environments. The product uses HF processes only for internal functions. Since the machine complies with the requirements of class B, its RF emissions are rather low, and it is unlikely that neighboring electronic devices will be affected.

When determining the limit values according to DIN EN 61000-3-2, it is assumed that the device is used professionally.

Electromagnetic Interference Measurements	Required < Criterion	Observed < Criterion
RF emissions in compliance with CISPR 11, German version in compliance with DIN EN 55011, conducted radio interference voltage	Class B	Class B
RF emissions in compliance with CISPR 11, German version in compliance with DIN EN 55011, radiated radio interference voltage	Class B	Class B
Distortion due to harmonics in compliance with IEC 61000-3-2	Class A	Met
Voltage fluctuations and flicker in compliance with IEC 61000-3-3	Pt < 1	Pt < 1

**Electromagnetic Interference Immunity, compliance and test level**

Noise immunity measurements	Required	Observed
Static electricity discharge (ESD) in compliance with IEC 61000-4-2	Contact $\pm 8$ kV Air $\pm 2$ kV, $\pm 4$ kV, $\pm 8$ kV, $\pm 15$ kV	Contact $\pm 8$ kV Air $\pm 15$ kV
RF radiation in compliance with IEC 61000-4-3	3 V/m or 10 V/m 80 MHz to 2.7 GHz	10 V/m 80 MHz to 2.7 GHz
RF radiation in the immediate vicinity of wireless communication devices in compliance with IEC 61000-4-3	see the following table	see the following table
Magnetic field for supply frequency (50/60 Hz) in compliance with IEC 61000-4-8	30 A/m 50 Hz or 60 Hz	100 A/m 50 Hz
Fast transient electrical disturbances/bursts in compliance with IEC 61000-4-4	$\pm 2$ kV / 100 kHz repetition frequency for power cable	$\pm 2$ kV / 100 kHz repetition frequency for power cable
Surges in compliance with IEC 61000-4-5	Line - Line: $\pm 0.5$ kV, $\pm 1$ kV Line - PE: $\pm 0.5$ kV, $\pm 1$ kV, $\pm 2$ kV	Line - Line: $\pm 0.5$ kV, $\pm 1$ kV Line - PE: $\pm 0.5$ kV, $\pm 1$ kV, $\pm 2$ kV
Conducted RF interference in compliance with IEC 61000-4-6	6 Vrms 150 kHz to 80 MHz	6 Vrms 150 kHz to 80 MHz
Voltage dips, brief voltage interruptions and voltage fluctuation in compliance with IEC 61000-4-11	30 % 10ms $\rightarrow$ B 60 % 100 ms $\rightarrow$ C >98 % 5000ms $\rightarrow$ C	30 % 10ms $\rightarrow$ A 60 % 100 ms $\rightarrow$ A >98 % 5000ms $\rightarrow$ A

Immunity to wireless communication devices (according to IEC 61000-4-3/DIN EN 61000-4-3, RF radiation)					
Test Frequency	Range (MHz) Service	Max. Power (W)	Distance (m)	Test level required (V/m)	Test level achieved (V/m)
385	380 – 390 TETRA 400	1,8	0,3	27	28
450	430 – 470 GMRS 460, FRS 460	2	0,3	28	28
710 745 780	704 – 787 LTE Range 13, 17	0,2	0,3	9	9
810 870 930	800 – 960 GSM 800 /900, TETRA 800, iDEN 820, CDMA 850, LTE Range 5	2	0,3	28	28
1720 1845 1970	1700 – 1990 GSM 1800, CDMA 1900, GSM 1900, DECT, LTE Range 1, 3, 4, 25, UMTS	2	0,3	28	28
2450	2400 – 2570 Bluetooth, WLAN 802.11 b/g/n, RFID 2450, LTE Range 7	2	0,3	28	28
5240 5500 5785	5100 – 5800 WLAN 802.11 a/n	0,2	0,3	9	9



## A.5 Safety regulations

### A.5.1 Safety instructions

To protect the user, the Verband Deutscher Elektrotechniker e.V. (VDE, German electrical engineering technician association) published special instructions for electromedical devices and rooms used for medical purposes.

According to these instructions, devices connected to the grid must be equipped not only with a reliable insulation of live parts but also with an additional protective measure to protect the user against the transfer of the supply voltage to touchable metal parts. For this purpose, VDE subdivides so-called protection classes.

Of the protection classes allowed for electromedical devices, in most cases protection class I (protective measures with protective earth conductor) as well as protection class II (protective measures without protective earth conductor but double insulation) are used:

In protection class I devices, metal casing parts are connected with the protective earth conductor of the grid through its earthing contact. In case of insulation failure, the upstream circuit breaker will close the circuit.

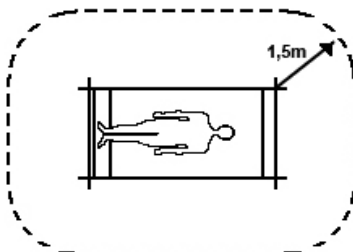
The CYCLE models of the CARDIO LINE 400 are classified as protection class II devices. The CYCLE models of the CARDIO LINE 400 MED are classified as protection class I devices.

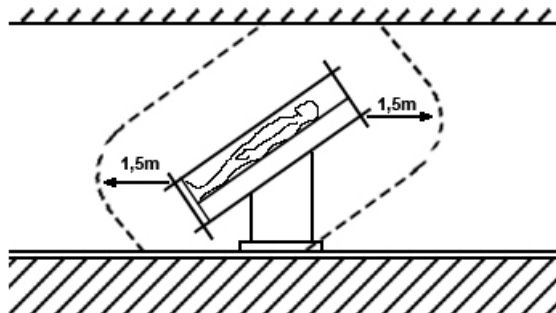
In the user's environment, parts of non-medical electric devices, which are touchable after removing covers, connection devices etc. during routine maintenance, must operate with a tension not exceeding 25 Volts of alternating current or 60 Volts of direct current. In addition, the tension of the power supply must be produced by a separate power source as described in IEC 601-1.

In this case, such a part of the device and the user must not be touched simultaneously.

The use of electromedical devices is restricted to safety-relevant innocuousness taking account of the state of the art, health and safety regulations and accident prevention. Protective measures must be taken to avoid both direct and indirect contact. Covers, coatings, insulation of energized parts in combination with protective measures using protective earth conductors (in compliance with protection class I), melting fuses as well as the observation of distances between devices are all part of this.

The distance to be maintained is 1.5 metres as a practical value. With this distance, two training devices cannot be connected conductively by a person and it is unlikely that users will receive an electric shock while training.





The instructions given in this chapter refer to the safety model as it is recognised in Germany. These instructions may vary in other countries.

### A.5.2 Mark of conformity

ERGO-FIT CARDIO LINE 400 MED devices are manufactured under the strictest safety and quality control measures. They are designed for commercial use. CARDIO LINE 400 HOME devices are approved for home use. All standards and directives applied during the development are listed in the related declarations of conformity (you can get on request, please contact us under +49 (6331) 2461-0).












The type label on the device contains the information as shown in the drawing below.

<b>12345678910111213</b> ERGO-FIT GmbH & Co. KG Blocksbergstraße 165 GER-66955 Pirmasens Baujahr <b>UDI</b> <b>IP 20</b> <b>777 A- 777 A</b>	<b>SerienNR</b> <b>100 V-230 V ~48-60 Hz</b> <b>?? ? AL, ? ? ? V</b> <b>MAX 777 kg</b> <b>MAX 777 kg</b>	<b>0297</b> <b>EN20957 SA</b> 	article number		CE mark
			manufacturer	address	EN 20957 SA Please note user manual
			year of manufacture	serial number	
			UDI		
			IP class	power supply	fuse
			electric waste		max. user weight
			protection class type B	power input	max. training weight

### A.5.3 Pictographs

The pictographs used on ERGO-FIT devices comply with the standards IEC 417 and IEC 878.

The following pictographs are used:

	Alternating current
	Earthing terminal
	Earthing
	Potential compensation
	Devices of protection class II
	Danger! See accompanying documents
<b>O</b>	OFF (Power supply, connection with the grid)
<b>I</b>	ON (Power supply, connection with the grid)
	Device of type B
	Device of type BF
	Dangerous electric tension
	Please note user manual
	Electrical waste

**IP-20**

Contact protection: with finger

Foreign matter protection: medium-sized objects (diameter greater than 12.5 mm)

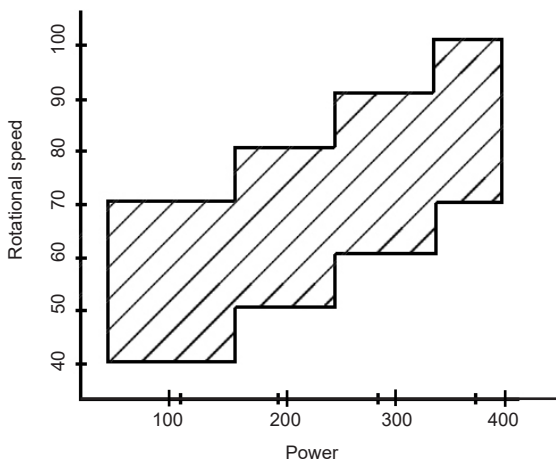
Water protection: Water dripping vertically

### A.6 Error margins

The following error margins are valid for the CYCLE models of the CARDIO LINE 400 MED series in compliance with the standard DIN VDE 750-238:

1. The read-out error of the wattage  $p$  must not exceed  $\pm 5\%$  of the displayed value. However, the read-out error is not required to fall below  $\pm 3W$ .
2. The read-out error of the rotational speed  $n$  is set to a maximum of  $\pm 2 \text{ min}^{-1}$  above  $40 \text{ min}^{-1}$ .
3. The measuring device to assess the output calculated on the base of deceleration torque and the rotational speed of the treadle ergometer must not exceed an error margin of  $1\%$ .

The characteristic curve family of the deceleration torque control's work capacity can be assessed from the following figure:



The work capacity is shown on the display as follows:

As shown right to the rotational speed (CYCLE 450/457/457 SPO <sub>2</sub> ) As shown right/left to the rotational speed (CYCLE 400/407)	Devices in compliance with	
	VDE 750-238	EN 957
none	5% range	10% range
Points	10% range	10% range
Arrows	Deviation > 10%	Deviation > 10%

**A.7 Test evaluation**

PWC 130		PWC 150		PWC 170		PWC 180		PWC 190	
m	f	m	f	m	f	m	f	m	f
1	0,27	0,21	0,27	0,33	0,27	1	0,39	0,32	
2	0,53	0,42	0,67	0,53	0,53	2	0,78	0,64	
3	0,80	0,63	1,00	0,80	0,80	3	1,17	0,97	
4	1,07	0,84	1,33	1,07	1,07	4	1,56	1,29	
5	1,33	1,07	1,67	1,33	1,33	5	1,94	1,61	
6	1,60	1,27	2,00	1,60	1,60	6	2,33	1,93	
7	1,87	1,48	2,33	1,87	1,87	7	2,72	2,26	
8	2,13	1,69	2,67	2,13	2,13	8	3,11	2,58	
9	2,40	1,90	3,00	2,40	2,40	9	3,50	2,90	
10	2,67	2,11	3,33	2,67	2,67	10	3,89	3,22	
11	2,93	2,32	3,67	2,93	2,93	11	4,28	3,54	
12	3,20	2,53	4,00	3,20	3,20	12	4,67	3,87	
13	3,47	2,74	4,33	3,47	3,47	13	5,06	4,19	
14	3,73	2,96	4,67	3,73	3,73	14	5,44	4,51	
15	4,00	3,17	5,00	4,00	4,00	15	5,83	4,83	
16	4,27	3,38	5,33	4,27	4,27	16	6,22	5,16	
17	4,53	3,59	5,67	4,53	4,53	17	6,61	5,48	
18	4,80	3,80	6,00	4,80	4,80	18	7,00	5,80	

The classification in fitness level 9 corresponds to a „very good“ fitness. An Olympic champion would have a fitness level of 18.



## A.8 Entry in the Medical product book/Inventory

In compliance with Art. 14 para. 7 and Art. 12 of the regulation on the erection, operation, and use of medical devices („MPBetreibV“) as of June 29, 1998 (BGBt 1. p. 1762), last modified 21.04.2021 (BGBl. I p. 833), the person who carries out metrological controls must immediately record the measured values, the measuring method, as well as other evaluation results into the registry of medical devices. As during metrological control of your medical device the registry of medical devices was not available, we ask you to use the following data for your documentation. This information is only required for machines referenced in Appendix 2 of the MPBetreibV.

### Operator:

Company: \_\_\_\_\_

Contact person: \_\_\_\_\_

Street: \_\_\_\_\_

Post code, place: \_\_\_\_\_

### Manufacturer:

ERGO-FIT GmbH & Co. KG, Blocksbergstraße 165, D-66955 Pirmasens

### Device identification

Device designation: \_\_\_\_\_

Model: \_\_\_\_\_

Serial number: \_\_\_\_\_

\_\_\_\_\_

### Measuring method and evaluation:

- Guide to metrological controls.
- Appendix \_\_\_\_\_ of calibration regulations.
- Remarks: \_\_\_\_\_

Applied perpendicular: \_\_\_\_\_

*Entry of measured results: see following page(s)*

- metrological control o.k.; annual designation of sealing:
- metrological control **not o.k.; old sealing oliterated**
- Testing of the measuring device according to the manufacturer's procedure.

\_\_\_\_\_  
Signature

**Measuring method and evaluation:**

- Guide to metrological controls.
- Appendix \_\_\_\_\_ of calibration regulations.
- Remarks: \_\_\_\_\_

Applied perpendicular: \_\_\_\_\_

*Entry of measured results: see following page(s)*

- metrological control o.k.; annual designation of sealing:
- metrological control **not o.k.; old sealing oliterated.**
- Testing of the measuring device according to the manufacturer's procedure.

\_\_\_\_\_  
Signature

**Measuring method and evaluation:**

- Guide to metrological controls.
- Appendix \_\_\_\_\_ of calibration regulations.
- Remarks: \_\_\_\_\_

Applied perpendicular: \_\_\_\_\_

*Entry of measured results: see following page(s)*

- metrological control o.k.; annual designation of sealing:
- metrological control **not o.k.; old sealing oliterated.**
- Testing of the measuring device according to the manufacturer's procedure.

\_\_\_\_\_  
Signature



**Registration of medical devices add-in card**

**Operator:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

1. Designation of the medical device:  
 \_\_\_\_\_

2. Functional test and introduction:  
 Functional test carried out  
 on: \_\_\_\_\_ by: \_\_\_\_\_  
 Introduction carried out  
 on: \_\_\_\_\_ by: \_\_\_\_\_  
 Introduced person: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

3. Metrological inspection: at least every two years  
 (Machines and deadlines specified in Appendix 2 of the MPBetreibV)  
 Next inspection: \_\_\_\_\_  
 by (person's name): \_\_\_\_\_

4. Safety inspection/maintenance test: recommendation every 12 months  
 Next inspection: \_\_\_\_\_  
 by (person's name): \_\_\_\_\_

5. Testing of the calibration of the measuring device according to the manufacturer specifications.  
 Next inspection: \_\_\_\_\_  
 by (person's name): \_\_\_\_\_

6. Date, type and consequence of the defect and repeated identical operating fault:  
 \_\_\_\_\_  
 \_\_\_\_\_

7. Reports of incidents to authorities and manufacturer:  
 \_\_\_\_\_





# ERGO▶FIT

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