



TENDO Unit

YOUR INTELLIGENT WEIGHT TRAINING

SOFTWARE

User Manual

The screenshot displays the '1 - Power Analyzer' software interface. It features a sidebar on the left with user information for 'Man Fred' and 'TENDOSport1'. The main area contains a data table with columns for 'No.', 'Load [kg]', 'Displacement [mm]', 'Power [W]', 'Velocity [m/s]', and '%'. A 'LEADERBOARD' table is also visible, listing users and their average power. On the right, there are three stacked graphs showing 'Velocity [m/s]', 'Force [N]', and 'Power [W]' over 'Displacement [mm]'. The interface is overlaid on an image of the physical TENDO unit, which consists of a black frame with two sensors and a weight plate.

Average Values						Peak Values			Partial Values			Eccentric Velocity [m/s]	
No.	Load [kg]	Displacement [mm]	Power [W]	Velocity [m/s]	%	Power [W]	%	Velocity [m/s]	%	AVG Power [W]	%	Peak Force [N]	%
1	60	440	576	0.98	84%	941	99%	1.36	100%	517	82%	997	73%
2	420	582	0.99	85%	947	100%	1.36	100%	523	83%	1002	73%	
3	430	570	0.97	83%	881	92%	1.31	96%	523	83%	1009	74%	
1	80	430	627	0.80	91%	881	92%	1.05	77%	565	90%	1155	84%
2	430	651	0.83	95%	871	91%	0.88	88					
3	450	635	0.81	93%	851	88							
1	100	440	686	0.70	100%	781	91%	0.64	91%	671	83%	1155	84%
2	440	627	0.64	91%	781	88							
3	440	568	0.58	83%	671	83%							

Person	Rank	Avg Power [W]
Newtend Steve	1.	690 (80kg)
Man Fred	2.	686 (100kg)
Tendoman John	3.	674 (80kg)
Hard lan	4.	667 (80kg)
Collins Paul	5.	659 (80kg)

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Please check our web site www.tendosport.com for latest **updates** for the Tendo Power Analyzer software.

1. Introduction

You will need the following items to use the TENDO Power Analyzer software:

A) TENDO Power Analyzer Microcomputer



Either Power Analyzer – WL

or



Power Analyzer

B) Tendo Bluetooth set (which includes):



Microcomputer Bluetooth



Computer Bluetooth



set number

C - TENDO Power Analyzer software installation CD

-The minimum computer requirement:

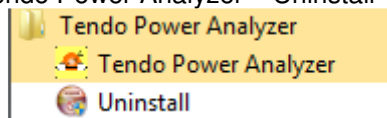
- The minimum computer requirement: Processor 1.6GHz, RAM 512Mb,
- Operating system Windows XP, Windows Vista, Windows7, Windows 8, 32bit or 64 bit.

2. Installation

Previous versions of the Tendo Weightlifting Analyzer software do not work with the new Power Analyzer system so please first uninstall your existing software.

2.1 Uninstalling TENDO Power Analyzer software

- Click Start – Settings – Control Panel – select Add or Remove Programs
 - Select TENDO Power Analyzer
 - Follow the instructions given on the screen to complete uninstallation
- Or Click Start - All Programs - Tendo Power Analyzer – Uninstall



2.2 Installing new TENDO Power Analyzer software

The Computer program has an AutoPlay feature that will automatically start the setup screen for the software program when the CD is placed in the computer. Run the installation by following the steps.

If you are installing a program manually, follow these steps.

- Insert CD in your PC CD-ROM drive
- Select My Computer and select the CD drive
- Click setup.exe and follow the instructions given on screen to complete the installation
- When the installation is complete, a new program called TENDO Power Analyzer will be added to your system. Also an icon will be placed on your computer desktop.



Tendo Power Analyzer desktop icon

2.3 Driver Installation

Before you use the Tendo Power Analyzer software, it is necessary to install the drivers for the Tendo Bluetooth. **Your computer does not recognize the Tendo Bluetooth as a bluetooth device, but as a USB Serial (COM..). Every Tendo Bluetooth device is paired, so the user does not need to pair the Bluetooth Devices**

Follow the steps below to install Windows drivers:

1. Open Windows Device Manager.
2. In the Device Manager make sure the device you're attempting to install is not already listed from past install attempts. If the device is found, highlight it and remove it from Device Manager to prevent any conflicts during the install.
3. Plug the Tendo Computer Bluetooth (with USB connector) to the computer.
4. New hardware wizard should appear if Windows detects the new hardware. Using this wizard you should be able to point Windows to the folder containing your drivers either on the CD, or the folder containing the files you downloaded.

If Windows does not detect any new hardware, open the Control Panel and double-click the Add hardware icon to run the hardware detection wizard. You will have an option to tell Windows you have a disk containing the drivers for your new hardware device, just point to the directory containing the drivers for your device and click.

Once drivers have been installed reboot the computer.

1 - Run the **Found New Hardware Wizard** for Tendo Bluetooth (USB Serial) to assist you in setting up the new device.

Click **Next**



2. Select the " **Search for a suitable driver for my device(recommended)** ". Click Next



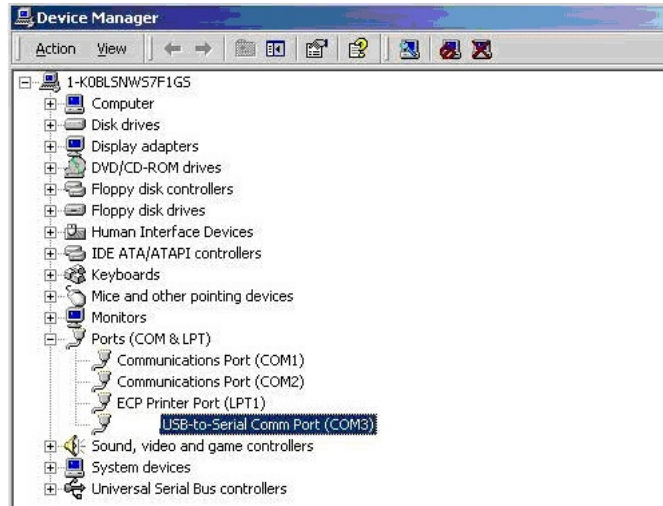
3. Windows will detect the USB Device. Click Next.



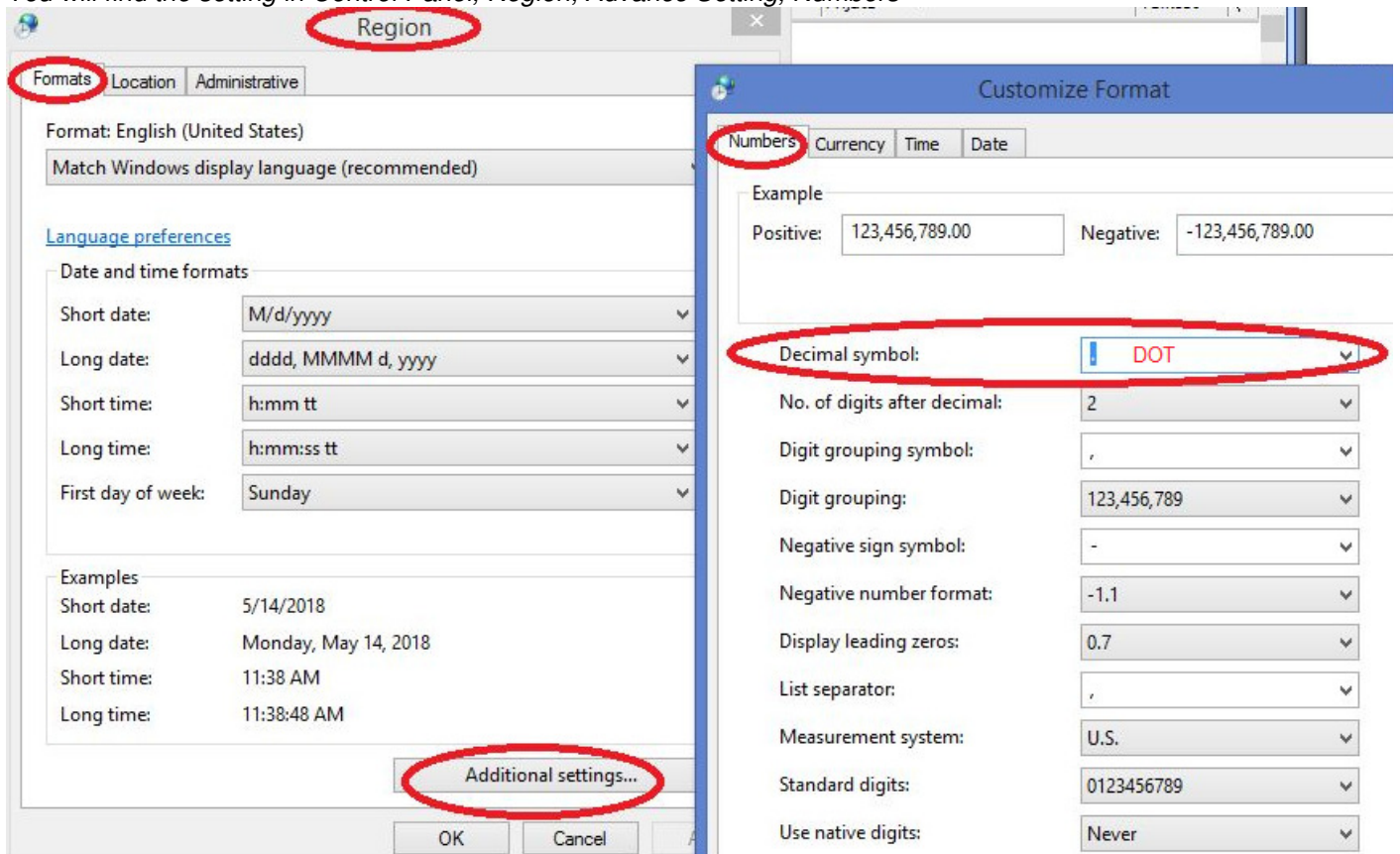
4. Click Finish to let Windows copy the required files to your hard disk.



5. . You can check the Device Manager and see that the USB Serial Port (COM..) is listed



Important notice:
Please check a format of the decimal symbol. The setting needs to be to DOT.
You will find the setting in Control Panel, Region, Advance Setting, Numbers



The wireless bluetooth connection works only if the Tendo Computer Bluetooth and the Tendo Microcomputer Bluetooth have the same Set Number.



3. Connecting microcomputer and computer.

1. Switch on the microcomputer.
2. Plug the Tendo Microcomputer Bluetooth connector into the connector on the top of the microcomputer
3. Plug the Tendo Computer Bluetooth (USB connector) into the appropriate USB connector on your computer.
4. **Wait until blue LED of the Bluetooth indicates connection** - still blue light
5. Open Tendo Power Analyzer software



Microcomputer Bluetooth



Computer Bluetooth

It is highly recommended to use full charged batteries for microcomputer if the Tendo Bluetooth connection is used.

If microcomputer battery voltage is low, the microcomputer does not transfer the data to the computer.

To reset the Bluetooth connection, unplug the USB Tendo Computer Bluetooth from your computer and plug it in again and wait until the blue LED is on; this indicates connection. *(The microcomputer unit must be turned on)*

4. Indication of the connection



LED light

Tendo Bluetooth Set



Tendo Bluetooth

Blue LED light indicates correct wireless connection between a microcomputer and a computer.
Green LED light indicates the connection is lost.

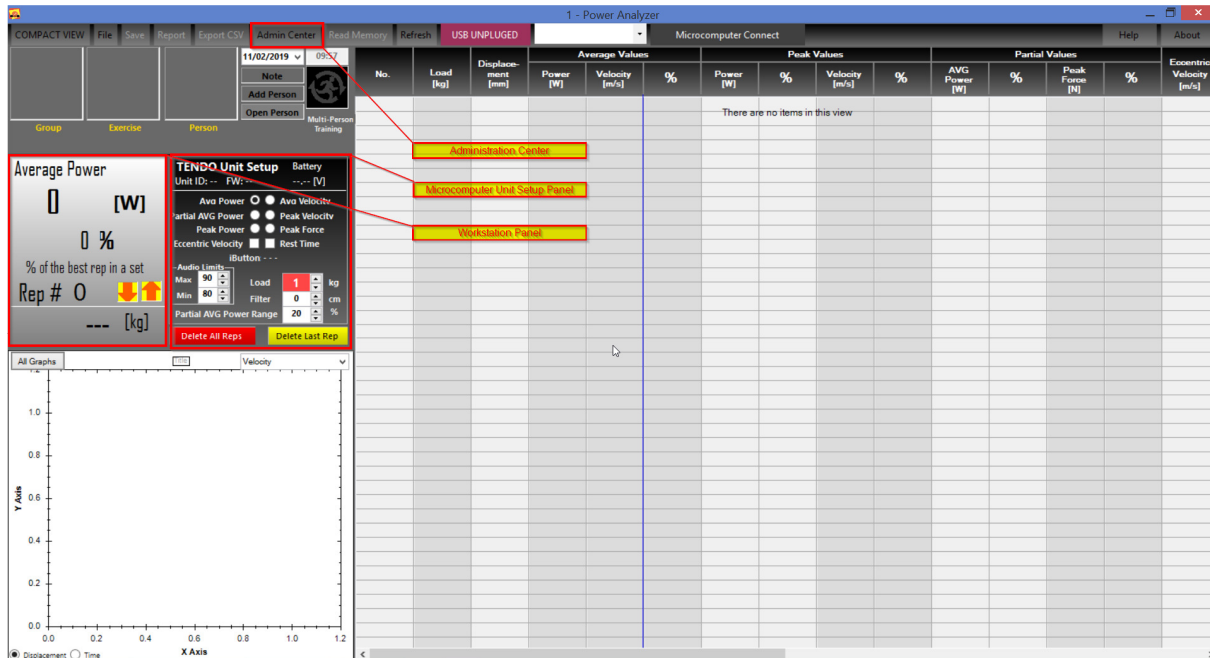
5. STARTING TENDO Power Analyzer (TPA) program:

To Start the Tendo Power Analyzer program, double-click on the Tendo Power Analyzer icon on your computer



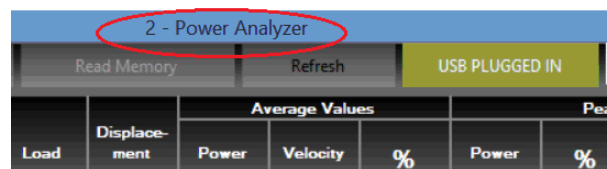
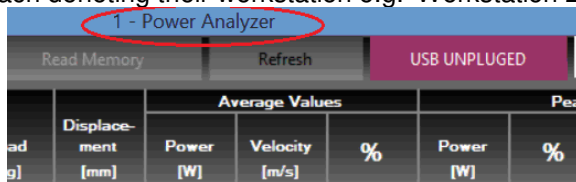
desktop.

When you open the application you will see this program window:



WORKSTATION

You will see 'Workstation 1' is in the middle upper part of the software window. If you would like to connect more Tendo Units to the computer software you need additional Tendo Bluetooth package. Then you have to open more panels, each denoting their workstation e.g. 'Workstation 2' etc



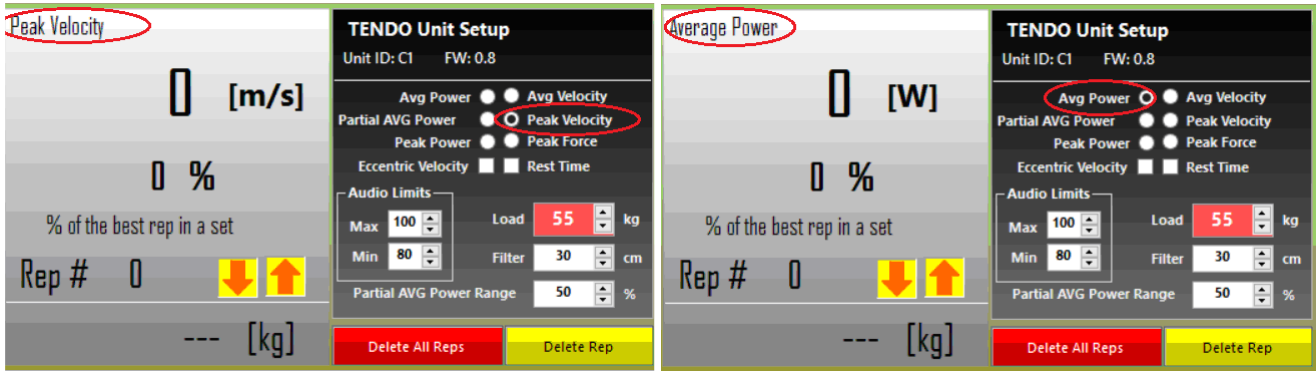
The Tendo Power Analyzer software has 3 sections.

- Workstation panel of values
- Table
- Graph

Workstation panel of values:

You can view any parameter (Avg Power...Peak Force) of recorded information by simply clicking on the dot.

This part is depends on the microcomputer setting.

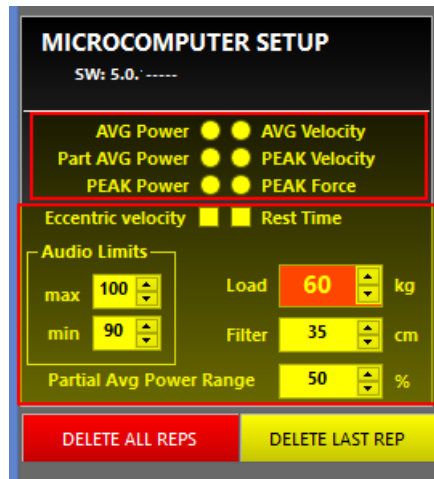


Microcomputer Setup Panel:

It is also possible to change the microcomputer settings directly from this 'WORKSTATION' panel on your computer.

1 Parameters displayed in the microcomputer upper display (**Avg.Power ...Peak Force**)

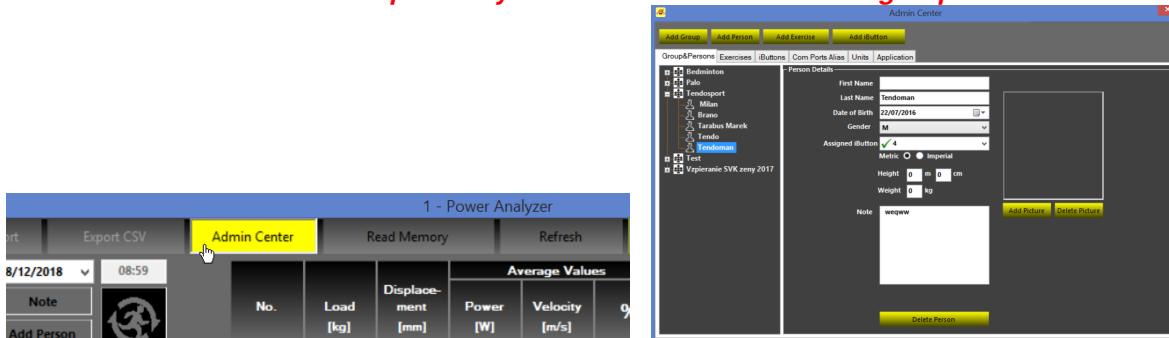
2 Settings limits for audio signal, load, filter, range for partial, average power and range for peak force, eccentric velocity and rest time.



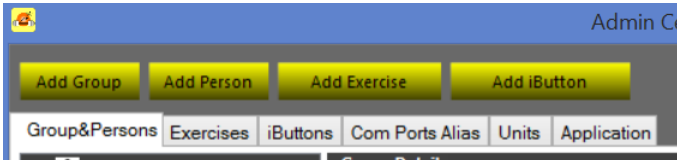
5.1 Administration Center

Before you start using the system, it is recommended to fill in the Administration Form to create database/groups:

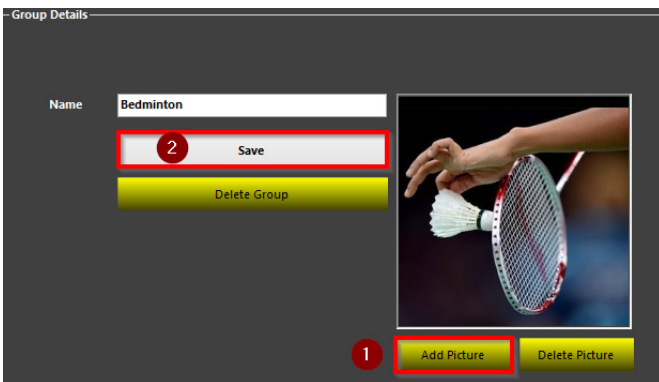
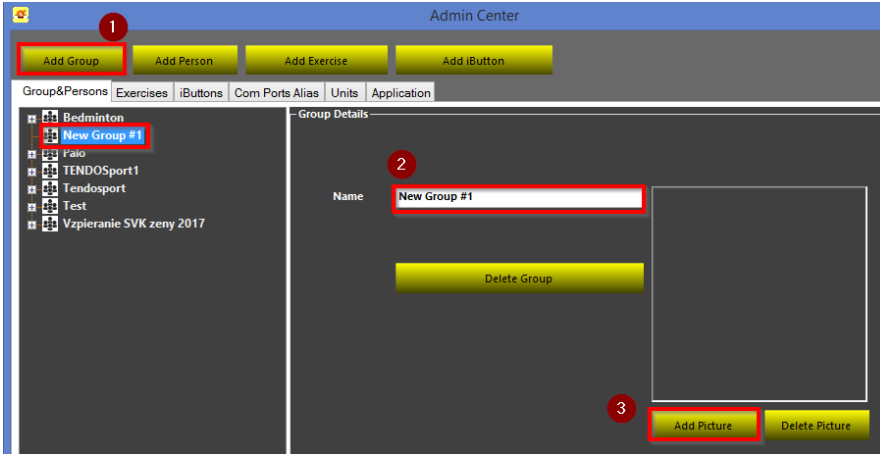
Click "Admin Center" at the top bar of your screen and the database/groups will be shown



You will find there list of groups and persons, exercises, iButtons, Com Ports, Units and data directory in Application



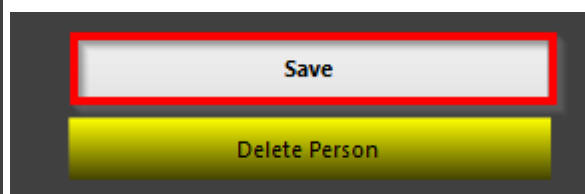
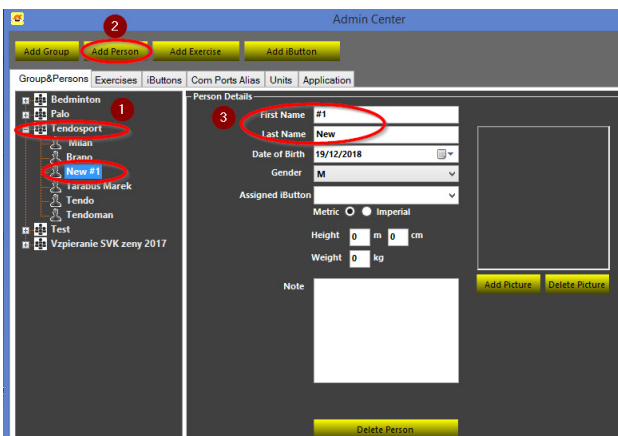
Add Group - Click “Add Group” – write down the group name and click SAVE to save new group. It is also possible to add a photo of a group. Click SAVE to save new group or any new updated info. The photo of the group will appear in the list of the groups and on the main window of the software.



If you want delete group, select group and click “Delete” to delete particular group. If a particular group is deleted and contains saved data under this group, it is possible to open it using File command.

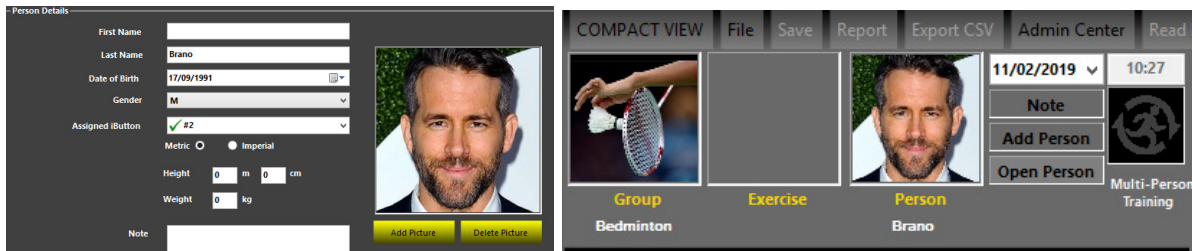


Add Person - Select Group, click "Add Person", fill in personal details. It is possible to update personal details anytime. After the personal details are updated, click SAVE to save new person or updated infor.

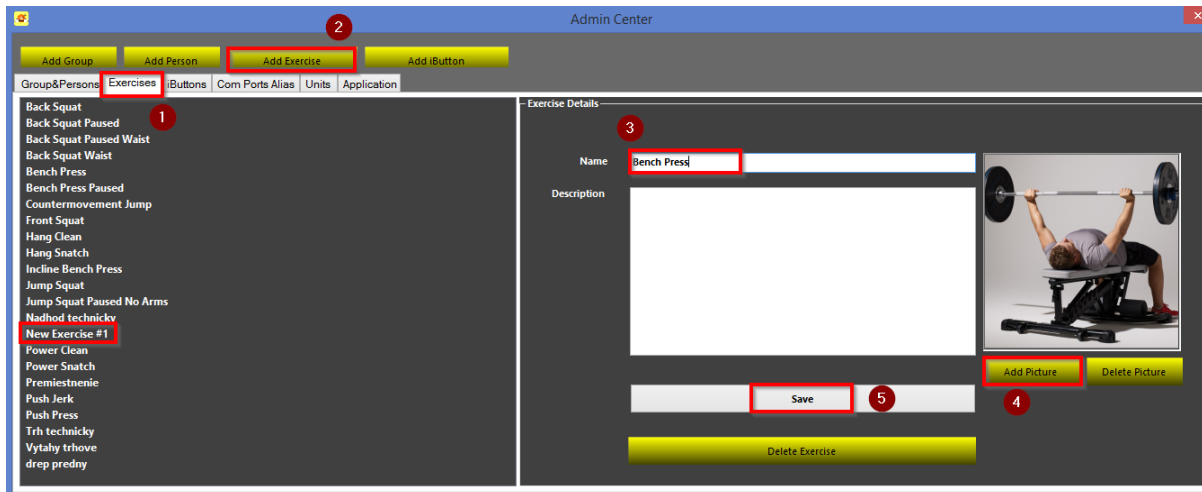


If you want to delete a person, select the person and click “Delete” to delete the particular person. It is also possible to add a photo of a person. Click SAVE to save new person or any updated info.

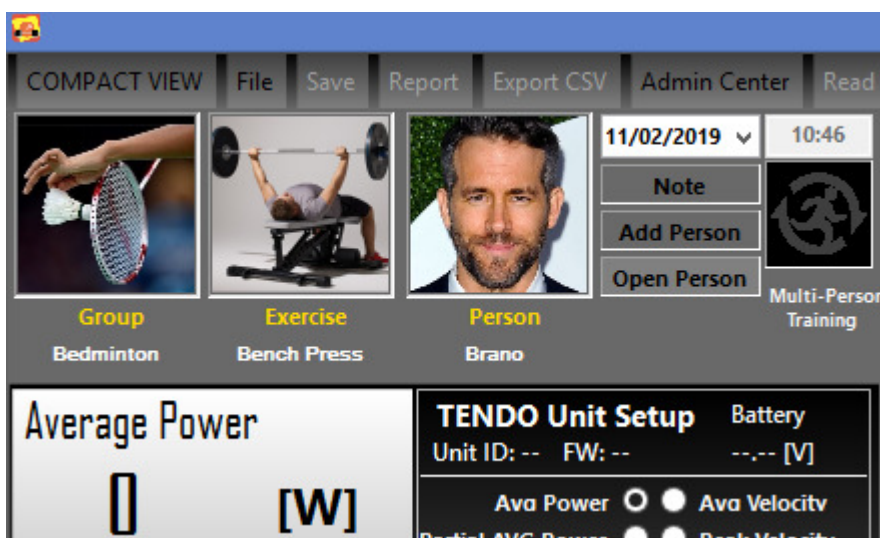
The photo of the person will appear in the list of persons and on the main window of the software.



Add Exercise - Select "Exercises" and click "Add Exercise", write name of the exercise. It is also possible to add a photo of an exercise. Click SAVE to save new exercise or any updated info. The photo of the exercise will appear in the list of exercises and on the main window of the software.



If you want to delete an exercise, select the exercise and click "Delete" to delete the particular exercise. If a particular exercise is deleted and contains saved data under this exercise, it is possible to open it using File command.



Recommendation:

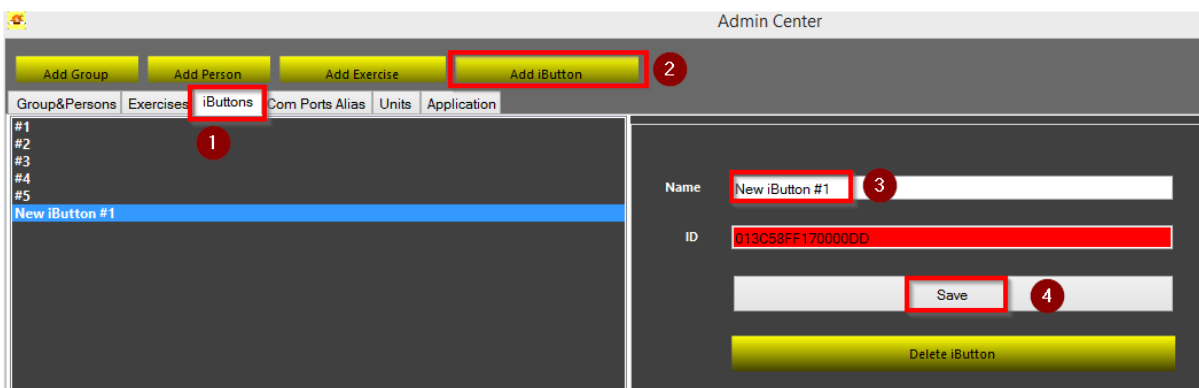
We recommend to add the pictures in shape of square.

Add iButton - An iButton is a microchip, which is used for a personal identification in a training, by simply touching the iButton Reader of the microcomputer unit.



It is needed the software to be connected with the Tendo Unit, to add new iButton to list of iButtons.

Select iButtons and click on “Add iButton“ to add a new dongle (Personalized tracking device). Assign a number or a name of the iButton chip. Click SAVE to save new iButton.

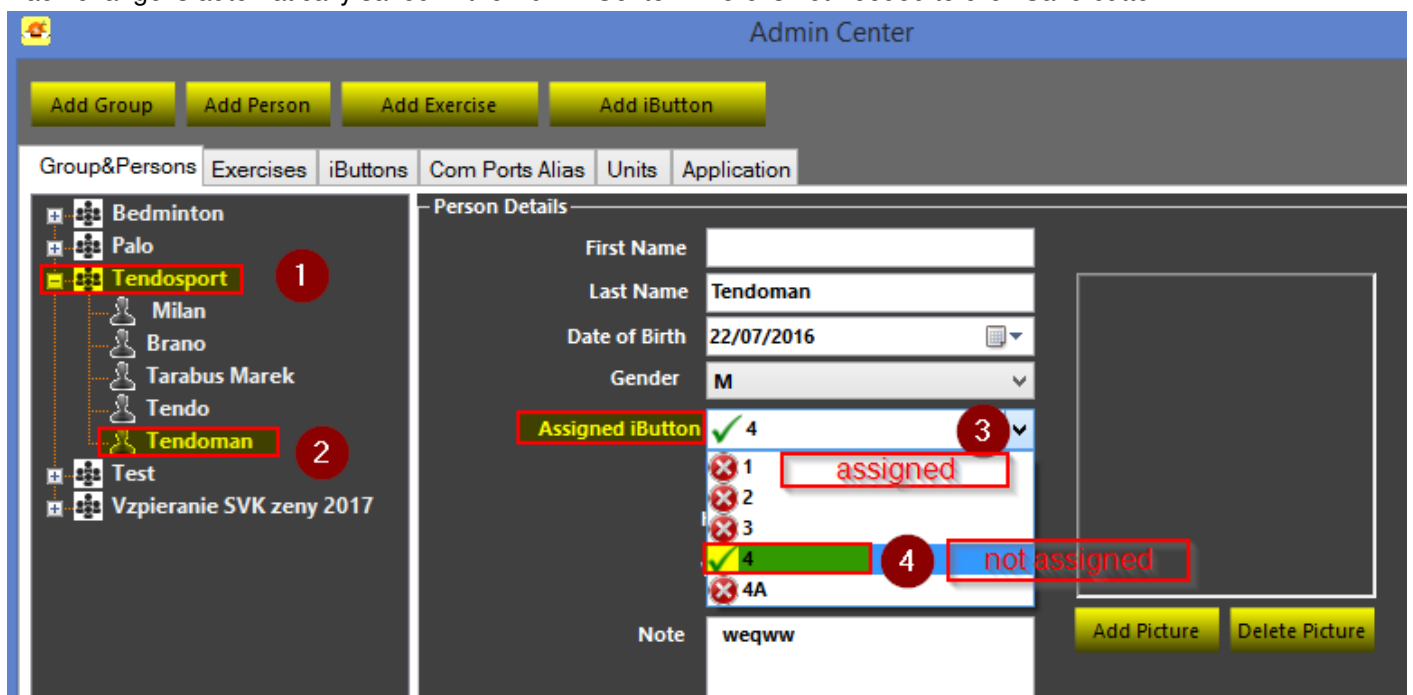


If you want to delete the iButton, select the particular iButton and click “Delete” to delete the particular iButton.

If the database of the iButtons is created, it is possible to assign a particular iButton to a particular person. Click Group & Persons. Select Group and Person. Person details will open. Click Assigned iButtons to open list of iButtons.

Assign particular iButton (not assigned for this group) to particular person.

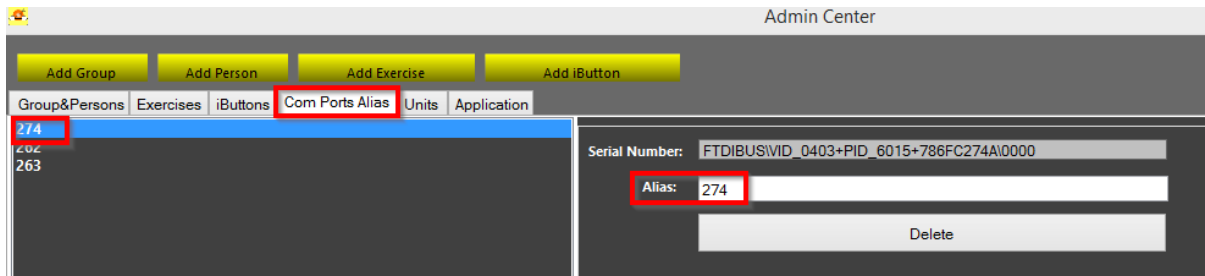
Each change is automatically saved in the Admin Center. There is not needed to click Save button.



Com Ports Alias - If the USB Tendo Bluetooth is connected to the computer, the Tendo software displays a set number for each connected USB Tendo Bluetooth automatically.

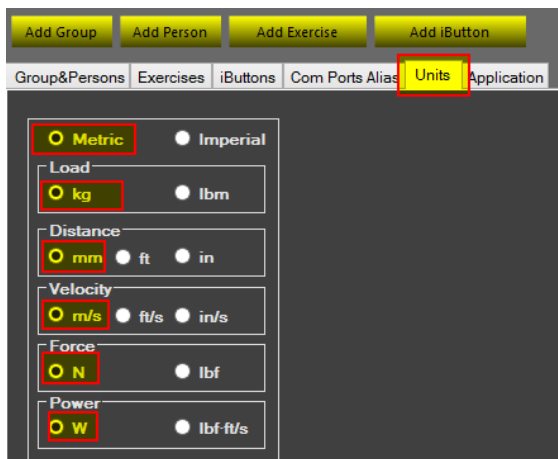


It is possible to change the name of the Tendo Bluetooth set or add new name for the Tendo Bluetooth. It is not recommended to change the Bluetooth set number, only to add additional name to the set number.



- Click Com Ports Alias, select Tendo Bluetooth set number displayed in the software form list of COM Ports.
- Add the additional name to the Bluetooth number.
- Click Save

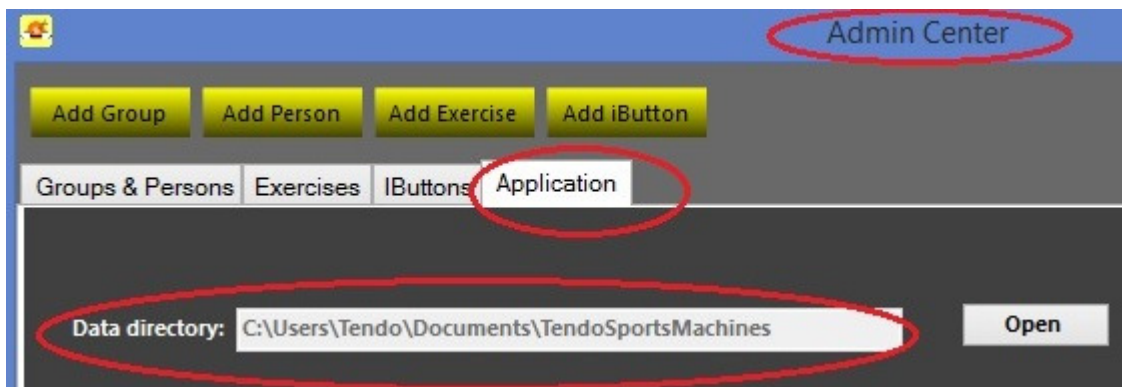
Units - It is possible to select units of measurement for the Tendo software.



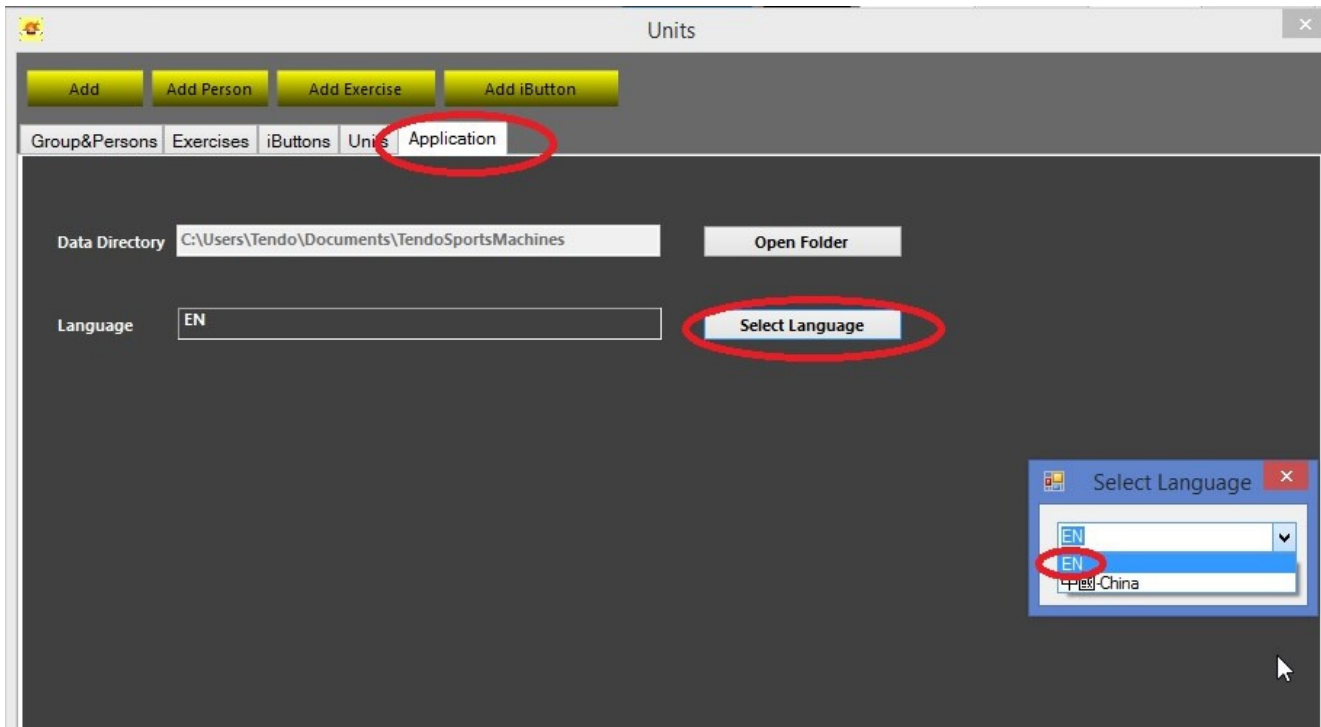
Application

Data directory - Database directory will be collated automatically

The location of the TENDO Power Analyzer database is in the following directory:
C:\Users\.....\Documents\ Tendo Sports Machines\Group\Exercise\Name

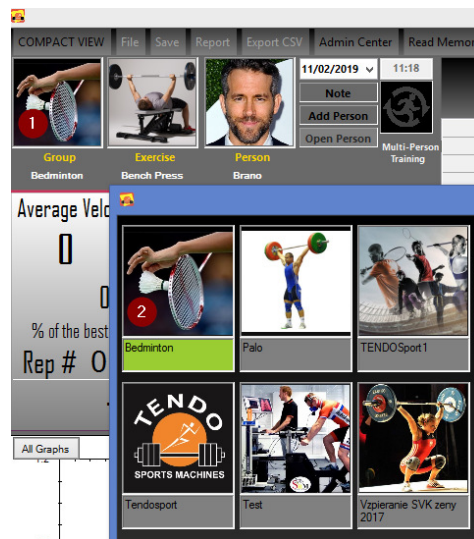


Language – Click on “Select Language“ and choose a language of your choice. You can choose between English and Mandarin Chinese. Click OK to confirm your selection.



Close Admin Center and select Group, Exercise and Person prior to start measurement for identification of the measurement.

Click on Group, Exercise or Person panel to open list of groups, exercises or persons and select particular group, exercise or person by clicking on the particular selection.



There are two modes to work from - On-Line and Off-Line.

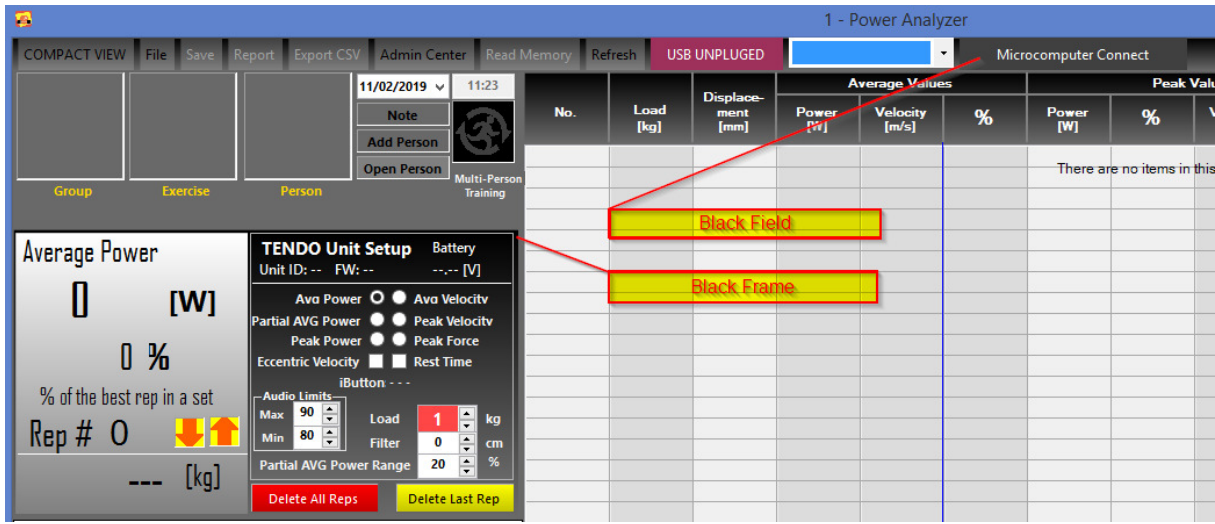
- **On-Line** simply means the Tendo Microcomputer is linked to your computer via Bluetooth and the data is collected instantly (in real time.)
- **Off-Line** simply means that the data are stored in the computer and the Micro computer is not connected.

6. Online mode

TENDO Power Analyzer program is online connected to microcomputer

6.1 A connection with Microcomputer,

1. No USB Bluetooth plugged in (black fields)



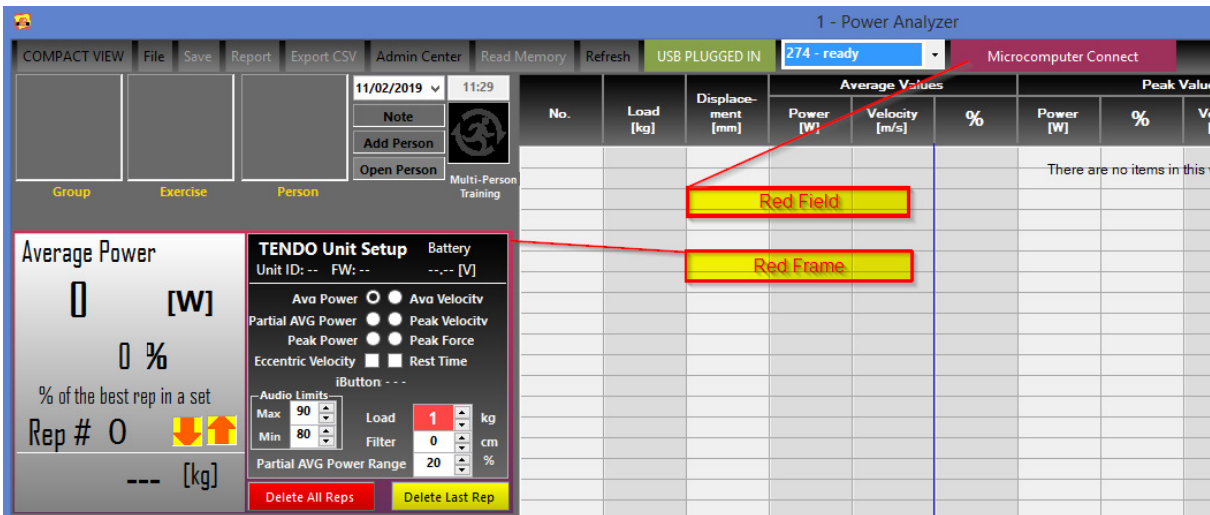
2. Switch the microcomputer unit on and plug the Tendo Microcomputer bluetooth to the microcomputer unit.



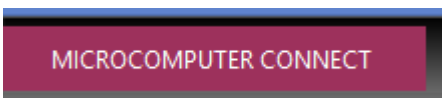
Plug the USB Bluetooth to the computer (software recognize it. If not, click Refresh USB) (red fields)



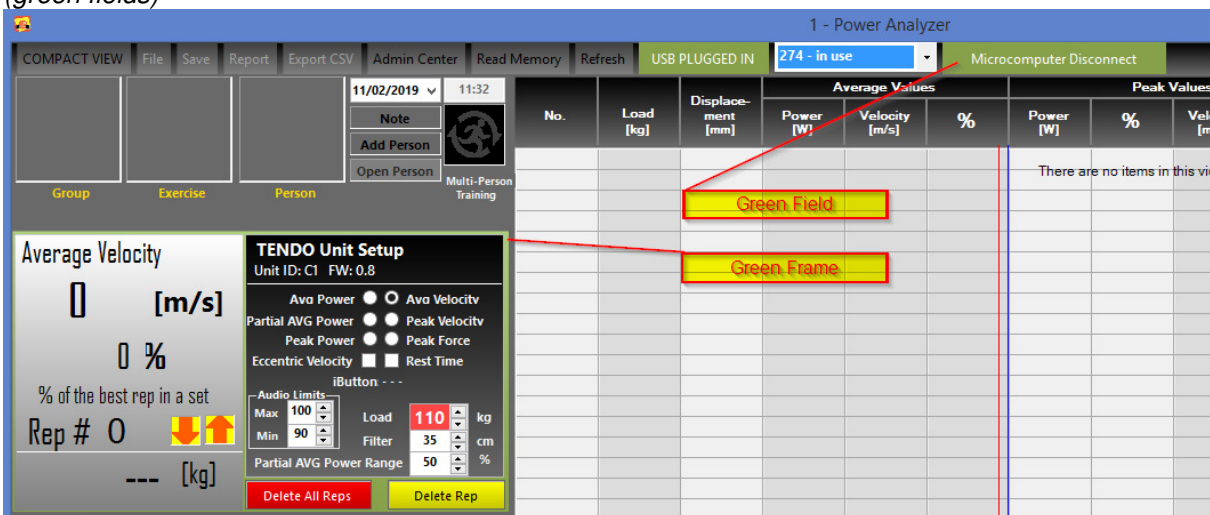
Tendo Bluetooth LED blue lights indicate the bluetooth connection between the microcomputer unit and the computer is OK. Red field indicate the Tendo Computer Bluetooth is plugged in.



3. Click "Microcomputer Connect"

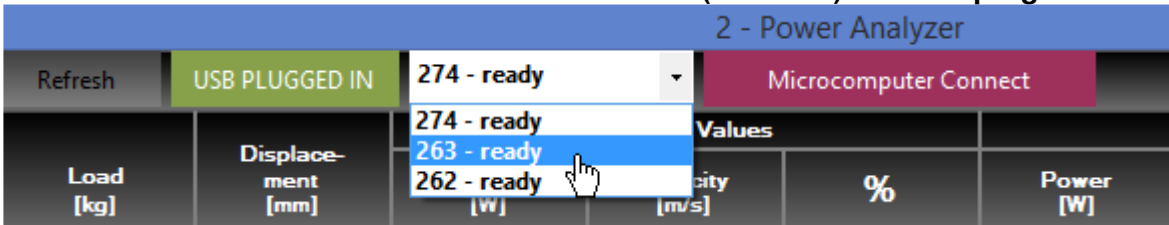


Indication of the correct connection: Microcomputer is switched on and the connection between the software and the microcomputer is OK. (green fields)

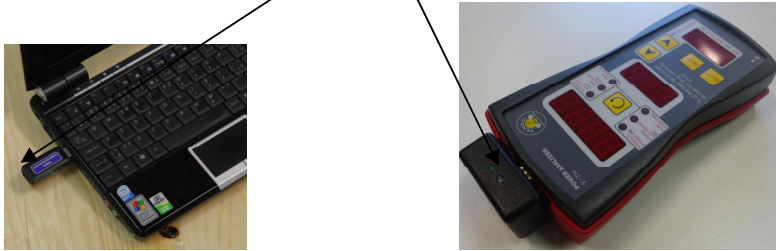


Program detects the Tendo Bluetooth Set number automatically. (USB Plugged In field is green)

If you open multiple Tendo Power Analyzer programs for connection of more Tendo Units, you have to choose different TENDO Bluetooth Set number (not used) for each program window.



Click Connect only if there is blue LED light in Bluetooth devices, which indicates correct wireless connection between a microcomputer and a computer.



If the communication between the computer and the microcomputer is lost, or the microcomputer is switched off and then again the microcomputer unit is switched on, the software will reconnect with the microcomputer automatically. Clicking on "Microcomputer Connect" is necessary only when the software is opening.

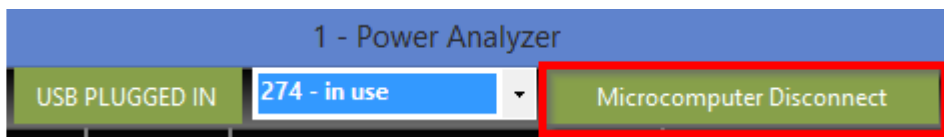
The software indicates it by flashing the colors (red and yellow) of the Microcomputer connection button.



If there is still no connection, unplug the USB Bluetooth and plug it again or close the TPA software and open it again.

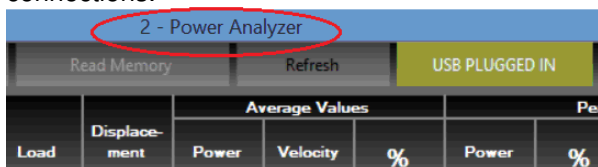
If still there is not a connection, restart your computer.

To disconnect connection click "Disconnect".



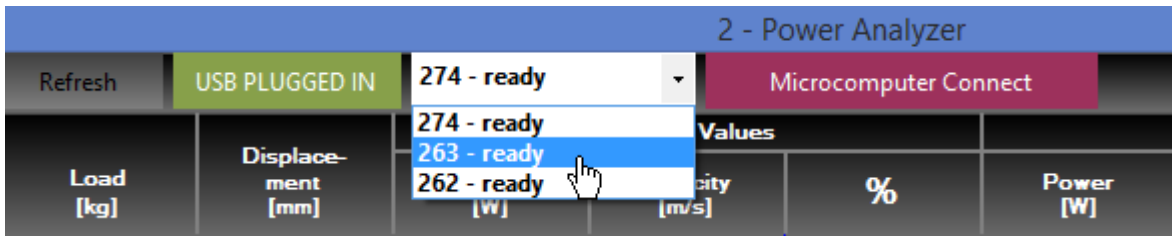
More microcomputer units connected to the computer

If you would like to connect more microcomputers to the Tendo software in your computer, you need additional Tendo Bluetooth Sets. Plug in another Tendo Computer Bluetooth (USB connector) into the appropriate USB connector on your computer. If you do not have more USB connectors available on your computer, it is possible to use the USB Hub. Then open new Tendo Power Analyzer software window by clicking on the Tendo Power Analyzer desktop icon. New window will open as 2- Power Analyzer. This way is possible to open desirable number of the Tendo Unit connections.

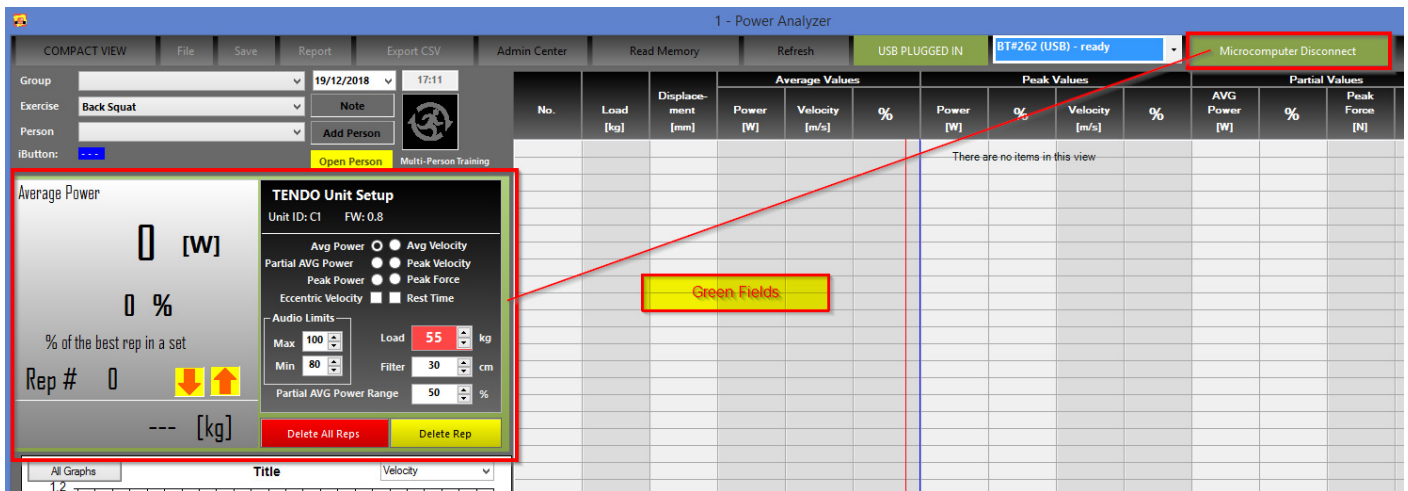


(black fields of the microcomputer connection button indicates offline mode) - Disconnected to the microcomputer unit

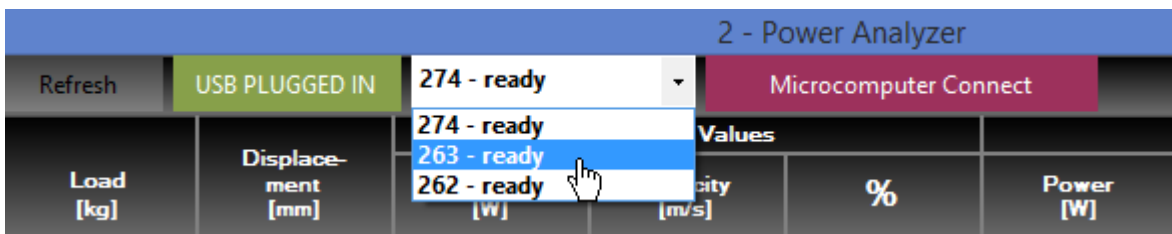
Then select new unused number of the Tendo Bluetooth Set and click to the Microcomputer Connect button.



Green field of Microcomputer connection button indicates correct connection between the microcomputer unit and the Tendo computer software

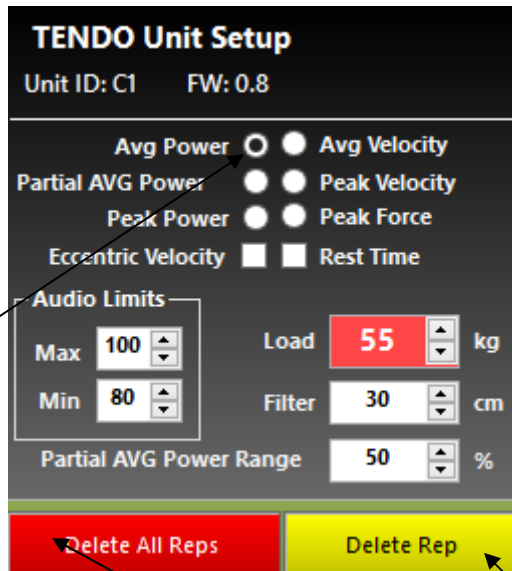


If the software detects several Tendo Bluetooth Sets, it is necessary to choose different number (not in use) for each program window.



6.2 Microcomputer setting:

The program reads actual microcomputer setting (if not, press Reset button). It is possible to change settings by using the microcomputer itself or using the TENDO Power Analyzer program. To change the microcomputer settings, use setup panel - Audio signal, Load, Filter, Percent value for Partial average power and peak force).

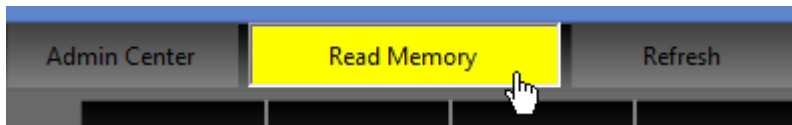


Parameters which are displayed in upper microcomputer display or in the numerical Workstation panel of the Tendo software.

At the bottom of the Tendo Unit setup panel there are 2 buttons. **DELETE ALL REPS** and **DELETE REP**.

Caution !: Make sure you save the data before using Delete All Reps command. Delete Rep command deletes the selected repetition only.

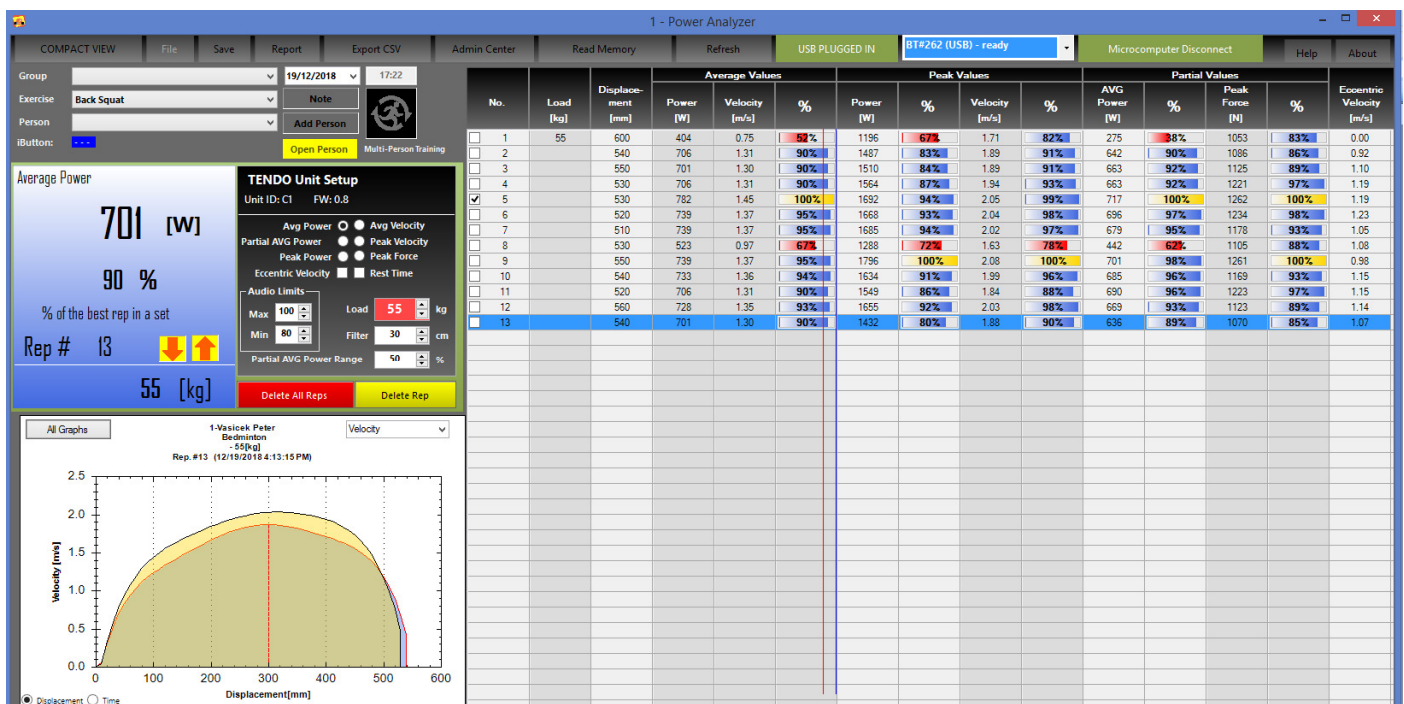
If you want transfer data saved in the microcomputer memory, press the Read Memory button. Data is transferred to the software without graphs.



Tendo Power Analyzer software window with measured data.

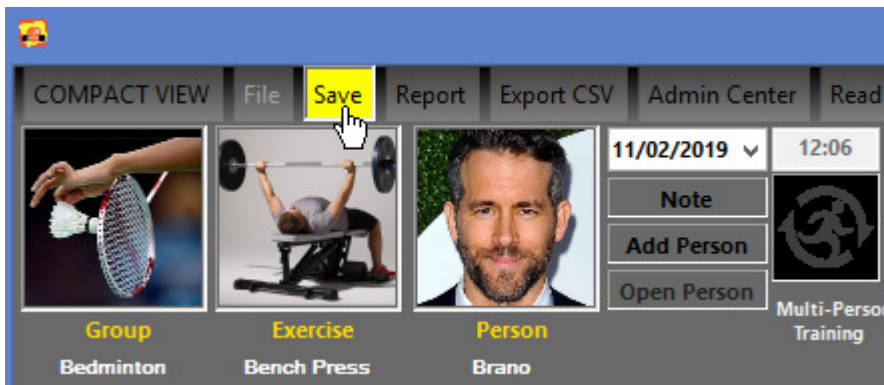
On the left hand side you can see the Panel of Values for actual or selected repetition. In the blue field you will be able to see the recorded Watts, Load, % of Maximum for e.g. Rep Number 13. This is for Average Power.

The color of this panel is identical with a color of the bar graph in the table.



6.3 Save Data

If data are collected from the exercise, it is possible to save them by clicking "Save" button. **Prior the saving data, fill in information about group, exercise and person to identify a file.** Then click „Yes“ to confirm.



If you did not fill in "Personal Info" (Group, Exercise, Person), the software saves file in the Tendo Sports Machines Temporary Files.

The File name is possible to rename anytime.

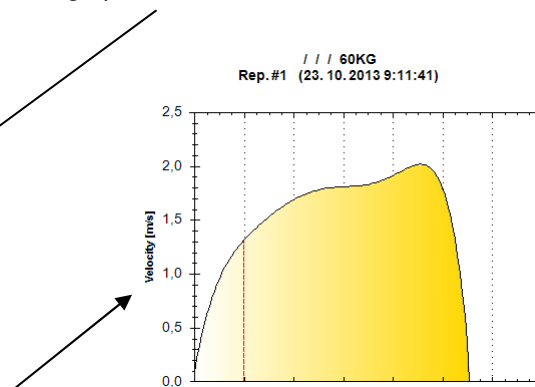
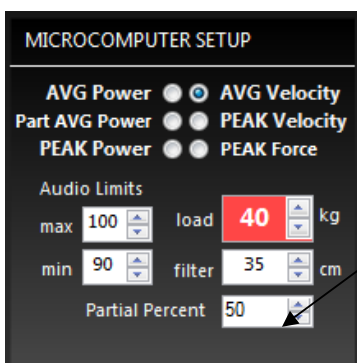
Each workstation window works independently. The workstations which are not connected are possible to use in offline mode and opening the saved files. If the system is connected online, it is not possible to open saved files.

6.4. Partial Average Power

Partial Average Power is the value of average power, which is measured from the start (0) of the exercise to a certain predefined percentage value of the range of motion. The Default setting is 50%.

The settings range from 1 to 100%

It is possible to change the range for the partial average power measurement.



The value of the partial range is also shown as a vertical red line on the "Velocity – Displacement (Time)" graph. The range for measurement for Partial Average Power is from 0 to the red vertical line.

Peak Force measurement has the same range setting as Partial Avg. Power.

It means the system finds the peak force for the set range (0 to a previously predefined percent value of the range of motion). The default setting is also 50%.

Why Partial Average Power (PAP)?

PAP is the best way to measure Rate of Force development (RFD)

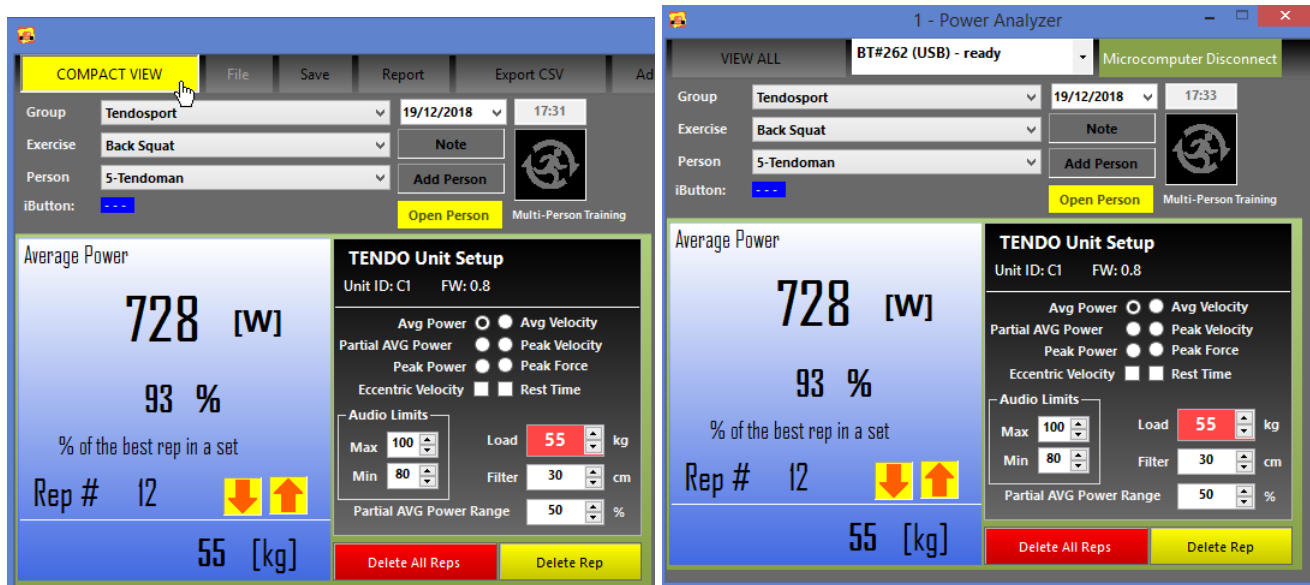
Sometimes the average or peak power are not sufficient parameters for the assessment of athlete's qualities in weight training. This is because many athletes, in an effort to reach a maximum power value, try to accelerate at the end of movement. By doing this, they obtain a high average and peak power, but those parameters are misleading. Simply said, accelerating at the end is too late!. They have high average and peak power values but a low RFD - rate of force development. The Rate of force development (RFD) is a key factor in sports performance where explosiveness is required. The Partial Average Power will help emphasize RFD.

If the RFD is what you interested in select Partial Average Power setted for 50%.

6.5 Multiple microcomputer units connected to the computer

It is possible to select a compact view of the Tendo Power Analyzer software window.

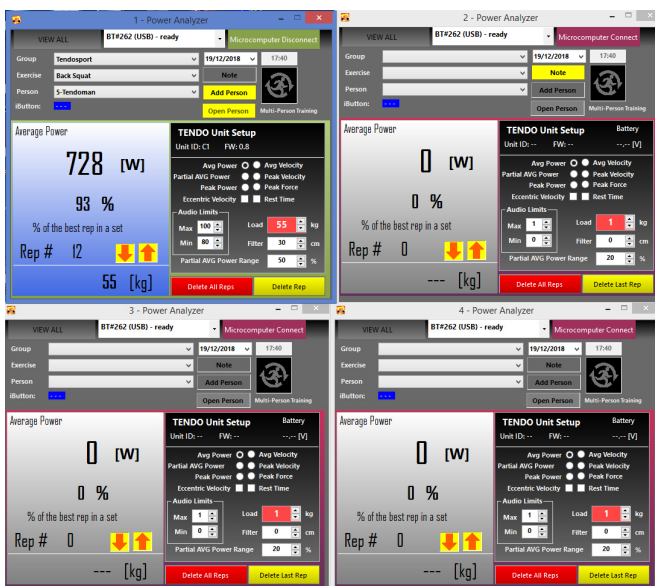
Click on Compact View command and you will see a panel for the Tendo Unit setup and Panel of Values for each software window.



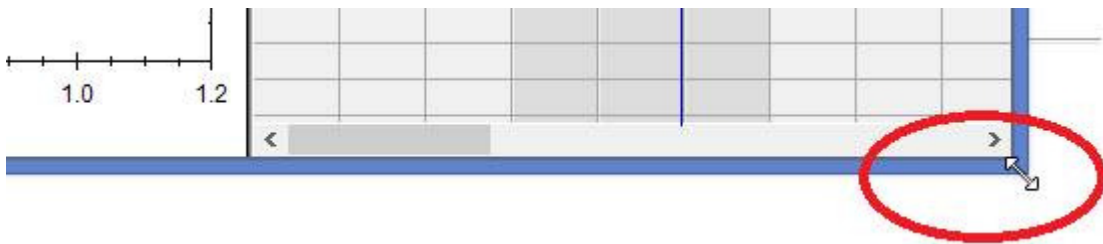
To return to full screen view, click to View All command.

If you would like to connect more microcomputers to the computer, you will need additional Tendo Bluetooth Sets. Plug another Tendo Computer Bluetooth (USB connector) into the appropriate USB connector on your computer. Then open a new Tendo Power Analyzer software window by clicking on the Tendo Power Analyzer desktop icon. A new window will open as Workstation 2.

If you select the Compact View, it is possible to amalgamate the software windows on a computer screen.

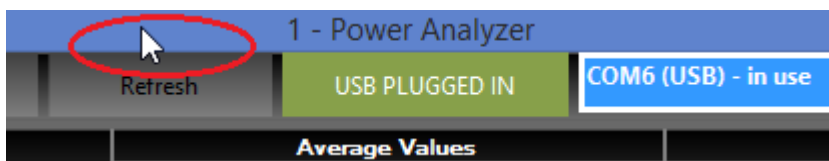


It is also possible to **change the software window dimension**. Place your mouse cursor on a bottom right corner (or side line) of the software window, press left button of your mouse and hold. Then you can change the software window to the desirable dimensions.

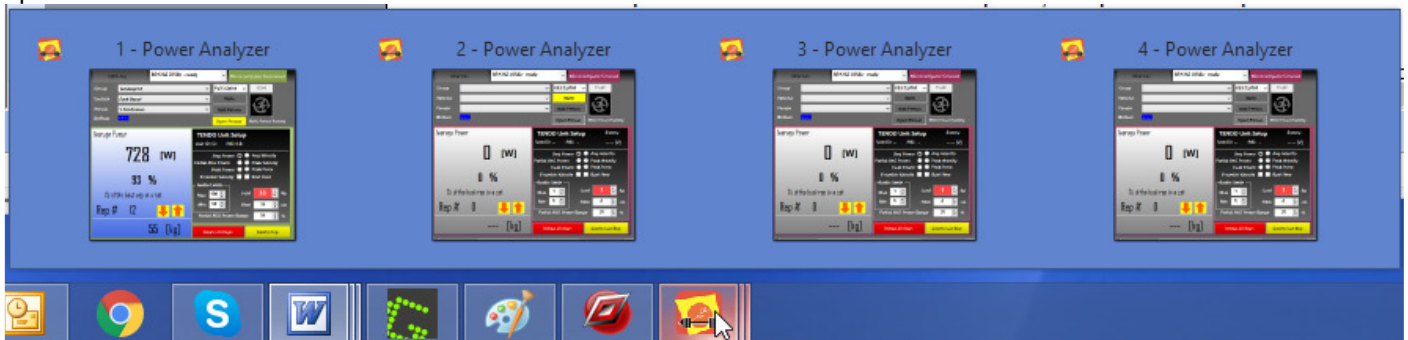


How move the software window.

Place the mouse cursor on upper bar of the software window. Press left button of your mouse and you can move the software window anywhere on your computer screen.



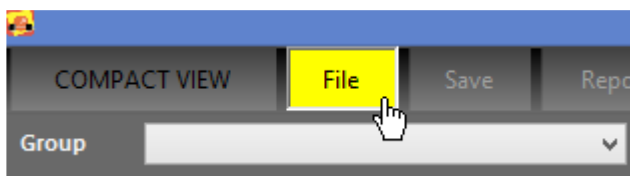
If you click on the Tendo Power Analyzer software icon placed on a lower bar of your computer, you will see all opened Tendo software windows.



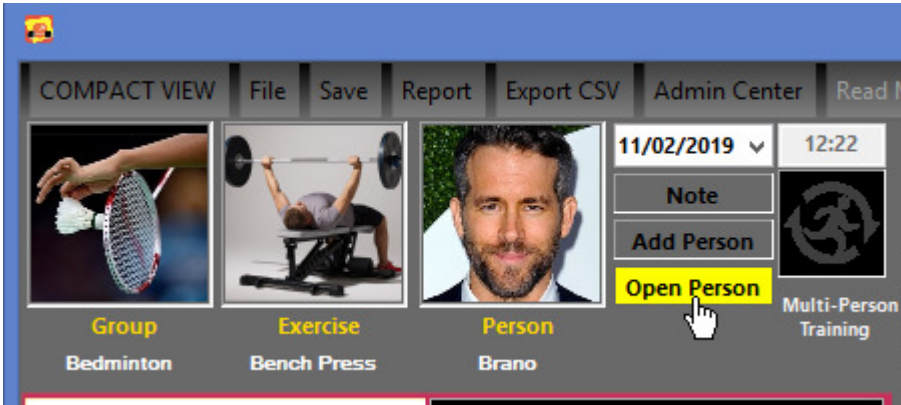
7. Offline mode:

If the microcomputer is not connected to a computer, it is possible to open saved files from the database and analyze the measurements:

Click **"File"** on workstation panel and select the group, exercise, and name and select particular file from database.



For fast search, fill in Personal Info and click "Open"



Database directory C:\Users\.....\Documents\ Tendo SportsMachines\Group\Exercise\Name

8. Analyzing Results

The program has 2 sections for analyzing results - Charts and Tables

No.	Load [kg]	Displacement [mm]	Average Values			Peak Values			Partial Values			Eccentric Velocity [m/s]		
			Power [W]	Velocity [m/s]	%	Power [W]	%	Velocity [m/s]	%	AVG Power [W]	%		Peak Force [N]	%
1	30	480	311	1.06	87%	521	88%	1.49	91%	267	83%	484	64%	0.45
2		500	332	1.13	93%	587	99%	1.59	98%	282	88%	506	67%	0.43
3		520	341	1.16	96%	592	100%	1.63	100%	300	93%	531	71%	0.47
4		500	332	1.13	93%	537	91%	1.55	95%	297	92%	534	71%	0.58
5	40	480	357	0.91	100%	563	95%	1.25	77%	309	96%	596	76%	0.39
6		490	357	0.91	100%	556	94%	1.25	77%	306	95%	584	76%	0.44
7		480	349	0.89	98%	525	89%	1.19	73%	306	95%	596	79%	0.43
8	45	470	353	0.80	99%	525	90%	1.10	67%	313	97%	630	84%	0.44
9		470	357	0.81	100%	500	84%	1.05	64%	322	100%	655	87%	0.45
10		470	339	0.77	95%	486	82%	1.02	63%	304	94%	631	84%	0.51
11	50	480	348	0.71	97%	504	85%	0.95	58%	304	94%	658	88%	0.34
12		470	333	0.68	93%	467	79%	0.88	54%	299	93%	664	88%	0.36
13		480	323	0.66	90%	462	78%	0.87	53%	289	90%	653	87%	0.50
14	55	470	329	0.61	92%	477	81%	0.82	50%	291	90%	680	90%	0.46
15		470	318	0.59	89%	415	70%	0.74	46%	296	92%	705	94%	0.56
16		450	285	0.53	80%	355	60%	0.60	37%	280	87%	694	92%	0.51
17	60	450	294	0.50	82%	368	62%	0.61	37%	270	84%	721	96%	0.40
18		450	264	0.45	74%	335	57%	0.52	32%	258	80%	723	96%	0.43
19		420	223	0.38	62%	282	48%	0.43	26%	223	69%	687	91%	0.49
20	65	440	248	0.39	69%	317	54%	0.43	26%	242	75%	752	100%	0.43
21		430	197	0.31	55%	300	51%	0.41	25%	210	65%	740	98%	0.47
22	60	440	276	0.47	77%	340	57%	0.55	34%	270	84%	726	97%	0.39
23		430	258	0.44	72%	330	56%	0.50	31%	258	80%	718	95%	0.42
24		450	235	0.40	66%	313	53%	0.47	29%	241	75%	710	94%	0.49

8.1 Table section

No.	Load [kg]	Displacement [mm]	Average Values			Peak Values			Partial Values			Eccentric Velocity [m/s]		
			Power [W]	Velocity [m/s]	% of best rep	Power [W]	% of best rep	Velocity [m/s]	% of best rep	AVG Power [W]	% rep		Peak Force [N]	% rep
✓ 1	65	780	1141	1.79	100%	2294	73%	2.39	88%	1071	100%	1595	100%	0.00
2		660	650	1.02	57%	2469	79%	2.38	87%	446	42%	1580	99%	1.24
4		600	886	1.39	78%	1963	63%	2.09	77%	835	78%	1346	84%	0.97
5		720	981	1.54	86%	2441	78%	2.36	86%	918	86%	1348	85%	1.34
6		750	1052	1.65	92%	2463	79%	2.36	86%	969	90%	1476	93%	1.32
7		730	860	1.35	75%	2292	73%	2.31	85%	714	67%	1202	75%	1.09
8		760	1084	1.70	95%	2960	95%	2.66	97%	981	92%	1455	91%	1.28
9		750	1084	1.70	95%	3129	100%	2.73	100%	969	90%	1563	98%	1.28
10		660	1007	1.58	88%	2741	88%	2.45	90%	924	86%	1509	95%	1.34
11		800	1064	1.67	93%	3027	97%	2.68	98%	975	91%	1506	94%	1.22
12		730	1084	1.70	95%	2816	90%	2.53	93%	1020	95%	1534	96%	1.27

The table section contains

Repetition Number, Load, Displacement, Average Power, Average Velocity, and Percent of the best rep. – for average value
Peak Power, Percent of the best rep. for peak power
Peak Velocity, Percent of the best rep. for peak velocity
AVG Partial Power – partial average power for predefined range from 0 to setting value
Percent of the best rep. – for partial average power
Peak Force - for predefined range from 0 to setting value
Percent of the best rep. – for peak force
Eccentric Velocity - average velocity in downward movement

Coloured Column "% of the best rep" represents column chart "Percent Value of Best of power, velocity and force.

Column colors – depends on the audio signal settings.

Yellow column each repetition with a value, performed **above upper limit** of the audio signal.
Blue column each repetition with value, performed **between upper and lower limit** of audio signal.
Red column each repetition with value, performed **below lower limit** of audio signal.

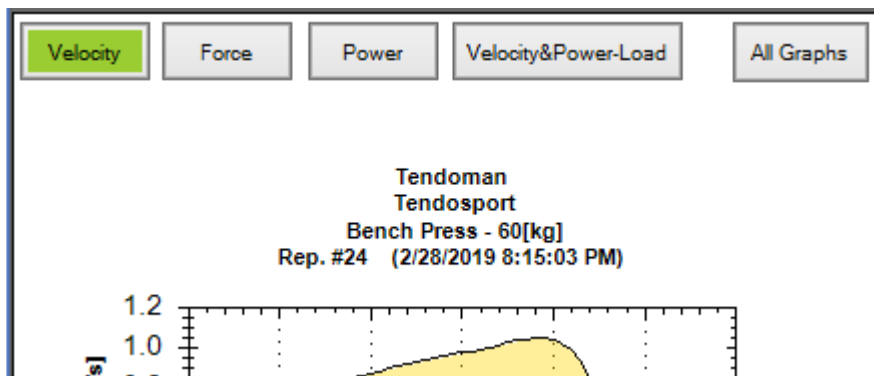
Blue (or grey row) represents actual repetition displayed in Graph Section e.g. Rep 12 is highlighted in example above.

8.2 Graph Section

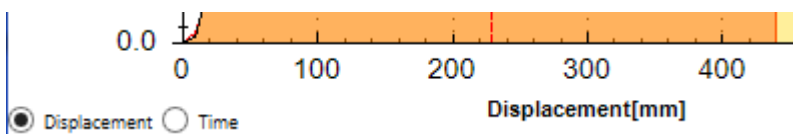
There are 4 graphs shown in this program section.

- **Velocity - Displacement / Time**
- **Force - Displacement / Time**
- **Power - Displacement / Time**
- **Velocity and Power – Load for average values of power and velocity**

To change the graph, just click to particular parameter from the menu.

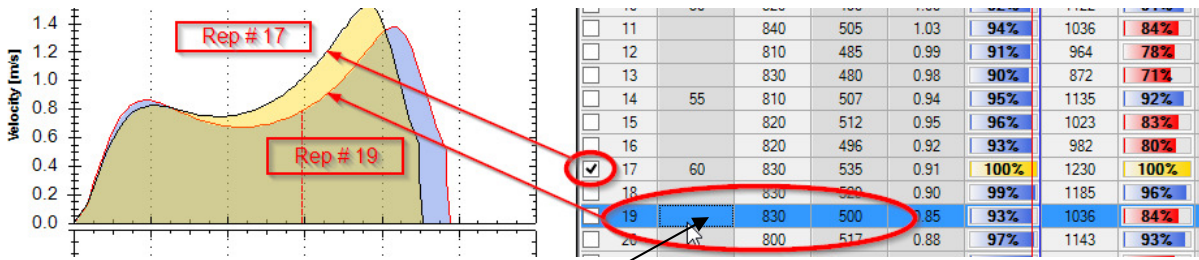


It is possible to select Displacement or Time axis by clicking on the Option Button, located at the bottom of the graphs.



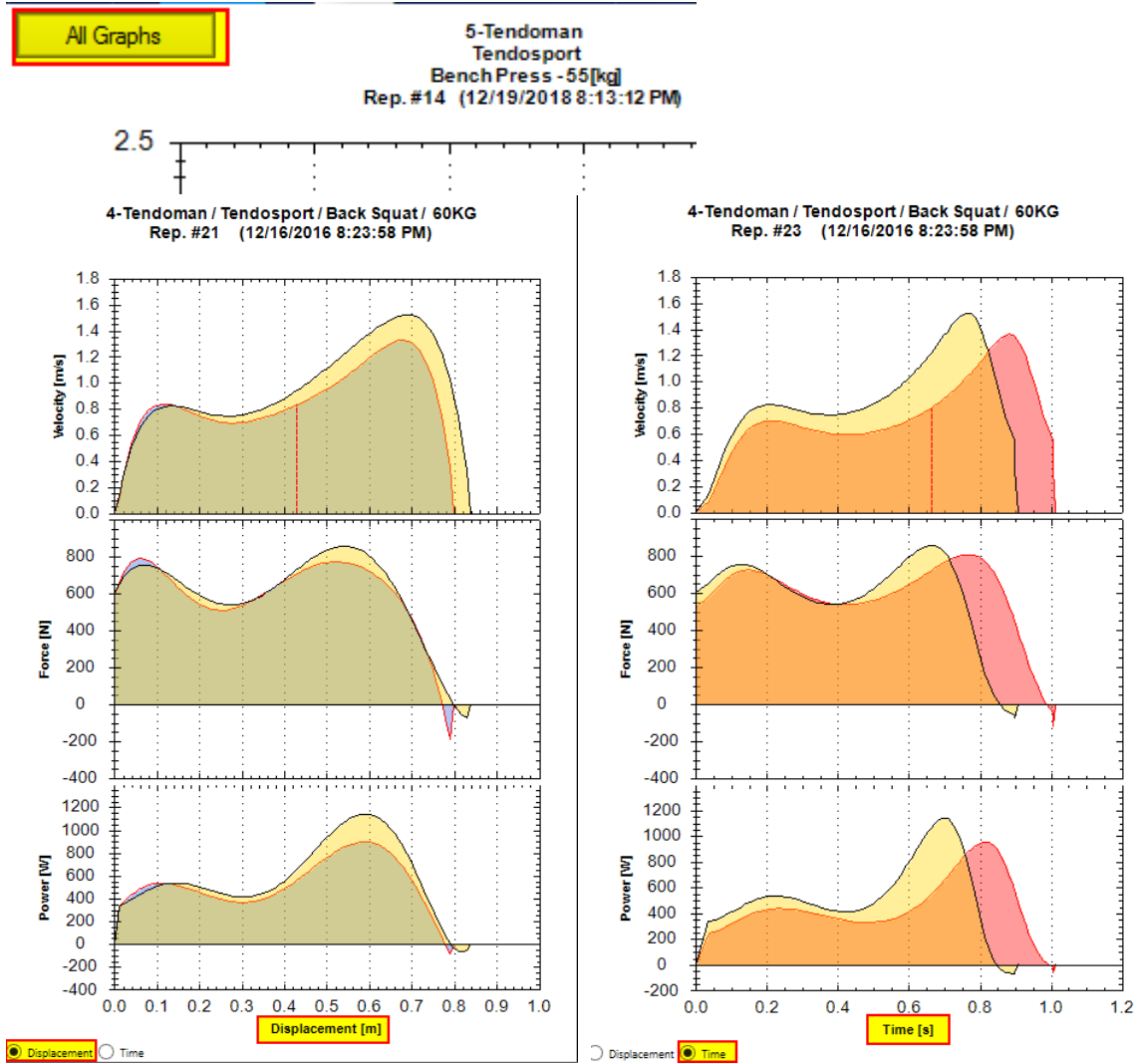
There are two curves in each graph.

The black curve is for repetition with maximum value of Average Power or Velocity or for marked repetition.

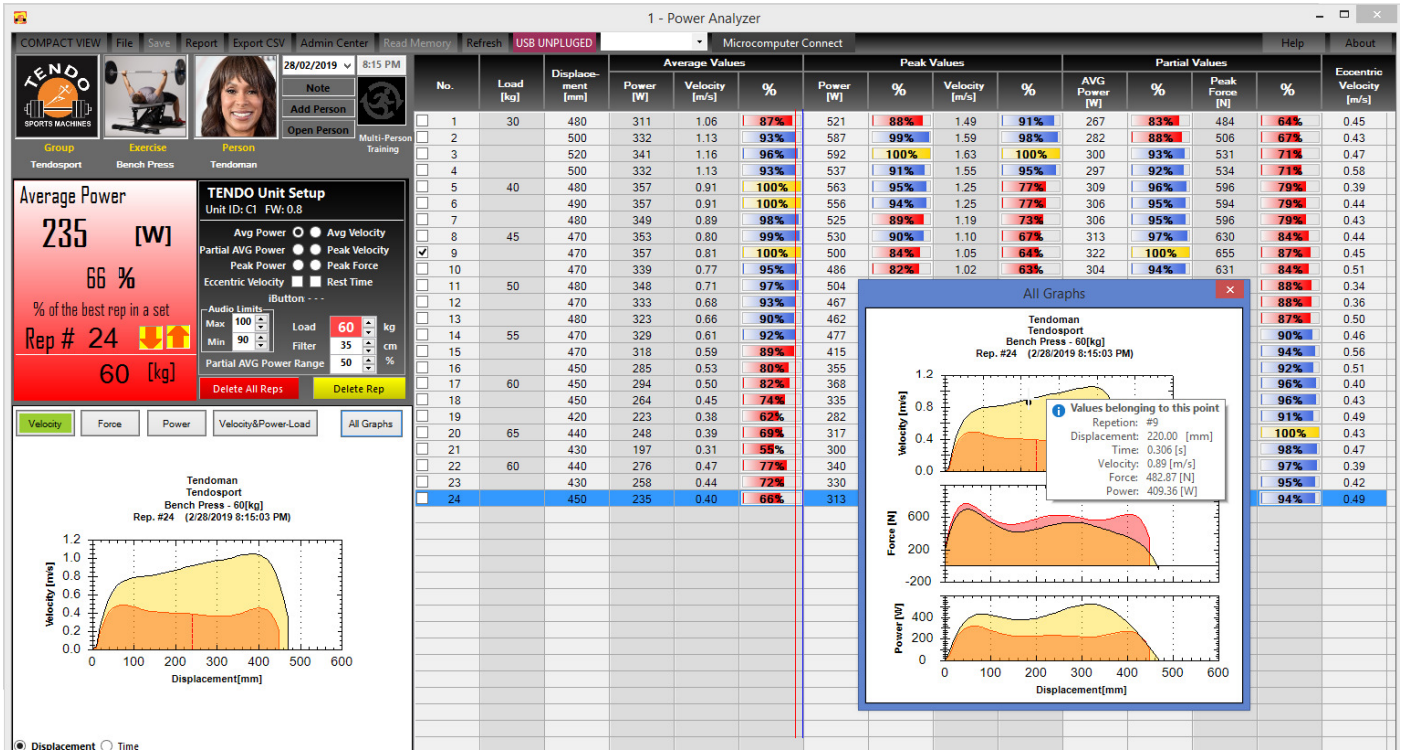


The colored curve is for selected repetition.

Click All Graphs to view all graphs.



Window for All Graphs is independent and can be moved anywhere on the computer screen.



Velocity & Power - Load graphs

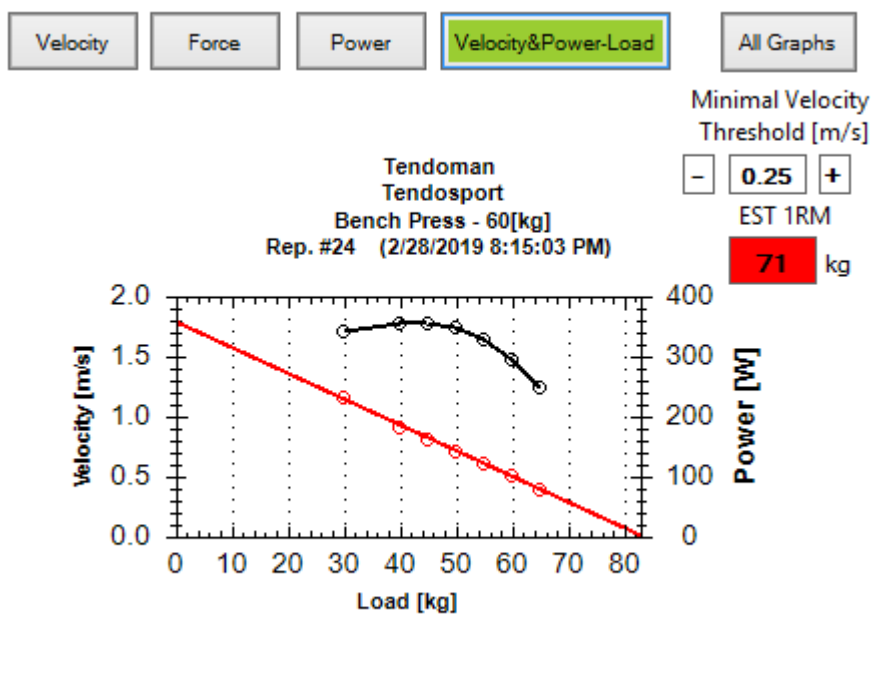
If you perform the exercise with more than 3 different weights, the Tendo software displays the Velocity – Load line and Power – Load curve. It is for average values of Power and Velocity.

If you set a Minimal Velocity Threshold, the software will calculate estimated 1 RM.

The Minimal Velocity Threshold depends on exercise and also can differ from athlete to athlete.

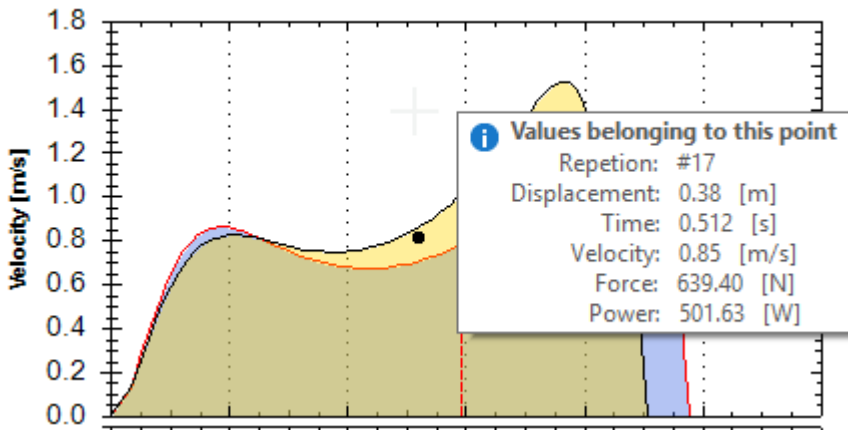
For example for Back Squat is MVT around 0.35 m/s.

Bench Press – MVT is around 0.17 m/s



8.3 Working with the graph

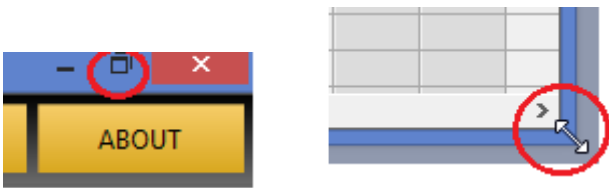
If you place your cursor on a selected point of the “Velocity – Displacement (Time)” curve, actual values of displacement, time, velocity, force and power are displayed.



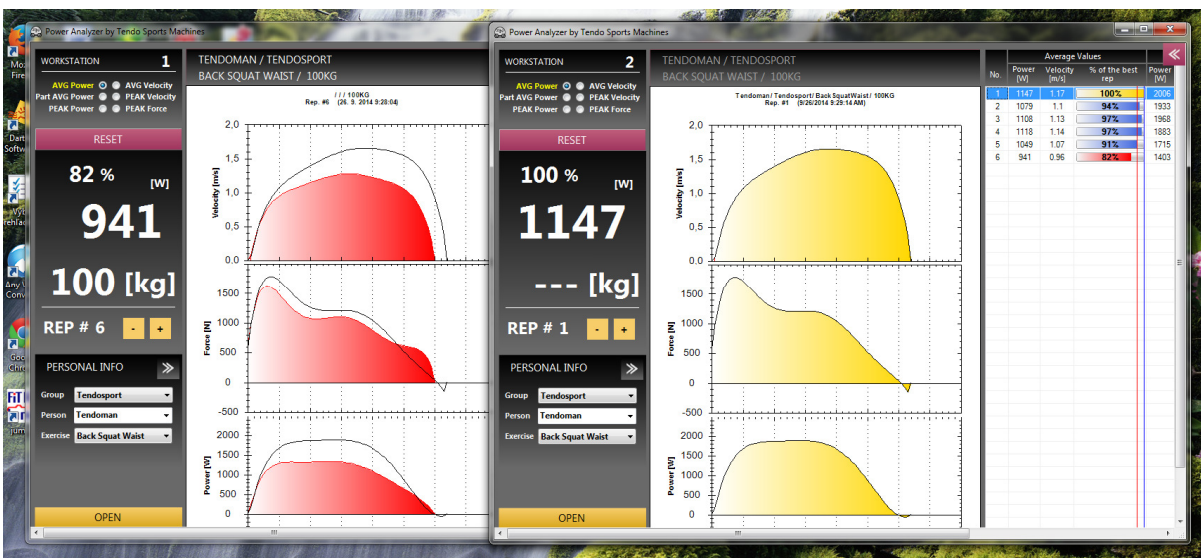
Recommendation:

It is possible to open the Tendo Power Analyzer program several times. The purpose for the multi opening of the program is to track more workstations or to compare 2 or more different files.

1. Click "Restore Down" button on the upper right corner of the program, to make each window smaller.
2. Go to the lower right corner of the program window, click and hold left mouse button and you can change the program window dimension.

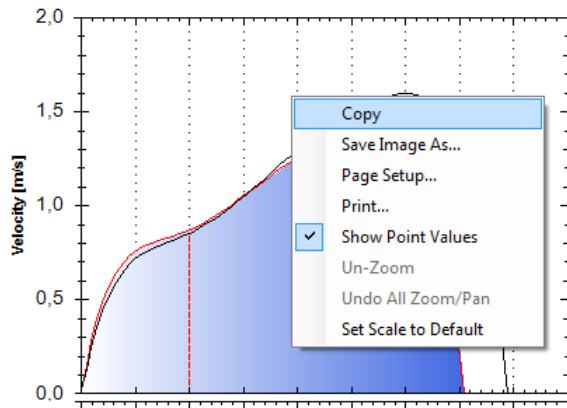


Open selected file in each opened Tendo Power Analyzer program window and you get 2 or more independent measurements on the computer screen.

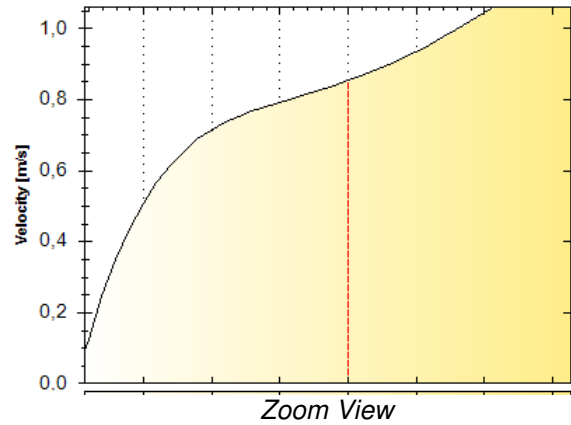
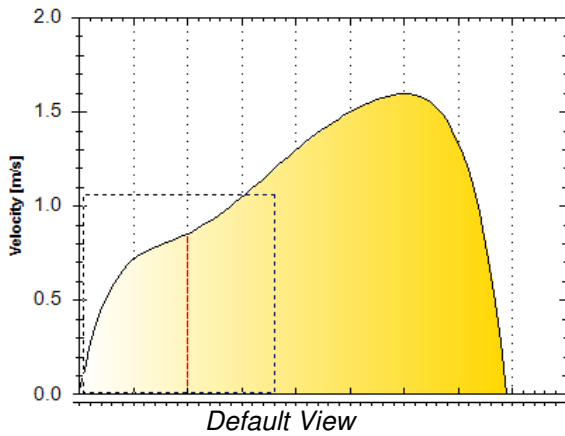


You can create any combination of the program windows.

Move the cursor to the graph area. Click the right button of a mouse and a command window will appear. Select the command you want to use and click the left mouse button.



You can also “Zoom” any part of the graph. Press the left button of the mouse – hold and stretch the window to the part of the graph you want zoom and release the left mouse button.



Back to Default View – click the right button of the mouse and select “Set Scale” to “Default ” or “Un - Zoom”.

8.4 Exporting data

Tendo Power Analyzer program allows you to export data. To open the file, click „Report“ on the top tool bar of the workstation.

2 Report Sheets will come up in an excel spreadsheet or equivalent:

There are 2 Report Sheets

1. Summary of the exercise set

[EXERCISE SUMMARY REPORT]

Name Tendoman Group Tendosport
 Exercise Back Squat Note _____
 Load 100 kg
 Date 13.10.2014 5:17 PM

#	AVERAGE			PEAK				PARTIAL AVERAGE	
	Power [W]	Velocity [m/s]	%	Power [W]	% of the best	Velocity [m/s]	% of the best	Power [W]	% of the best
1	922	0,94	94	1616	98	1,39	97	241	81
2	981	1	100	1643	100	1,43	100	275	92
3	941	0,96	96	1425	87	1,29	90	285	96
4	961	0,98	98	1504	92	1,33	93	298	100
5	922	0,94	94	1367	83	1,25	87	297	100
6	873	0,89	89	1130	69	1,11	78	285	96
7	824	0,84	84	1144	70	1,1	77	278	93
8	784	0,8	80	980	60	0,96	67	277	93

2. Raw Data for each repetition from the exercise set.

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Summary Raw Data Raw Data (2) Raw Data (3) Raw Data (4) Raw Data (5) Raw Data (6) Raw Data (7) Raw Data (8)

[EXERCISE SUMMARY REPORT]

R	Group	Tendosport	Load	100	kg
E	Name	Tendoman	Note		
P	Exercise	Back Squat			
E	Date	13.10.2014 5:17 PM			
T					
I					
T					
O					
N					
U					
M					
B					
E					
R					
1					

#	DISPLACEMENT [m]	TIME [s]	VELOCITY [m/s]	FORCE [N]	POWER [W]
0	0	0	0	608	0
1	0,01	0,040656	0,0488	869	110
2	0,02	0,066128	0,2109	1066	332
3	0,03	0,086456	0,3452	1210	509
4	0,04	0,104112	0,4557	1310	648
5	0,05	0,119936	0,5457	1373	754
6	0,06	0,134672	0,6187	1406	834
7	0,07	0,148296	0,6774	1416	893
8	0,08	0,161384	0,7244	1407	934
9	0,09	0,173968	0,7618	1386	962
10	0,1	0,186216	0,7917	1356	980
11	0,11	0,198056	0,8158	1320	992
12	0,12	0,209608	0,8355	1281	999
13	0,13	0,220768	0,8521	1242	1003

8.5 Print data

Export data to e.g. the Microsoft Excel program and use print commands.

It is useful to archive the data periodically (at the end of training cycle, or season) and then delete old files from the program database because the database has a lot of information and will reach a very big size quickly.

WARNING: Do not use the system in places subject to excessive humidity, dust, shock or vibration. Protect the unit from becoming wet and do not drop or strike the unit against hard objects.

Please check our web site www.tendosport.com for the latest updates of Tendo Power Analyzer software.

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