Manual

SRM – High Performance Ergometer





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1. General preparation for performance diagnostics

- Power-on spiroergometry (30min before beginning of test)
- Power-on ergometer's power supply
- Preparation diagnostic devices (Lactate analysis, etc.) 30min beginning of test
- Room temperature (18 24°C) should measured
- Relative air humidity should measure (30 60%) in room
- Check position of ventilator

2. Connecting the Ergometer (Ports)



- 1- Power Supply
- 2- Serial Port

The serial port is only for the external control by CPX/CPET, EKG or other medical devices **by the so called "ergoline" protocol**. The idea is to specify the protocols in the CPX/CPET or EKG software to be independend of the SRM Ergometer software.

Please connect the SRM ergometer via the serial port and the USB-to-Serial Adapter to the controlling computer.

Please note: If you like to control the protocol by an external **device don't start** the performance diagnostics in the SRM ergometer software. The SRM ergometer software are dominant.

- 3- Torque Analysis
- 4- Ethernet Ergometer



3. Installation and Landing Page of the SRM Ergometer Software

Please install the SRM ergometer software first on your controlling computer. Install or deinstall the software with the option *Installer*. It's possible to choose one of the shown options directly. But before starting with the test procedure we recommend to check the settings first. Please start pedaling and check the connection indicator on the lower left corner of the screen: this indicator should be green, if not go to log tab and check the messages and the settings again.





4. Settings SRM Ergometer Software

Network

-				SRM	A Ergometer Software			- 🗇 🗙
File	Settings ?							
	Athletes 🕍 Wor	kouts	🜔 Test	Activities	📥 File Transfer	🔅 Settings	📙 Log	SRM ERG
	Velcome to the SETTINGS. Velcome to the SETTINGS. Please set up your network connection to the Ergometer. As soon as you are connected, you can read the system information on the Ergometer settingspage. For more information about setting up the Drop file here to import Settings	IP Adre TCP Por	Chart Test ss 192.168.0 rt 10002	Ergometer				

Choose a free and valid IP address (192.168.0.x) for your computer in the same sub network as the SRM Ethernet Torque Analysis Box (To install the Torque Analysis Box see the manual of the Torque Analysis).

If you are using MS Windows: Press "Start" button, open "Control Panel", open "Network and Internet", select "Network and Sharing Center", click "View Network Connections", click on the connection you need to change (i.e. LAN), open "Properties", double click on "Internet Protocol Version 4 (TCP/IPV4)" and insert the chosen IP address.

Please insert a different IP address than that of the Torque Box. Just change the last or the last two numbers of the Torque Box IP (e.g. 192.168.0.89). Otherwise there will be a conflict of the IP addresses.



Network settings in windows

1. Network and Internet





2. Network and Sharing Center

Control Panel Home System and Security	雄	Network and Sharing Center View network status and tasks Connect to a network Add a wireless device to the network	View network computers and device
Herwork and Internet Hardware and Sound Programs User Accounts and Family	•3	HomeGroup Choose homegroup and sharing options Internet Options	Delete browsing history and cookies
Satety Appearance and Personalization Clock, Language, and Region	\$ ^{>))} ₿	DW WLAN Card Utility	

3. View Network Connections





4. Properties

erielai	
Connection	
IPv4 Connectivity:	No network access
IPv6 Connectivity:	No network access
Media State:	Enabled
Duration:	05:02:28
Speed:	100.0 Mbps
Activity	
Activity	Sent — Received
Activity	Sent — Received 1,264 0



5. Internet Protocol Version 4 (TCP/Ipv4)

Networking Sharing Connect using: Image: Connect using: Image: Display the state of	
Connect using:	
Broadcom Net Xtreme Grashit Ethemet #2	
a broadcon netrations again Enternet Hz	
	Cantinum
This connection uses the following items:	conigure.
Client for Microsoft Networks	
QoS Packet Scheduler	
File and Printer Sharing for Microsoft Netwo	orks er
 Internet Protocol Version 6 (TCP/IPv6) 	
Internet Protocol Version 4 (TCP/IPv4)	Dennes
	/ Driver
	Properties
Description	r raporada
Transmission Control Protocol/Internet Protocol.	The default
wide area network protocol that provides commun across diverse interconnected networks.	nication



6. Use the following IP address

Conr Net	tworking Sharing		
IF C	Internet Protocol Version 4 (TCP/IPv4) Properties	8 ×
IF	General Alternate Configuration		
D	You can get IP settings assigned aut	omatically if your pati	work europorte
ST	this capability. Otherwise, you need	to ask your network a	administrator
	for the appropriate IP settings.		
e	Obtain an IP address automatic	ally	
	Use the following IP address:		
Activ	IP address:		÷ .
	Subnet mask:		
	Default gateway:		• · · · ·
	Obtain DNS server address auto	omatically	
<u>R</u>	Set the following DNS server ac	idresses:	
	Preferred DNS server:	• •	+
	Alternate DN5 server:		*
	Validate settings upon exit		Advanced



7. IP address: 192.168.0.89

Ta 🔋 T	orque Analysis Box Properties)
Ine Ne	hundring Ct		-
P	Internet Protocol Version 4 (TCP/I	Pv4) Properties	8
Me	General		
Dui	Valuera act ID actions assigned		
Spe	this capability. Otherwise, you n	ed to ask your network administ	rator
	for the appropriate IP settings.		
	Obtain an IP address autom	atically	
with l	Ouse the following IP address		
	IP address:	192 . 168 . 0 . 89	
	Subnet mask:	255 . 255 . 255 . 0	
Pac	Default gateway:	1995 (N 1995)	
	Obtain DNS server address	automatically	
F	Ose the following DNS serve	r addresses:	
	Preferred DNS server:	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
	Alternate DNS server:		
	Validate settings upon exit	Advan	ced

Please start the ergometer software again, start pedaling and check the connection indicator on the lower left corner of the screen: this indicator should be green. If not go to log tab and check the messages and the settings again.



Network settings in OSX

If you are using Apple OSX: Launch **"System Preferences" from the Apple** menu (or Spotlight), click on the **"Network" icon in the lower right, click** on the **"Advanced" button, in the pul**ldown menu next to **"**Configure Ipv4" select **"Manually" and insert the chosen IP address.**

1. System Preferences

000			System F	references			
	Show All					Q.)
Personal							
New			20	0	Ó		
General	Desktop & Screen Saver	Dock	Mission Control	Language & Text	Security & Privacy	Spotlight	Universal Access
Hardware							
6		0					0
CDs & DVDs	Displays	Energy Saver	Keyboard	Mouse	Trackpad	Print & Scan	Sound
Internet &	Wireless						
0	@			8			
iCloud	Mail, Contacts & Calendars	MobileMe	Network	Bluetooth	Sharing		
System							
11	**		()	8	0	2	
Users &	Parental	Date & Time	Software	Speech	Time Machine	Startup Disk	
Groups	Controls		Update				
Other							
	F		\$	0			
Cineform	Flash Player	Flip4Mac	Java	MySQL			



2. Network

		Location	a: Automatic		\$	
0	Ethernet Connected	« ••>	Status:	Connected	Turn Wi-Fi Off	
•	Wi–Fi Connected	÷		Wi-Fi is connected t address 192.168.10	o srm.it3 and has the IP .226.	
•	MBBEthernet Not Connected	~~>	Network Name:	srm.it3	\$	
•	ArduinSerial 2 Not Configured	Cin		Ask to join new networks Known networks will be joined automatically.		
•	ArduinB-Serial Not Configured	Carol		ning a new network.		
0	Bluetooth DUN Not Connected	8				
0	FireWire Not Connected	20 C				
•	iPhone Not Connected	<u></u>				
9	TomTom Not Connected	~~ >				
	- **		Show Wi-Fi status	in menu bar	Advanced	?



3. Set the IP Address under Ethernet

	Location.	Automatic		Ŧ			
Ethernet Connected	<u></u>	Status:	Connected	Turn Wi-Fi Off			
Wi-Fi Connected	<u></u>		Wi-Fi is connected to address 192.168.10.	srm.it3 and has the IP 226.			
MBBEthernet Not Connected	<>	Network Name:	srm.it3	\$			
ArduinSerial 2 Not Configured	Cur		Ask to join new networks Known networks will be joined automatically.				
ArduinB-Serial Not Configured	Con	If no known networks are available, you will be asked before joining a new network.					
Bluetooth DUN Not Connected	8						
FireWire Not Connected	¥						
Not Connected	600						
TomTom Not Connected	<>	3					
iPhone Not Connected TomTom Not Connected	600) 600)						

Please start the ergometer software again, start pedaling and check the connection indicator on the lower left corner of the screen: this indicator should be green. If not go to log tab and check the messages and the settings again.



Chart

		SRM Ergometer Software			- 🗇 🗙
File Settings ?					
uorko. 🌌 Worko.	ts 📀 Test 💰	Activities 🦺 File Transfer	🔅 Settings	📕 Log	SRM
17 1	Network Chart Test Ergomete	er			
		Workout / 30s Chart			
SETTINGS	Show entire Test 🔵 Show o	only the last 00:05 🗘 hours / i	minutes		
Welcome to the SETTINGS.	Value Smoothing Factor: 3	÷			
Please set up your network connection to the	Test Chart	30s Chart			
Ergometer.	Power [W] 🔗 Visible	Visible From: 0	To: 400	Auto Color	
As soon as you are connected, you can read the system information on	Heartrate [bpm] 🔗 Visible	Visible From: 0	To: 250	Auto Color	
the Ergometer settingspage.	Cadence [rpm] 🔗 Visible	Visible From: 0	To: 250	Auto Color	
For more information	Speed [km/h] Visible	Visible From: 0,00	To: 100,00	Auto Color	
about setting up the			- 10. 99,00	Auto	
Drop file here to import Settings		Deviation Chart			
	Percent of target value: +/- 30 %	Color 10%	Color 20%	Color 30%	

In this menu you can set the scaling of the graphs and the length of the displayed segments.

By selection of *Show entire Test* you will be shown the entire test on the **monitor. By clicking on "Show only the last...minutes", you will only be** shown the time period you entered before.

In the lower part of the window please specify by clicking on *Visible*, if you want to see the values *Power*, *Heart rate*, *Cadence* and/or *Speed*. Under *From / To*, you can define the range, in which the values will be shown. *Distance* gives you the difference of the chosen range.

Test Chart / 30s Chart

The settings of *Test Chart* and *30s Chart* are able to configure individually.

Deviation Chart

Indicates the deviation of the cadence at the hyperbolic mode or the devation of the performance at the isokinetic mode. To use this skill it is necessary to drop data into the workout table.

(For example: Power 100W / Cadence 50rpm / Choose *Controll by Power*)

Test

		SRM E	Ergometer Software			- 8 ×
File Settings ?						
🚇 Athletes 🛛 🕍 Wor	rkouts 🙆 Test	K Activities	📥 File Transfer	🔅 Settings	📕 Log	SRM
SETTINGS SETTINGS Welcome to the SETTINGS. Please set up your network connection to the Ergometer. As soon as you are connected, you can read the system information on the Ergometer settingspage. For more information about setting up the Drop file here to import Settings	Network Chart Test Start Test by Cad Stop Test by no Save data automatica Control test with Pov	Ergometer dence Start Butto Cadence End Butto ally at test end verControl keys	on			

Start Test by

Under the button *Start Test by* you can decide if the test (or training session) will be started by reaching a specific cadence or by clicking the *Start Button*.

Starting by cadence: *Start pedalling* is displayed on the test interface.

Stop Test by

Under *Stop Test by* you can decide if the test will end automatically when there is no more cadence to be measured or by manually clicking the *End Button*.

Save data automatically at test end

Here you can set an automatically storage of your data file on your computer. Even when you click no, you will asked to save the data file by ending the test.



Control test with PowerControl keys

Here you have the possibility to start and stop the test (or the training session) with the keys of the PowerControl. Therefor the option have to activate.

Keybord Shortcuts

- PRO (short): Test Start
- SET (short): Test Pause
- PRO (long): Test Resume
- SET (long): Test Stop



Ergometer

SRM Ergometer Software File: Settings: ?								-	σ×
😃 Athletes 🛛 🕍 Workow	uts 🧿 Tes	ಸ ನೆಕ್ಕೆ	Activities F ile Transfer	贷 Settings	🔲 Log	i			SRM
- Ö-	Network Chart	Test Ergometer	Hz/Nm (15.0 - 50.0)						
SETTINGS	Zero Offset	461	Hz (100 - 1000)						
	Firmware	1000 -	10.06.2016						
Welcome to the SETTINGS.	Hardware:	V 0.8	10302010						
Please set up your network connection to the	Product code:	3001							
Ergometer.	Serial number:	100							
As soon as you are connected, you can read	Operation time:	01:44:06							
the system information on the Ergometer		igs	Write Settings						
settingspage.	Action success!								
For more information about setting up the software click <u>here</u> .									
Drop file here to import Settings									
Network connected							Version: 1.	D.8 - Build date:	20.06.2016

Slope

The slope in the ergometer software must be correspond to the slope of the PowerMeter and the PowerControl.

We recommend to verify and control the slope of the PowerMeter before every test day. You can find the correct PowerMeter slope on small labels located-at

- the rear of the PowerMeter (s. PowerMeter picture),
- the front of the ergometer,
- the right crankarm,
- the handlebar.





Zero Offset

The PowerMeter delivers a certain frequency which is proportional to the torque of the pedal force on the crank. If there is no load on the crank, the PowerMeter is sending a base frequency which must be communicated to the ergometer software and to the PowerControl as a reference value. This procedure is called zero offset calibration (offset adjustment).

The zero offset calibration has to be done before every new assembly of the PowerMeter and also before every measurement resp. every training on the Ergometer. A wrong zero offset calibration can result in an internal miscalculation of the power.

Please perform the zero offset calibration as it is described below:

- For a manual comparison, please turn the right unloaded crank clockwise to activate the PowerMeter.
- Wait a few seconds until the displayed value is stabilized.

- By pressing the **Read Settings** button, the zero offset will be displayed in the white background field.
- Press the Write Settings button, so that the zero offset will be saved.

Circumference

The circumference only influence the displayed speed and is not important for the calculation of the data. We recommend to insert a value of 1.000 mm.

The following points show the current state of the ergometer. They are important for the identification and the service.

Firmware

The firmware can be updated if you drop the latest "SRM Firmware Image" file (*.sfi) in the box on the lower left corner of the screen: Drop file here to import.

The current firmware incl. date is displayed (e.g. V 1.0.8, 20.06.2016).

Hardware Product Code Serial Number Operation time

Read Settings

Read the current settings of the ergometer incl. the zero offset and the Slope.

Write Settings

Here it is possible to insert the slope and to save/to write it for the correct data. Please note that the must be correspond to the slope of the PowerMeter.



5. Athletes

File Settings ?		SRM Ergo	ometer Software			- 0 ×
Athletes 🕍 Workout	s 🧿 Test	K Activities	File Transfer	🔅 Settings	🔝 Log	SRM
\$ 02	Add new athlete Search:		:			Next
	Athlete ID	Last Name	First Name	Gender	Date of birth	Crank length
SELECT ATHLETE	1	Mustermann	Max	Male	01.01.1980	150.0
Welcome to the ATHLETE overview.						
Please select an athlete or create a new one and						
continue to the WORKOUT selector.		Athlete ID:	c			
For more information		Last Name:				
about Workouts, click <u>here</u> .		First Name:				
		Gender:	*			
		Date of Birth:	01.01.1980			÷
		Crank length:	172,5			¢
Notwork pot connected						

- Welcoming
- Clients prepare for test put on the heart rate strap
- Choose the option "Add new athlete" to create a new profile or "Search" for an athlete you added before
- Documentation of personal data of client (name, height, weight, gender, date of birth, crank length)



- Completion questionnaire / exclusion of liability
- Discussion of the data and test procedure
- Choose an "Athlete" or a "Workout" with the *Next-Button*. An information sign indicates if there is not chosen an Ahtlete/Workout.



6. Ergometer preparation for testing & training

Before every performance diagnostic or every training you should check the positioning of the athlete. The mechanical adjustment of the SRM – Ergometer allows the rider to find his individual positioning.

Settings the Crank length

First we recommend to mount the **client's pedals** and set-up the crank **length as on client's bicycle**.

The prolongable crank has round markings every 2.5 mm and every 10 mm a line. If the steel element of the crank is completely retracted in the aluminium crank the minimal length of the crank arm is 150 mm. If the crank arm is completely pulled out, the maximal length is 190 mm. Before changing the crank arm length you have to open both Allen screws.



After adjusting the right crank arm length, please tighten the Allen screws again with a maximal torque of 10 Nm so that they won't come loose while you ride the Ergometer. Make also sure that the screws are situated with a distance of a 2.5 mm. This can be determined when the fixing spring (situated between the Allen screws) locks into the holes of the steel element of the crank. Please do never remove or adjust the fixing spring.





From time to time it is necessary to grease the steel elements of the crank to protect them from sweat and to maintain the free movement.



Mechanical adjustment & positioning of the athlete

Optimizing individual positioning is quickly achieved by adjusting the saddle and handlebar vertically and/or horizontally. To do so you have to open the locking lever. Because of a ruler which is attached to the saddle post you can reproduce your perfect positioning.

If adjusted correctly, it should be easy to move the vertical and horizontal stems when the quick release is open. A 5 mm Allen key situated on the saddle and handlebar mounts allows for further rigidity.

Horizontal & Vertical Positioning of the saddle

The ruler which is integrated in the seat stay gives you the distance between the center of the bottom bracket and the front of the saddle. The distance in cm can be read from the left hand side of the seat stay.





Horizontal / Vertical Positioning of the handlebars



Fly masses

The mass moment of inertia of a cycling athlete causes an approximate constant angular velocity of the pedaling circle, although thee cyclist's torque (power) is nearly zero when the cranks are in vertical position. If the SRM Ergometer had no fly mass, the cadence would decrease to nearly zero in the vertical crank position and high power output, resulting in a non-circular pedal cadence. This would result in a very non-circular tread then. Therefore the SRM Ergometer is currently equipped with two fly masses: **SMALL (12mm thick, 4,6kg)** and **LARGE (24mm thick, 9,1kg)**.

Notice:

The default configuration for the most common Ergometer tests is installing the LARGE fly mass inside the gearbox on its own!



Please remove the SMALL fly mass as described below! For more information on kinetic energy simulation, fly masses and gear ratio of the Rohloff hub see the manual or visit our webpage at www.srm.de

Removal and mounting instructions

Always disconnect thee power supply from the Ergometer when opening the side covers! Never operate the Ergometer without the side covers! Before removing side covers insure fly masses have stopped spinning completely and use care when handling the fly masses to prevent injuries or bruises – both are very heavy!

- To remove/mount a fly mass you need the following tools: One or two aluminum spacer, Torx screwdriver an nut wrench (Fig.1)
- Open the cap of the Ergometer by removing the seven Torx screws (marked red) with the Torx T30 wrench (Fig.2)
- Use the nut wrench to rotate the brass nut counterclockwise (Fig.3).
 Hold the fly mass to counter the tool pressure if needed
- Remove the nut and pull the two fly masses off thee axle (Fig.4).
 Pay attention not to damage the threads on the axle
- Replace the SMALL fly mass with one aluminum spacer (Fig.5) or add two spacers when replacing the LARGE fly mass. Make sure the groove in the spacer coincides with the feather key in the axle

Always insure the correct fly mass/spacer configuration: When installing both fly masses always add the SMALL fly mass first onto the axle. When removing the SMALL fly mass, add one spacer first, then add the LARGE flywheel. Same when replacing the LARGE fly mass – add the SMALL fly mass first and then add the two spacers. When testing without any fly mass remove all parts including the brass nut.



- To reinstall the fly mass on the axle (Fig.6) make sure the groove in the fly mass coincides with the feather key in the axle. This groove will lock the fly mass an prevent thee fly mass from spinning free
- Using the nut wrench, rotate the brass nut clockwise until handtight (Fig.7)
- Make sure the fly mass sits firmly, has no play on the axle and can rotate freely! Remove all tools inside the gearbox! Reinstall thee cover with the seven Torx head screws. Do not over tighten!



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Bike fitting

 $\top ransfer$ settings of client's own bike to the sitting position.





Rohloff gear check

We recommend to verify the gear of thee Rohloff hub before every test or training. Our general recommendation is to use gear 9 - corresponding to the red point at the turning handle.





7. PowerControl Ergometer



Main menu

The main menu shows real-time data as the athlete trains. Press MODE to change between the different information modes on your display.

Real-time Training Data Menu:

- <u>Top Line</u>: Total training time, training time cadence > 0, distance [miles or km], ascending altitude [feet or m] or all four alternating (Setting can be changed in the SRM Windows Software).
- <u>Middle Line:</u> Power [Watt] (> 1000W, 1.0 = 1000W), heart rate [bpm].
- <u>Bottom Line</u>: Training zone, speed [km/h or miles/h], cadence [rpm].

If no signal from a sensor is picked up, the display shows "-" for this data instead of a number (for example "-" speed if the speed sensor is not working).



Average Training Data Menu:

- <u>Top Line</u>: Total training time, training time cadence > 0, distance, altitude or all four alternating.
- <u>Middle Line:</u> Power, heart rate.
- <u>Bottom Line:</u> Speed, cadence.

Maximum Training Data Menu:

- <u>Top Line</u>: Mechanical energy uptake in kilojoules [kJ] (Estimating an efficiency of 25% riding the bike, this is approximately the same as the total energy burned by the athlete in kcal).
- <u>Middle Line:</u> Power, heart rate.
- <u>Bottom Line:</u> Speed, cadence.

Time/Date Menu:

- <u>Top Line</u>: Time of day.
- Middle Line: Day, month.
- Bottom Line: Year, temperature in Celsius or Fahrenheit.

Sensor Pairing

You need to pair the PowerControl Ergometer with the power, speed and heartrate sensors. **If you don't do this, no data will be received by the** PowerControl Ergometer for any of the sensors that you want to use on your bike.

Pairing the sensors with the PowerControl Ergometer will only be possible if they are switched on.

- Switch on the PowerMeter by pedaling the crank forward a few times (it will switch on when the sensor in the PowerMeter passes the magnet attached to the bottom bracket).
- Switch on the speed sensor by spinning the wheel.

- Switch on heartrate sensor by putting the belt on your chest. Please moisten the electrodes to improve contact.
- Switch on the PowerControl by pressing the MODE button.

Hold PRO for about 3 seconds to enter Sensor Pairing mode. Press MODE once quickly to select the device you want to pair and press SET once quickly to tell the PC Ergometer to start searching.

The Antenna symbol blinking on the right of the display shows that the searching process has started. The search bar in the middle of the display shows the progress of the search.

If no signal is picked up, please check:

- If the sensor is switched on.
- The position of the magnet.
- Depending on the total miles/km your PowerMeter battery might be empty.
- If it is still not working, please get in touch with the SRM Service Center.

When a sensor is found, the PC Ergometer will show "Found" in the top line, alternating with the sensor's serial number.

If the pairing fails, please repeat pairing from the beginning.

To pair another sensor, press MODE once quickly to get back to the device selection Menu. Continue with pairing the heart rate sensor and speed sensor.

Hold MODE for about 3 seconds to leave the device pairing menu and go back to the main menu.

It is also possible to program the sensor identification numbers in the SRM Windows Software. Then manual pairing is not necessary.



Zero offset calibration

- By simultaneously pressing MODE and SET, the PowerControl turns into calibration mode
- Wait a few seconds until the value on the right-hand side of the display stabilized itself
- Press SET to apply the zero offset
- The number on the right-hand side of the display is the current frequency of the PowerMeter (SET)
- The number on the left-hand side of the display is the frequency which is used for the power measurement (MANU)

(See also: Chapter 4 - Settings SRM Ergometer Software - Ergometer)

Plug of the PowerControll Ergometer

- male, 4 pins
- Eddy current brake instructions from PowerControl to the power supply
- Charging
- Speed





Warm-up

- Recommendation of at least 3 4 min with a low workload (e.g. 75-100W)
 - o predefined warm-up
- Check the correct settings for:
 - o Heart rate
 - o Cadence
 - o Power
 - o Speed

8. Workouts

		SRM Ergometer Software	- ð <mark>×</mark>
File Settings ?			
Athletes 🕍 Workouts	🕑 Test 💦	Activities 📥 File Transfer 🔅 Settings	
1	Add new workout	🗽 Delete workout 🛛 🕍 Export workout	Import workout
	Search:		
	Workout ID	Workout name	Workout duration
SELECT WORKOUT	1	Step test, WHO protocol	00:39:00
	2	Step test, BAL / DOSB protocol	00:36:00
Welcome to the WORKOUT	3	Step test, WHO protocol	00:40:00
	4	Step test, BAL / DOSB protocol	00:36:00
Please select the	5	Step test, healthy juniors / youth, BDR protocol	01:00:00
to use or create a new one.	6	Step test, healthy women / juniors, BDR protocol	00:57:00
You can import/export the	7		-0
Drop files here to import Workouts	480		
	E 400 320 240 160 80		Cadence (tpm)
Network not connected			Version: 1.0.8 - Build date: 20.06.2016

Determine the test protocol:

- Add new workout
- Import new workout
- Drop file to import workout
- Last saved workout is opened automatically. Caution: The workout allways have to save!

You can import new workouts as .erg files and as .fit files.



9. Test



Start and Stop performance diagnostics

BRAKE ON: The brake is active and the client can pedaling with

resistance

BRAKE OFF: The brake is deactivate and the client can continue pedaling without resistance and cool down – continuous recording of the heart rate

(No Brake or Brake on only works in combination with an Ergometer)

START: Start by beginning to pedal or pushing the Start Button (Check the values displayed on the computer screen)

STOP: Finish the test

PAUSE: Interrupt the test

NEXT STEP: Go to the next step of the test

LAST STEP: Go to the last step of the test

STOP ERGO: Stop the ergo immediately (it only works without cadence)



SRM Ergometer Software					- 0 ×
Athletes 🚾 Workouts 🧿	Test 💏 Activities 🛃 File	Transfer 🛱 Settings	🗐 Log		SRM ERG
00:09:15	Power [W] Heart rate [lapm] 128 114	Cadence (rpm) Torque 80 15.	^{Speed (km/h)} 25.7		
140 120 100 100 100 100 100 100 100 100 10	002000 00	13000 004000 Tum (s)	005000 01:00	150 125 100 m 2 45 m 2 45 m 2 4 5 m 2 4 5 m 2 4 5 m 2 4 5 m 2 4 5 m 2 4 5 m 2 4 5 m 2 4 5 m 2 4 5 m 2 4 m	BRAKE ON START STOP PAUSE NEXT STEP NEXT STEP E deviation
$ \begin{array}{c} 140 \\ 120 \\ 100 $	30% time v	inte (s)		Time to next step (Mr.mm.as) 00:02:45 Athlete: Max Mustermann Workout Step test, healthy men, BDR r	Target Power [W] 160
Network connected					Version: 1.0.8 - Build date: 20.06.2016

Next steps

- Comment: Entry file name then press Save
- Recommended cool down protocol with lower workload
- Clean the ergometer (!)

🚍 StM Figureder Schurer File Settlings ? - Athletes 🜌 Workouts 🎯 Test 🚓 Activities 🛃 File Transfer 🄯 Settings 🏢 Log	- ø x SRM ERG
Time (Meximical) Power (W) Meant rate (lippin) Cadatace (rgm) Torque (Mn) Speed (lim/h) 0:44:01 391 178 83 44.8 26.8	99
	1775 120 60 > 51ART 1150 100 50 100 50 100 100 400 90 Image: Control of the second
210 440 175 400 106 2240 003320 004640 004640 Time [s] 004600 004640 0040	Cost of the next step [hh:mm:xi] Target Power [M] 0:00:59 380
	Workout: Step test, healthy men, BDR protocol
Sus une wirdow	Column Maxim 113 Build de 0400 2016



10. Activities

Eile Ce	Ninga 2			SRM Ergomete	r Software		- Ö ×
Flie Se	aungs :						SPM
1	4 Athletes	Workouts	🕑 Test	K Activities	e Transfer 🧔 Settings	E Log	ERG
	\sim	Ċ	🎋 Delete activity	💏 Export activity	of Import activity		
	- M2-	Sea	rch:				
	\bigcirc	' <u> </u>	Activity ID	Start time	Athlete name	Workout name	Activity duration
	ACTIVITIES		1	26.04.2016 - 15:57:32	Max Mustermann		00:42:33
	Select the ACTIVITY would like to analy export or delete	you /ze,					
	You can export th ACTIVITY as .fit fi	ie.				ī	A A 105
	For more informat	ion	420				90 101414141
	Drop files here import activitie	to to sis	500 500 500 500 500 500 500 500	uhajhan haliyaa yahaya kata kata kata kata kata kata kata k	ellivering and a state and a second a second sec	ndrevenigen in the hold of the	5 Cadence [mm/n] 45 Cadence [mm/n] 45 Cadence [mm/n] 30 m]
				00:06:40 00:13:20	00:20:00 00:26 Time [s]	i:40 00:33:20	00:40:00
9	Network not conne	ected				Versio	on: 1.0.8 - Build date: 20.06.2016

- Select activity to analyze, export or delete
- Export activity as .fit file, pdf, png, jpg
- Activity-ID is automatically generated

11. File Transfer

2022		SRM Ergom	eter Software		- 🗗 🗙
File Settings ?					
🗏 Athletes 🛛 🕍 Workout	s 🔞 Test	of Activities	File Transfer 🔯 Setti	ngs 📃 Log	SRM ERE
FILE TRANSFER To get a list of the FIT files stored on the Ergometer dick get file list. The Ergometer stores the last 28 workouts as backup. You can upload new firmware to the Ergometer Drop files here to upload to Ergometer	Get File List	🛃 Download Activity	Upload File	<section-header> Delete File</section-header>	
			0,0		
Network not connected					



GET FILE LIST:

- Get a list of the FIT files
- Upload new files to the Ergometer or Download an activity
- The Ergometer stores the last 28 workouts as backup

SRM Ergometer Software							
File Settings ?							
Athletes	Workouts	🙆 Test	Activities	📥 File Transfer		📙 Log	SRM Internet
FILE TRANS	2016. 2016. </th <th>Get File List 06, 22, 16, 49, 35.ft 06, 10, 14, 07, 20.ft 06, 16, 12, 42, 24.ft 06, 14, 10, 33, 08.ft 06, 14, 10, 53, 30.ft 06, 14, 10, 53, 30.ft 06, 08, 13, 43, 22.ft 06, 08, 13, 43, 22.ft 06, 08, 13, 43, 22.ft 06, 09, 17, 43, 46.ft 06, 07, 16, 13, 14.ft 06, 07, 16, 13, 14.ft 06, 07, 16, 13, 14.ft 06, 07, 16, 13, 14.ft 05, 20, 10, 00.ft 05, 20, 00, 50, 15.ft 05, 20, 10, 50, 15.ft 05, 10, 15, 50, 15.ft 05, 10, 15, 50, 15.ft 05, 10, 15, 50, 05.ft 05, 10, 15, 20, 25.ft 05, 10, 12, 27, 27.ft 10, 10, 27.ft 05, 10, 15, 27, 10, ft 05, 10, 15, 27, 27.ft 05, 10, 15, 27, 27.ft 10, 10, 15, 50, 06.ft 05, 10, 12, 27, 27.ft 10, 10, 15, 50, 06.ft 05, 10, 12, 27, 27.ft 10, 10, 50, 06.ft 11, 10, 50, 06.ft 05, 10, 12, 27, 27.ft 11, 10, 50, 06.ft 05, 10, 12, 27, 27.ft 11, 10, 50, 06.ft 05, 10, 12, 27, 27.ft 11, 10, 50, 06.ft 11, 10, 50, 06.ft 11, 12, 27, 17.ft 11, 10, 50, 06.ft 11, 10, 27, 17.ft 11, 10, 10, 10, 10, 11, 10, 10, 10, 10,</th> <th></th> <th>Uplov Uplov</th> <th>ad File</th> <th>Zelete File</th> <th></th>	Get File List 06, 22, 16, 49, 35.ft 06, 10, 14, 07, 20.ft 06, 16, 12, 42, 24.ft 06, 14, 10, 33, 08.ft 06, 14, 10, 53, 30.ft 06, 14, 10, 53, 30.ft 06, 08, 13, 43, 22.ft 06, 08, 13, 43, 22.ft 06, 08, 13, 43, 22.ft 06, 09, 17, 43, 46.ft 06, 07, 16, 13, 14.ft 06, 07, 16, 13, 14.ft 06, 07, 16, 13, 14.ft 06, 07, 16, 13, 14.ft 05, 20, 10, 00.ft 05, 20, 00, 50, 15.ft 05, 20, 10, 50, 15.ft 05, 10, 15, 50, 15.ft 05, 10, 15, 50, 15.ft 05, 10, 15, 50, 05.ft 05, 10, 15, 20, 25.ft 05, 10, 12, 27, 27.ft 10, 10, 27.ft 05, 10, 15, 27, 10, ft 05, 10, 15, 27, 27.ft 05, 10, 15, 27, 27.ft 10, 10, 15, 50, 06.ft 05, 10, 12, 27, 27.ft 10, 10, 15, 50, 06.ft 05, 10, 12, 27, 27.ft 10, 10, 50, 06.ft 11, 10, 50, 06.ft 05, 10, 12, 27, 27.ft 11, 10, 50, 06.ft 05, 10, 12, 27, 27.ft 11, 10, 50, 06.ft 05, 10, 12, 27, 27.ft 11, 10, 50, 06.ft 11, 10, 50, 06.ft 11, 12, 27, 17.ft 11, 10, 50, 06.ft 11, 10, 27, 17.ft 11, 10, 10, 10, 10, 11, 10, 10, 10, 10,		Uplov Uplov	ad File	Zelete File	
Drop files hi upload to Erg	ere to opmeter					0	5%
Network conne	cted			4			Version: 1.0.8 - Build date: 20.06.2016

DOWNLOAD ACTIVITY:

• To determine the save location

UPLOAD FILE:

• You can upload new firmware to the Ergometer (.sfi files)



12. Service

Recommendation:

- crank: send in for service every two years
- ergometer: send in for service every four years

13. FAQ

- 1. No resistance from ergometer
 - check speed
 - check 'Brake is on'
 - check PowerControl →Cadence, Power
 - check slope, zero offset, circumference
 - check the IP-address of the ergometer and the torque box



Contact person:

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