

smartjump[™]



smartjump *lite*[™]

USER GUIDE

CONTENTS

OVERVIEW	3
CREATING NEW TEAMS AND PLAYERS	4
Adding New Team	4
Adding New Players	4
Alternative Entry Method (importation of player List)	4
USING SMARTJUMP	5
Hardware Connection	5
Software Set Up Procedure	5
Explanation of the Running Screens	6
Tracks	6
Protocol	6
Option	6
Results	6
Table	6
Configuring the Jump Session	6
Adjusting mat sensitivity	7
sample Screen images	8
Using Feedback Options	9
Primary Feedback	9
Secondary feedback	9
Exporting Results	9
Retrieving past session results	9
Joining jump mats for greater testing area	10
MAINTENANCE	10
Charging Instructions – SMARTJUMP Lite	10
More information	10
Troubleshooting	11
PDA/Grabba SPORTSWEB Sleeve Problems	11
SMARTSPEED Remote Unit Problems	12
SMARTSPEED Software Problems	13

OVERVIEW

The SMARTJUMP and SMARTJUMP LITE systems use a contact mat to measure flight time and contact time during jumping protocols. For each jump, the system reports the following data -

- **Flight time (FT; ms):** is the time that the athlete is not in contact with the mat for a given jump
- **Contact Time (CT; ms):** is the athletes contact time (in ms), on the mat between periods of flight
- **Height (Ht; cm or inches):** The height achieved by an athlete in a particular jump. The measurements will be in either inches or cms (depending upon the chose measurement option in the [Options] tab in the start screen).
- **Impulse (Nm):** is the net upward impulse of each athlete or the net upward momentum (derived from the take-off velocity) – NOTE – correct athlete mass must be entered for this variable to be calculated accurately)
- **Peak Power Output (PPO; Watts):** Is the peak power output of the jump, calculated using the equations of Sayers (Sayers, S.P., Harackiewicz, D.V., Harman, E.A., Frykman, P.N., and Rosentein, M.T.(1999) Cross-validation of three jump power equations. *Medicine and Science in Sports and Exercise*, 31(4), April 1999, pp 572-577)
- **Reactive Strength Index (RSI):** is the jump height divided by the contact time. This measure is an excellent indicator of Plyometric ability.
- **Flight time to contact time ratio (FT/CT):** Flight time (in ms) divided by the contact time (in ms). This measure is similar to RSI and is also an excellent indicator of Plyometric ability.

NOTE – all formulae used in SMARTJUMP calculations are provided by tapping the “FORMULA” button on the options tab.

The real power of SMARTJUMP is when the FEEDBACK options are used to enhance the jump training experience. The instant feedback provided by SMARTJUMP allows the athlete to learn the correct technique for performing jump training. The system is also used by many coaches for monitoring recovery, fatigue and injury status.

CREATING NEW TEAMS AND PLAYERS

ADDING NEW TEAM

1. On the front screen of the SMARTSPEED software, tap NEW-TEAM
2. Tap the PDA pen in the box under "Team Name" and enter the name for the new team
3. Press ADD, and then OK to return to the front screen

ADDING NEW PLAYERS

1. On the front screen of the SMARTSPEED software, tap NEW-PLAYERS
2. Select the team into which you would like to add players.
3. Type in the player's first and last names, and weight of you wish, and hit "ADD"
4. Once all the names you need have been entered the OK button to return to the main menu

ALTERNATIVE ENTRY METHOD (IMPORTATION OF PLAYER LIST)

1. On your PC desktop create a new text document. To do this, right click on desktop or start NOTEPAD from the Start-Accessories menu
2. Create a list of players in the following format -
Last Name,First Name
Last Name,First Name
Last Name, First Name

You can also add the player mass as an extra column. In this case the format should be -

Last Name,First Name,Mass
Last Name,First Name,Mass
Last Name, First Name,Mass

3. Save the text document when you have finished creating the list of players you wish to add.
4. Copy the file to your PDA
5. In the SMARTSPEED software, select NEW-PLAYER from the menu
6. Tap IMPORT and then select the file you copied to the PDA form your desktop

USING SMARTJUMP

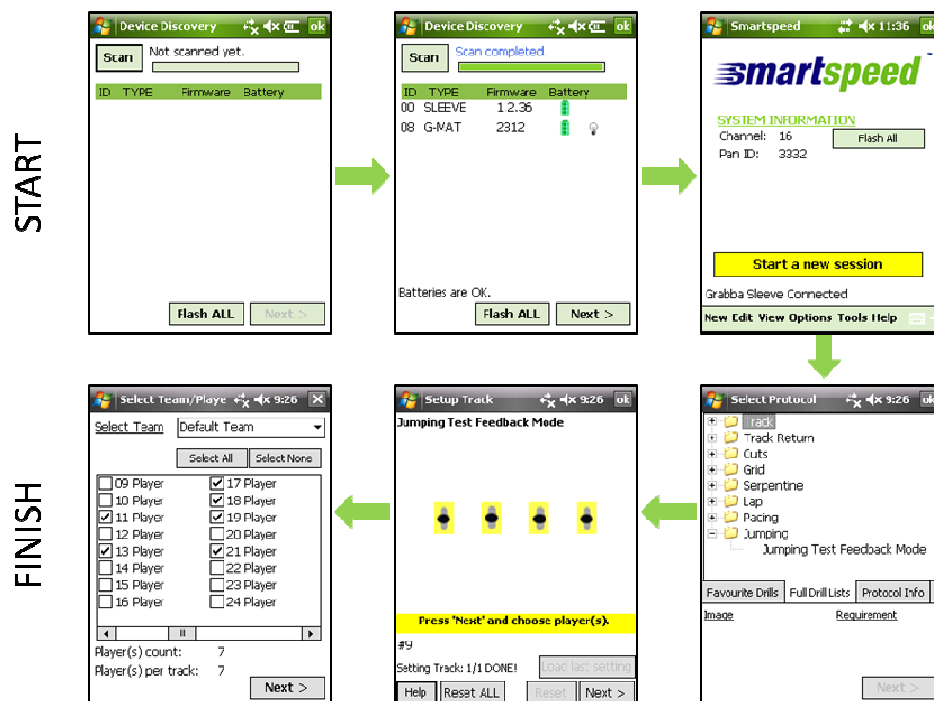
HARDWARE CONNECTION

The SMARTJUMP contact mat can be connected in one of 3 ways:

1. Connect to a SMARTSPEED remote unit via the PS2 port on the underside of the unit
2. Connect to a SMARTSCAN RFID unit, which then connects to the SMARTSPEED remote unit
3. Connect direct to the SMARTJUMP LITE Grabba sleeve via the PS2 port on the top of the sleeve (SMARTJUMP LITE only)

SOFTWARE SET UP PROCEDURE

1. Start the SMARTSPEED PDA software.
2. Select “**Start a new session**” from the main menu to start the protocol.
3. Press the “**Scan**” to identify the unit(s). Once the jump mat(s) has been scanned press the “**Next**” button to move to the protocol select page.
4. Got to the “**Full Drill List**” tab and select “**Jumping Test Feedback Mode**” button (NOTE – if you would like to add jumping to your “**Favorites list**” simply tap and hold on the drill and tap “**add to favorites**”)
5. Tap “**Next**” to move to the protocol details screen, and “**Next**” again to move to the test track screen.
6. Stand on the jump mat and off again to identify the mat to the system. If you are setting up multiple jump stations, stand on the mats in order of the tracks you wish to set up.
7. Tap “**Next**” to finish set up and then move on to the player select page.



EXPLANATION OF THE RUNNING SCREENS

The following pages are available by tapping on the tabs at the bottom of the page –

TRACKS

This bar shows the current tracks that the protocol is set up to run. On the right hand side, the number of repetitions the player has already performed is shown. If you are running the protocol in **Manual** mode, the user can select which player they want in each particular track. This option is not available in **RFID** mode.

“S” = skip to next player

“X” = remove player from session

PROTOCOL

This bar gives a description of the current protocol setup. It will list the protocol name, the base protocol, the number of jump mats (tracks) in use, and the number of sub-sessions (RFID mode only).

OPTION

Allows you to configure the options for each session (see following section).

RESULTS

The RESULTS tab lists the primary results for the most recent player (chose which to display on the OPTION tab).

TABLE

The Table tab enables the user to view the completed sub-sessions (sets) for all athletes. The table is updated at the end of each sub-session (set)

CONFIGURING THE JUMP SESSION

The following procedure should be used to change the different options in the jumping protocol. NOTE – if using RFID mode, options must be set prior to starting the session, and cannot be changed unless manual mode is selected.

1. Select the athlete you wish to test first, or, for RFID mode, select “**RFID**” in the bottom left corner menu
2. Go to the “**OPTION**” tab
3. Configure your options according to the following table guide

Option	Description
Number of jumps	The number of jumps (flights) to be completed
Sensitivity	Applies filter to signals to eliminate false readings (see later section)
Player Mass Adjustment	Allows you to enter the weight of the athlete for accurate calculation of PPO and Impulse. Note – each time you change this it is saved to the database for each athlete
Results Displayed	Chooses which variable will be displayed on the RESULTS tab during testing (note – all variables are automatically displayed on the TABLE view)
Feedback mode	Allows you to set feedback parameters for PRIMARY and SECONDARY feedback during jumping (NOTE – only primary feedback is available with SMARTJUMP LITE)
Formula	Displays the formulae used in SMARTJUMP calculations

4. Press “**READY**”
5. If you wish to have your test begin with a flight period (i.e. do not measure the first contact), ask your athlete to step onto the mat NOW
6. If you wish to also measure the first contact, ask your athlete to stay off the mat
7. Press “**GO**”
8. In manual mode, you can change the options between each athlete. In RFID mode, only the player mass screen will appear (if this option is selected)

ADJUSTING MAT SENSITIVITY

Many other “contact mat” devices on the market suffer from the problem of “false triggers” or “switch bounce”, which causes jumps to be falsely recorded due to the athlete reducing their weight on the mat during the countermovement phase of the jump.

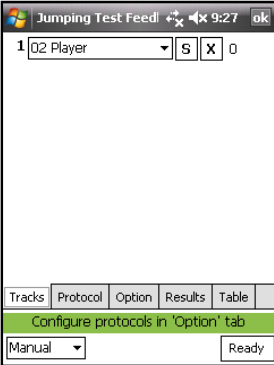
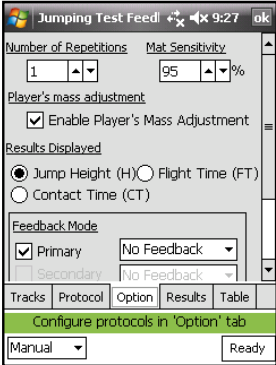
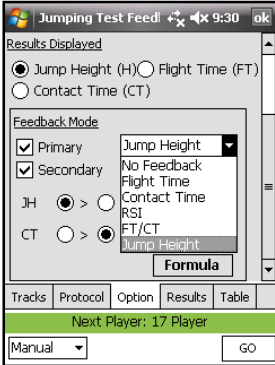
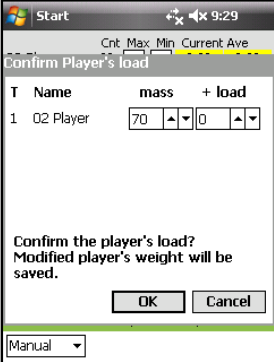
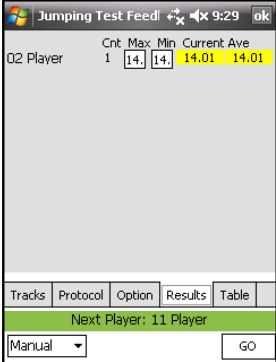
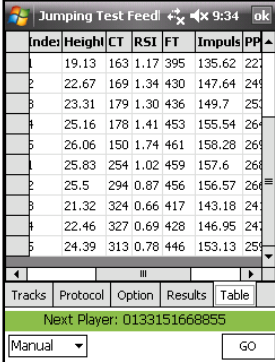
SMARTJUMP is set by default to ignore flight times of less than 100ms, thus preventing errors due to false triggers. This value has been shown to be suitable for most athletes; however if you are working with small athletes you may still encounter some “false jumps”. If you do witness false readings with smaller athletes, simply reduce the sensitivity until these problems desist. Usually a setting of 85% is sufficient for even the smallest athletes.

Conversely, if you are performing very rapid jumps, or triggering the mat with a ball or other object, you may need to increase the sensitivity to 100%.

The sensitivity adjustment DOES NOT alter the accuracy of the measurements, or perform any sort of calibration adjustment. It simply sets a threshold under which the signal is ignored by the system

For more information or assistance with sensitivity settings please email support@fusionsport.com

SAMPLE SCREEN IMAGES

<p>Tracks Screen: player selection</p> 	<p>Option Screen</p> 	<p>Option Screen: setting feedback</p> 
<p>Entering player mass</p> 	<p>Results Screen: last player</p> 	<p>Table View: all results</p> 

USING FEEDBACK OPTIONS

SMARTJUMP allows you to provide real-time feedback to athletes during jumping activities. Two levels of feedback can be provided – PRIMARY and SECONDARY. Please note – SMARTJUMP LITE is only able to give PRIMARY feedback.

PRIMARY FEEDBACK

The athlete will receive a RED (incorrect jump) or GREEN (correct jump) light. The most commonly used primary feedback standard is CONTACT TIME, as this is a vital factor to control during jump training.

SECONDARY FEEDBACK

A secondary factor can be chosen, to give the athlete further information on their jumping performance. For example, whilst a coach may want to control the contact time using primary feedback, they may also wish to encourage the athlete to jump as high as possible as well. In this example, the coach would set the secondary feedback to be JUMP HEIGHT.

Whilst the athlete is jumping, secondary feedback is given via the BLUE light. If the athlete is successful for the secondary feedback factor, they will receive a blue light each time a successful repetition is completed.

The aim of the athlete should therefore be to receive both GREEN and BLUE lights on every jump.

EXPORTING RESULTS

When you have finished your testing session, you may immediately export the data for copying to your desktop computer, or you can retrieve it later and export it then. To export data at the end of the session –

1. Tap OK to end the session
2. From the menu, select “REVIEW THE SESSION TRAINING IN TABLE FORM”
3. Choose the file format to for export (CSV or XML)
4. Name the file and select a folder for it to be saved
5. The file is now on the PDA and can be copied to your PC for opening in MS Excel or other programs

RETRIEVING PAST SESSION RESULTS

If you wish to retrieve results from a previous session –

1. On the front screen of SMARTSPEED select VIEW-RESULTS
2. Select the team and protocol for which you want to retrieve results
3. Select the session of interest from the list
4. Export to CSV or XML as per above instructions

JOINING JUMP MATS FOR GREATER TESTING AREA

It is possible to connect two or more jump mats to one unit, so that athletes can jump from one mat to the other. This requires a double adaptor connector cable, which is available from Fusion Sport. Please contact us or your local distributor for details.

MAINTENANCE

CHARGING INSTRUCTIONS – SMARTJUMP LITE

Both the PDA and Grabba sleeve unit require charging. This is most effectively performed with the units joined together. Prior to charging, ensure you have exited the SMARTSPEED software.

The units can be charged by inserting the provided 5V charger into the left side of the Grabba sleeve, or by inserting the IPAQ 100 series charger into the min-USB port on the right side of the Grabba sleeve. DO NOT attempt to charge the units via min-USB connected to a PC USB port.

When charging both units will display orange lights. When charging is complete, the lights will turn green.

MORE INFORMATION

For further information please contact Fusion support at support@fusionsport.com



www.fusionsport.com

TROUBLESHOOTING

The following are some potential though rare problems and their solutions. If you have continued problems or would like assistance please contact your local distributor or Fusion Sport head office for assistance.

PDA/GRABBA SPORTSWEB SLEEVE PROBLEMS

Symptom	Possible Explanation	Possible solutions
Software message – “grabba sleeve disconnected” when SMARTSPEED software started	Incomplete serial connection between PDA and Grabba sleeve	1) Slide PDA up in sleeve ½' and push back down to reconnect. A blue light should flash on the right side of the sleeve 2) Sleeve requires reset (very rare) – insert PDA stylus into small hole on back of sleeve
	Grabba sleeve not charged	Charge sleeve for a minimum of 30 minutes. Note – SMARTSPEED will not work while sleeve is connected to USB – use 5V charger only
	SMARTLOADER software still running	Exit SMARTSPEED and check to see if SMARTLOADER is still running. Close SMARTLOADER and try again
PDA asks for password when turned on	Microsoft/HP bug which is yet to be fixed	Perform a soft reset by inserting the stylus into the small hole on the left side of the PDA (note –must disconnect Grabba sleeve to see hole)
Software returns error “license not found” or “invalid license”	Software license file has not been copied into program directory	Check email from Fusion Sport accompanying software update, and copy the license.lic file into the program files/Smartspeed solder on the PDA. If you do not have a license file, or the problem persists, contact Fusion head office.
PDA loses power quickly	PDA not fully charged	Check charging instructions and recharge



www.fusionsport.com

Symptom	Possible Explanation	Possible solutions
	WiFi or Bluetooth left on	Ensure Wifi and Bluetooth are turned off when not in use
PDA charges slowly	PDA being charged via USB from PC	Connect USB cable to wall charger plug, or use 5V charger provided with system
	WiFi left on during charging	Ensure Wifi and Bluetooth are turned off when not in use
Software returns an "unexpected error"	Software has crashed (extremely rare)	Wait for software to exit and reset, or perform a soft reset by inserting the stylus into the small hole on the left side of the PDA (note –must disconnect Grabba sleeve to see hole)

SMARTSPEED REMOTE UNIT PROBLEMS

Symptom	Possible Explanation	Possible solutions
Unit does not turn on (no green indicator light on back)	Incorrect charging or unit left on during charging	Charge units as per instructions. Ensure charge light on unit is flashing. If light goes solid immediately, slow charge for 20 minutes, then unplug and re-plug charger.
	Battery has failed (very rare)	Contact support@fusionsport.com
Unit turns on but is unresponsive (no buzzer or alignment possible, may have visible blue LEDs on permanently)	Unit has flat battery (green power light will be very dim)	Charge unit as per instructions. If you <u>know</u> unit is charged, proceed to next option.
	Unit has incurred firmware failure (very rare)	Turn off all units except non-responsive one. Exit SMARTSPEED software and run the SMARTLOADER application from the start menu. Follow the prompts to attempt reprogramming of firmware.



www.fusionsport.com

Symptom	Possible Explanation	Possible solutions
	Unit has incurred physical damage	Contact support network if above SMARTLOADER process fails after two attempts.
Unit turns on and aligns with reflector, but does not respond to scan	Unit has locked up in firmware	Turn unit off and on, and try to scan again
	Unit has incurred physical damage	Contact support network
	User has changed radio channel of unit	Ask users if anyone has used the SMARTSETUP area under the options menu. Contact support@fusionsport.com

SMARTSPEED SOFTWARE PROBLEMS

Symptom	Possible Explanation	Possible solutions
Software message "Grabba sleeve disconnected" on front screen	Refer to PDA/Sleeve table on previous page	Refer to PDA/Sleeve table on previous page
Scan fails to find any units	Grabba sleeve disconnected or flat – there will be no battery level reported for sleeve	Refer to PDA/sleeve troubleshooting
	Units are on a different channel to the Grabba sleeve (user has changed them or mixed up two different systems)	Contact support for instructions on changing channels - support@fusionsport.com



Symptom	Possible Explanation	Possible solutions
Error "There are not enough devices detected on the field"	Incorrect value for "tracks" entered (e.g. 4 tracks chosen when only one has been set up)	Change tracks value to correct number (e.g. 1 for single lane)
	Insufficient gates switched on and scanned.	Return to scan screen by pressing OK, and perform another scan. Ensure enough devices are found for the chosen protocol, or chose another protocol with less gates
Error "Incorrect player/track ratio"	When using multiple lanes, the number of athletes chosen must be divisible by the number of tracks selected	Add or subtract athletes from the list to result in an appropriate number
Error "synchronization failed" when starting or during drill	One or more units was not detected in the synchronization stage	Click "RETRY" to attempt synchronization again
		Exit to Scan page and perform scan. Check battery levels and appropriate number of units are scanned
Jump mat does not register during "test track" phase	Jump mat is not connected	Return to "scan" page and repeat scan. Unit should discover as "G-MAT" not "GATE". Check connection to unit
	Jump mat is damaged	If above step fails, contact support@fusionsport.com for assistance
Jump mat is triggered when athlete moves on mat or when preparing to jump	Athlete is actually leaving the mat for a short period during un-weighting	Adjust sensitivity downwards to 85%