

TK-STRIKE

USER GUIDE

This User's Guide explains everything about TK-Strike. From hardware to software, it includes a problem-solving guide for professional users.

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The Basics of PSS

Introduction

Daedo TK-STRIKE is a World Taekwondo Federation Recognized electronic protector system for Taekwondo training and competition, a combination of sports and technology that was brought to the world to contribute to the evolution and development of Taekwondo as global sport.

Daedo TK-STRIKE is a Protector & Scoring System designed to adapt to the current WTF competition rules and Taekwondo techniques, allowing the best performance in Taekwondo training and competition. It evaluates technique, speed and power, and delivers a clear and precise scoring, altogether encouraging a more dynamic and real Taekwondo.

- See more at: <http://www.daedopss.com/>

Equipment

The Protector Scoring System, approved by the World Taekwondo Federation, consists of the following



- **1. Electronic protector** – has the function of protecting the athlete, as well as scoring the match. It looks and feels like the original chest protector, also known as “HOGU”. This can come with the transmitter or without it, depending on how you purchase it. Ref.: EPRO 2901 / EPRO 2910
- **2. Transmitter** – sends signal of kicks from the electronic protector to the computer. There is one ID for each and every transmitter. Two must be connected to the system in order to be used. Once disconnected from the electronic protector, the system will fail to function. Ref.: EPRO 2909
- **3. Receiver** – receives the signal from the transmitter. It is connected by USB, and the connection protocol is ZigBee 2.4Hz. Ref.: EPRO 2906
- **4. Charger** – it is used to charge the transmitters and Judge Scoring Boxes. These are specially made for TK-Strike, and no other charger should be used other than the original. Receivers do not require charging. Ref.: EPRO 2905
- **5. Software** – Runs the system for scoring, including scoreboards and TA interface. Ref.: EPRO 2907

- **6. Electronic Foot Protector** – also referred as the E-Foot Protector, has 5 different sensors located in strategic points around the foot to only allow scoring of valid kicks. It can be washed and re-used, and has a durability of 2 years, depending on how they are used. Ref.: EPRO 2903

For Head Kicks, Technical Kicks, and Punches...

- **Judge Scoring Box** – has a total of 6 buttons (3 blue, 3 red) that can be pressed by the referee during a match to give additional points not given by the TK-Strike Electronic Protector System, such as Head Kicks or Turning Kicks.
- **Electronic Head Gear** – still pending approval from the World Taekwondo Federation. It scores points in all valid areas of the head, including the face.

You can also buy accessories such as

- **PSS Bag** – in sizes small and large. Made with an ultra-resistant fabric, will make transportation easier and comfortable.

Electronic Protectors 101

Electronic protectors are gaining ground as “stable” and “fair” way of judging. Where once all competitors had direct complains about the electronic protector, claiming the instability and unfairness, now, TK-Strike is vastly recognized as an electronic protector that will give the competitors a fair match.

Electronic protectors can be used in two different scenarios

- **Training** – it can be used during the training of elite taekwondo athletes. The durability of the TK-Strike Electronic Protectors allow athletes to train without having to connect the gear to the system, so that they get used to the weight and feel of the electronic protector.
- Olympic and “World Taekwondo Federation” style Taekwondo matches and championships.

Although they seem reliable, there are many factors that can affect the sensibility of the electronic protector. In order to have a fair game, you should keep in mind a few helpful tips

- **Size** – both competitors **MUST** wear the same size protectors. Larger means more surface area to kick, and vice-versa.
- **Category** – the weight category of the competitors **MUST** be the same. Otherwise, the match can be considered unfair.
- **Fit** – how the electronic trunk protectors and electronic foot protectors fit onto a competitor can vary the results of a match. The higher and tighter the trunk protector, the harder for the opponent to kick. The foot protector must not be too big or too small. If too big, it may fall off, and if too small, it may tear off on tension points.

Maintenance

It is very important for one to take good care of his equipment. Sweat and other factors may deteriorate the electronic protector and affect performance. Follow the next steps to keep your body protectors always in optimal state

- Keep in dry and well ventilated space
- Dry sweat from the electronic protectors after using them
- Do not wash the electronic trunk protectors in the washing machine
- Do not open the electronic protectors at any point
- Always wash the electronic foot protectors in cold water with the washing machine after use
- Keep your electronics always charged and in dry and well ventilated space

How to Use Truescore 2013

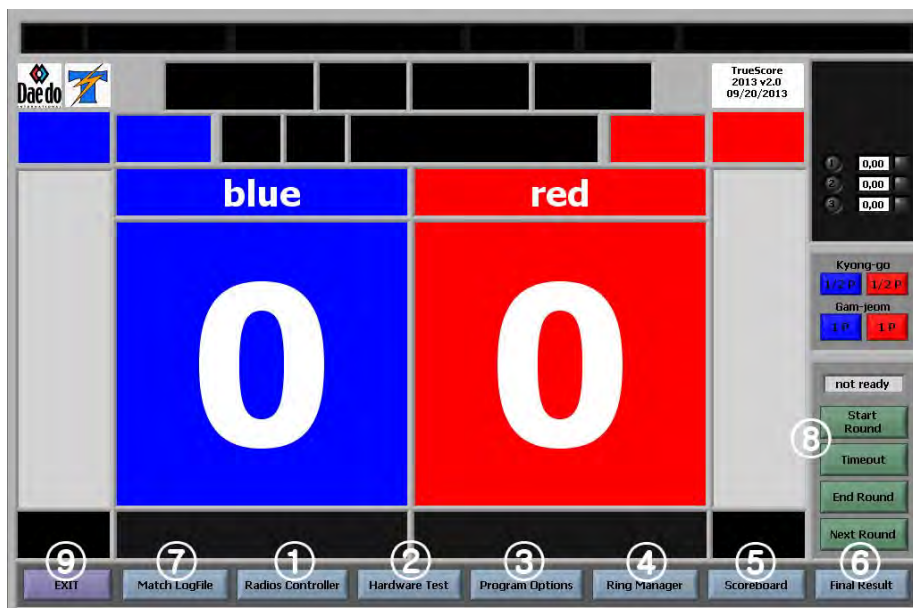
What This Software Helps You Accomplish

Truescore 2013 helps you accomplish a number of important tasks regarding Olympic and “WTF” style Taekwondo competitions and matches.

- Set up, start, pause, stop, and finalize Taekwondo matches according to the World Taekwondo Federation rules. These can always be changed within the software.
- Connect Judge Scoring Boxes, Electronic Protectors, and Electronic Head Gear, all at the same time, and get values from them. All of them are optional to connect or not.
- Connect the interface with other Venue Management systems such as TaekoPlan, Video Replay systems such as Dartfish, and even TV broadcasters
- Extract match information in the format of log files for further inspection of different events
- Test the hardware previous to the start of a match

How It's Organized

To make competition or training as smooth as possible, Truescore is built around different functions



- **1. Radios Controller** – where everything is connected or disconnected.
- **2. Hardware Test** – test all your hardware
- **3. Program Options** – where connections are set up between Truescore 2013 and other VM systems, Video Replay systems, and TV broadcasters.
- **4. Ring Manager** – where a new match is either set up or called from Venue Management.
- **5. Scoreboard** – used to change the times, scores, and penalties of the current ongoing fight.
- **6. Final Result** – end a match
- **7. Match LogFile** – look at all the match data recorded
- **8. Start & Stop** – manage the scoreboard time during a match
- **9. EXIT** – exit the software

Radios Controller

The first step to using Truescore 2013 with the electronic protectors and judge scoring boxes is connecting all the wireless devices to the laptop or PC.

- **Channel** – different channels will be used depending on how the Wi-Fi channels are set up. For example, if Wi-fi channels 1, 6, and 11 already are in use by other Wi-Fi networks, choose channel 14.
- **Base** – tells you if the Receiver is connected to the PC and operational
- **Find Base** – by clicking on this, you can activate the Receiver to the Truescore 2013 software.
- **Judges** – here you can change the time window in which judges have to score, how many judges must validate, and how many judges there are in total. You must type in all the “handset ID”s in order for the Judge Scoring Boxes to be able to connect.
- **Sensors** – activate and deactivate electronic protector and head gear transmitters, always after entering their respective sensor ID.
- **Comm** – when it is red, it means there is no communication between the transmitter/judge handsets and the receiver. When this turns green, it means a connection is established and there is an active communication between devices and receiver.
- **Link to Base** – you must ONLY click on this once all the handset and sensor IDs are typed in. Make sure you have turned on all devices before clicking on “Link to Base”. When you do so, you will see all the “comm” lights turn green. If it does not turn green, turn the devices on and off.
- **OK <F10>** - this saves all the information typed in the fields of sensor and handset IDs
- **Cancel <Esc>** - This discards any type of newly input information

Program Options

The Truescore 2013 software is adapted to various types of interface, from different companies involved in Taekwondo competitions.

- **Video Replay Interface** – through a TCP connection, information is sent to software such as Dartfish to be able to tag videos. Every time the IP Address is changed, a new connection must be requested.
- **GP Match Broadcast** – has the same feature as with the Video Replay, but must be set to a different address than that of Dartfish. Every time the IP Address is changed, a new connection must be requested.
- **Venue Management Interface** – used to bring match information, as well as sending the results. Every time the IP Address is changed, a new connection must be requested.
- **Scoring Rules** – the values depend on what the governing body of the championship decides. However, most of them use the standard “World Taekwondo Federation” rules.

Ring Manager

Before starting a new match, information must be either brought or manually input by the TA.

- **Match** – the match number of the current fight
- **Athlete information fields** – names of the athletes, their WTF IDs, and their NOC codes.
- **Round time information fields** – number of rounds, length of rounds and their respective rest times, as well as the option to activate or deactivate 4th round golden point.
- **Category information fields** – gender, weight, and their respective Hit Levels. By entering Levels, you can select the category of the contestants and the hit levels will vary according to the value presets.
- **Next Match** – calls the next match, only when there is a connection between Truescore 2013 and Venue Management. Once this is clicked, all the information will be received and will show on the different information fields.

Scoreboard

When there is a change in time, score, or penalty, due to a referee decision or a human error, modifications can be made.



- Round Selector – click on the button of the round you want to change to
- New Time fields – round time can be changed and applied to the match
- Point modification – award, remove points from blue/red
 - Click on type of point (Head, Body, or Turn)
 - Switch to “Award” or “Remove”, accordingly to the situation
 - Switch to “Blue” or “Red”, accordingly to the situation
 - “Apply” the score change to see changes on the scoreboard
- Penalty point modification – award, remove penalty points from blue/red.
 - Click on type of penalty (Kyong-go or Gam-jeom)
 - Switch to “Award” or “Remove”, accordingly to the situation
 - Switch to “Blue” or “Red”, accordingly to the situation
 - “Apply” the penalties change to see changes on the scoreboard
- Close the window by clicking on “Done <F10>”

Installation

System Requirements

The TrueScore 2013 software requires the following basic system configuration

- Windows XP/7/8
- 512MB of RAM minimum
- At least 1,5GB of hard disk space
- 1024x768 pixel screen resolution
- VGA or HDMI output
- PDP or TV with VGA or HDMI input, with a minimum resolution of 1024x768
- VGA or HDMI cable

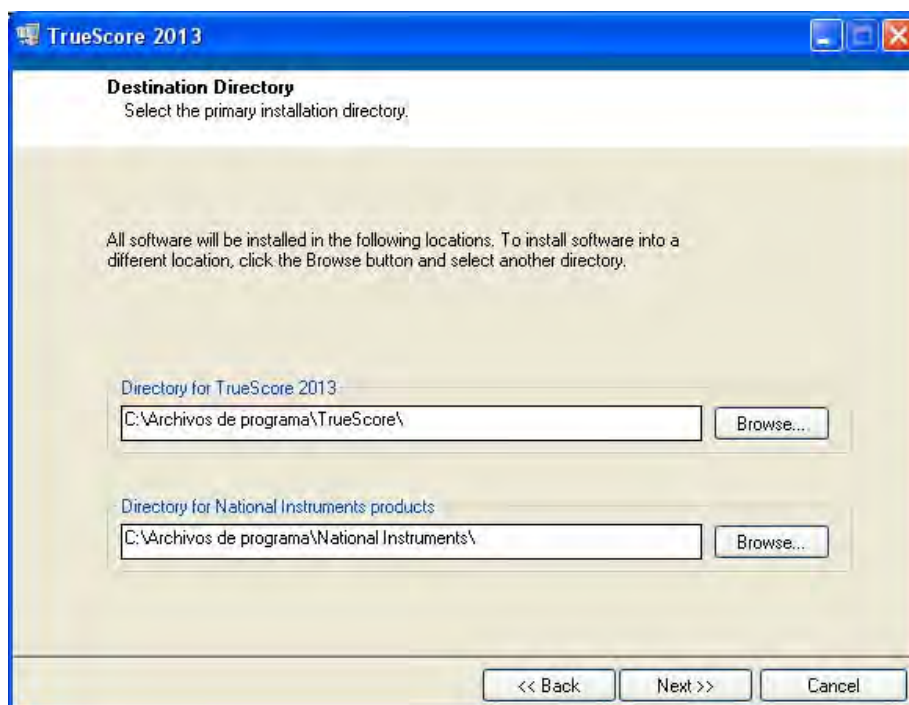
For systems that include 2 scoreboards, TrueScore requires

- 3 VGA or HDMI cables
- 2-way VGA or HDMI signal splitter

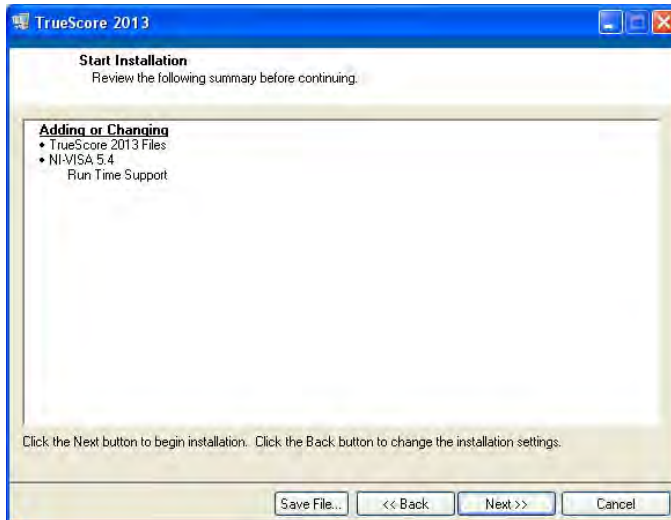
Setup

The truescore setup is easy. Featuring a standard Microsoft Windows setup interface, you only need to complete a few steps. You can cancel the setup anytime by clicking on the “cancel” button.

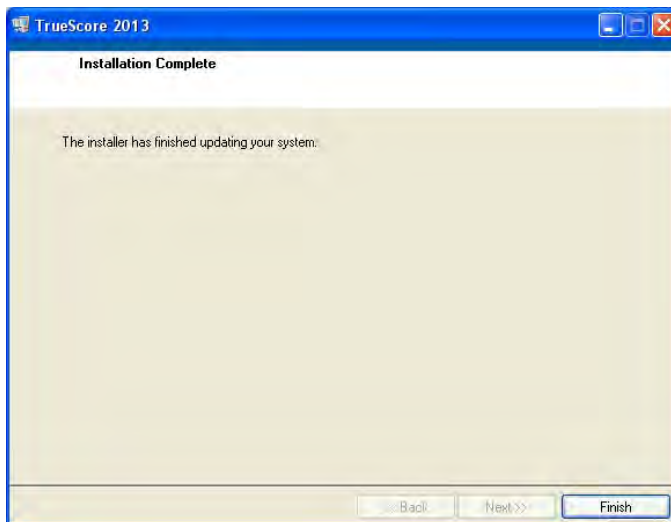
Double click on the file “**setup.exe**” installer file within the TrueScore folder on the USB provided. This will launch the TrueScore 2013 Setup Wizard



Choose a folder to put “TrueScore 2013” in, and another one to put “National Instruments products” in. The setup program will suggest a default location (c:\Program Files\TrueScore). If you do not want to use the default location, you can browse for a specific directory in the provided window (putting TrueScore into a location other than the default will not affect the operation of the program) Click “next” on the directory screen.



Read the summary of the installation and click “next” on the “Start Installation” screen.



Click on “Finish”

Uninstalling

You can uninstall the software using the Microsoft Windows Control Panel

- Select the “Add or Remove Programs” icon. This will launch the TrueScore uninstall program and will proceed with the uninstalling of the software automatically.

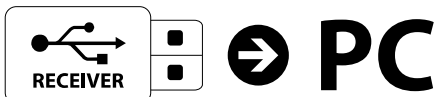
Using TrueScore 2013

Introduction

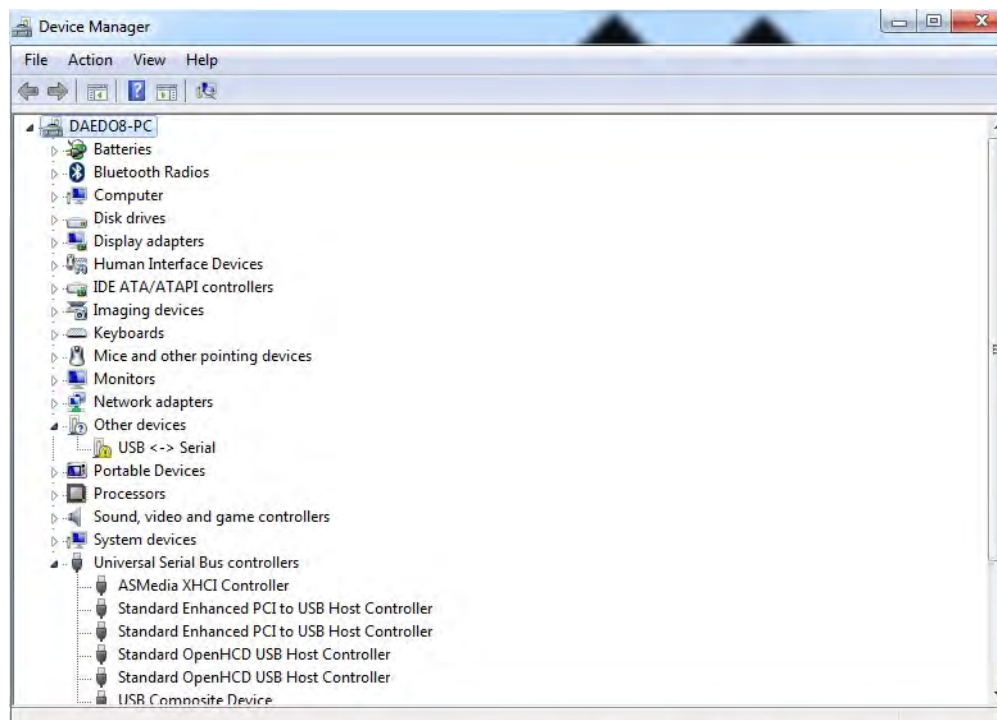
TrueScore 2013 can be used for either competition or training, with or without electronics.

Installing the Receiver Drivers

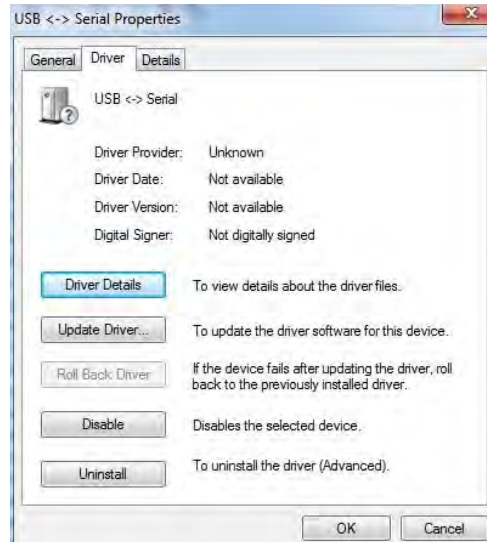
- Connect the USB Receiver to the laptop or PC that you are willing to use.



- The drivers of the Receiver will install automatically if you have internet access on the laptop or PC. If not, follow the instructions below:
 1. Right Click on “My Computer” OR “Computer”. Click on Manage...
 2. Click on “Device Manager”



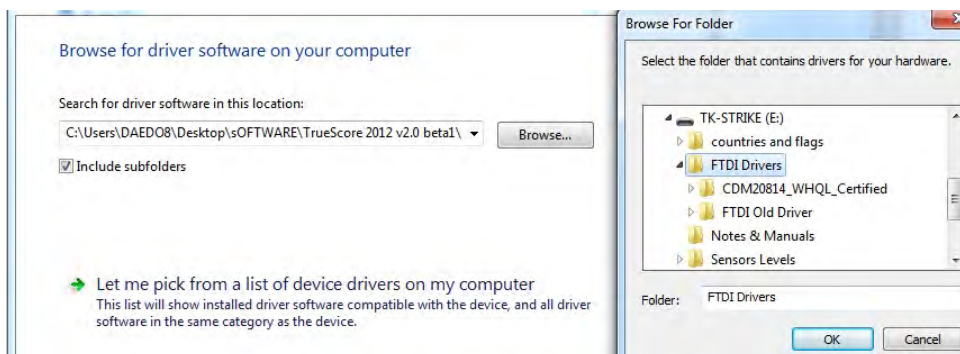
3. If you can find “USB <-> Serial” on the list of devices, double click on it.



4. Click on Update Driver...



5. Click on Browse my computer for driver software...



6. Browse the “FTDI Drivers” folder within the USB with the TrueScore2013 software provided by your distributor or vendor.

Browse for driver software on your computer

Search for driver software in this location:

E:\FTDI Drivers

Browse...

Include subfolders

7. Press “OK” and install the driver by clicking on “Next”.
8. Repeat the same process for the device listed on the “Device Manager” as “USB Serial Port”.
9. In the end, you should get a device under “Ports (COM & LPT)” called “USB Serial Port (COM3)”

Sensor Levels / Countries and Flags

In order to use the TrueScore2013 software to its full capability, you have to copy the “Sensor Levels” folder and the “Countries and Flags” folder from the TrueScore2013 Software USB to the TrueScore folder created in “My Documents”.

To do so, follow the instructions:

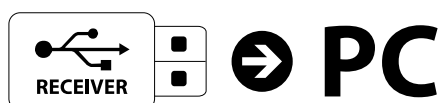
1. Open the USB Mass Storage Device containing the software and copy the folders “Sensor Levels” and “Countries and Flags” folders.
2. Go to “My Documents” and paste the folders within the “TrueScore” folder.
3. Make sure you replace the ones already created in the “TrueScore” folder.

Connecting Your Devices

In order to use the system, you will need to connect the Transmitters and/or the Judge Scoring boxes.

In order to do so, follow the next steps:

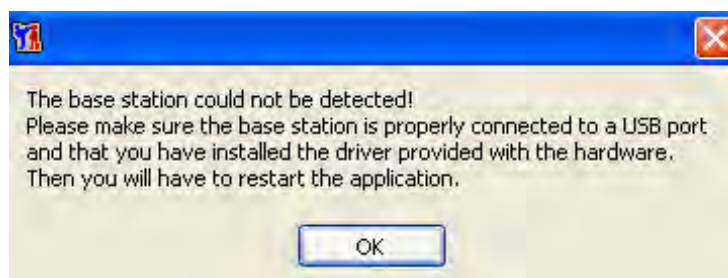
- Connect the USB Receiver to the laptop or PC you are willing to use.



- Open "TrueScore 2013" software.



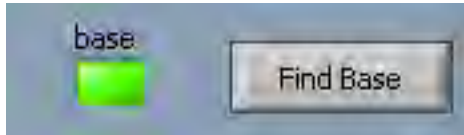
- Make sure the software does not give you any kind of message regarding the receivers not being connected to the system. If you receive this message, exit the software, connect the USB receiver and open the software again.



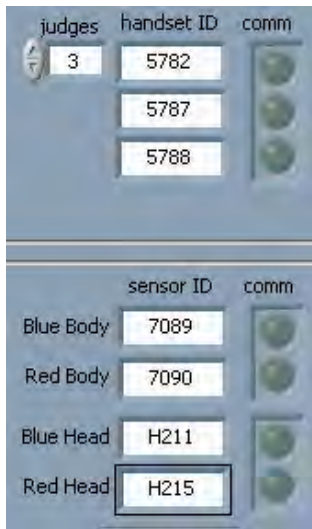
- Click on “Radios Controller”



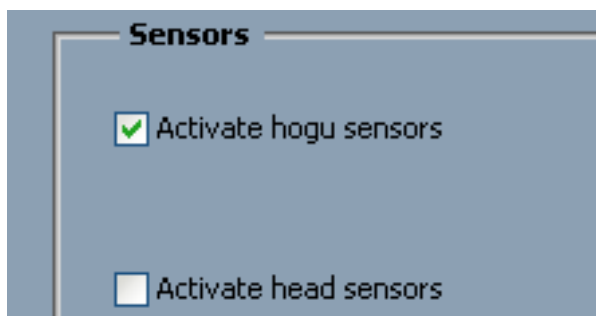
- Click on “Find Base” several times and check if the red LED on the receiver turns on and off after every click.



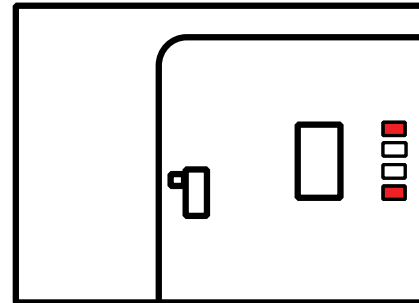
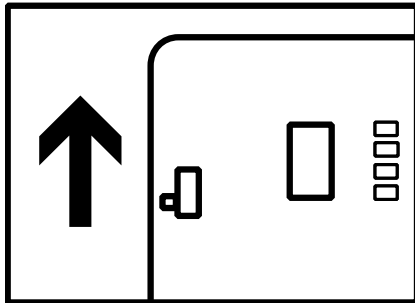
- Type in all the handset and sensor IDs that you are willing to use with the TrueScore software.



- Deactivate all other sensors that you will not use. (eg. Only activate 2 judges if you only have 2 Judge Scoring Boxes. Deactivate head sensors if you are not using electronic head gear.)



- Make sure all devices are turned ON. To turn ON the transmitters, move the switch gently in the direction indicated. When you do this, you must get two red LEDs: one of them blinking and one of them constant.

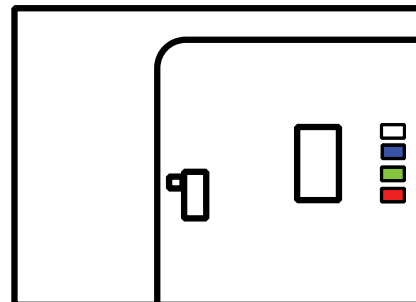


➤ **IMPORTANT! The switch must be handled with care. Warranty void if broken.**

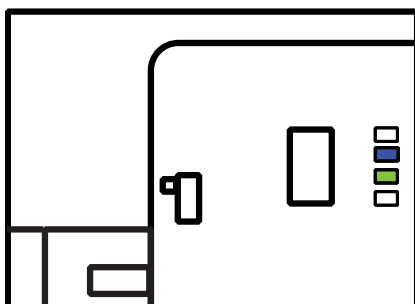
- Click on “Link to Base” and wait until all “comm.” lights turn green. You will see on the transmitter that the green and blue LED start flashing, while the red LED stays blinking as before.

judges	handset ID	comm
3	5782	
	5787	
	5788	

	sensor ID	comm
Blue Body	7089	
Red Body	7090	
Blue Head	H211	
Red Head	H215	

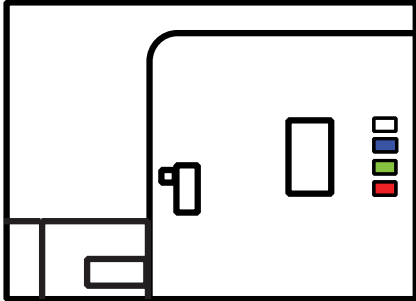


- Connect the transmitter to the hogu. At this point, you will see that the red blinking light will disappear.

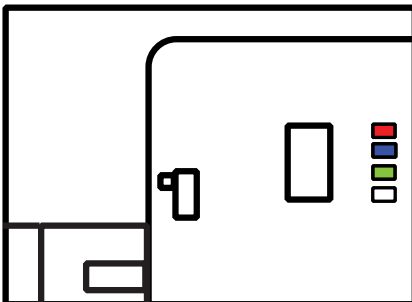


Once the transmitter establishes a connection with the PC or laptop, and it is physically connected to the hogu, all you have to see are the green and blue LEDs flashing very lightly.

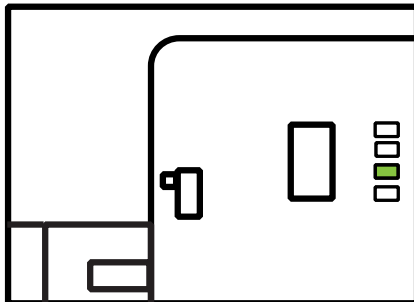
- If you can still see the red LED light blinking, it could mean the hogu is faulty or the transmitter is broken. In that case, test the transmitter and hogu with other equipment.



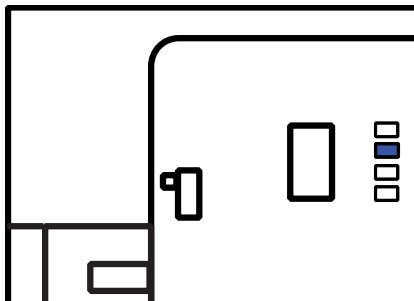
- Restart the power of the devices that have a red light at the “comm.” indicators. Also restart the power of the devices if you see a constant blue, green, or red light in them.



IF you might find the top red LED light up with the green and blue still flashing, there is no problem in using the transmitter like this but it is recommended to turn the transmitter OFF and back ON.



If during the match, there is a constant green light, it means connection is lost. In this case, you must turn the transmitter OFF and back ON.

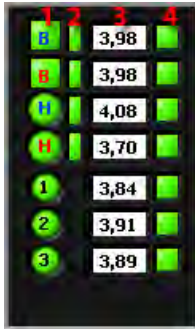


Sometimes you might find that the light of the blue LED is on constantly. Disconnecting the transmitter from the hogu and reconnecting can solve this. Turning the transmitter OFF and ON can also solve it.

- Click “OK <F10>” and exit Radios Controller, saving all the information.

Status Check

After these steps, you will be able to see the status of the transmitters on the top right of the TA GUI screen. The pilots will show you



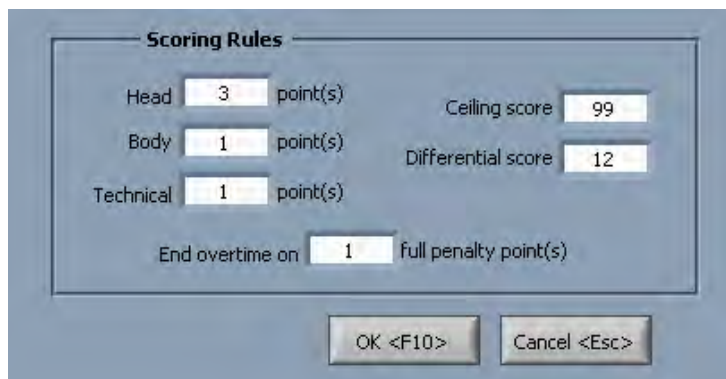
1. the status of communication,
2. physical connection to the electronic protection gear (only for transmitters),
3. battery level in Volts,
4. and battery level in green or red.

Setting a New Match

When all devices are connected correctly, you will need to set the rules and a new match in order to do any testing or start a match. You can do this either manually or automatically with Venue Management systems.

Setting the Rules

In order to set the match, you first need to set the rules of the Championship or type of scoring (World Taekwondo Federation, etc...)



The image shows a dialog box titled "Scoring Rules" with the following settings:

Category	Value	Unit
Head	3	point(s)
Body	1	point(s)
Technical	1	point(s)
End overtime on	1	full penalty point(s)
Ceiling score	99	
Differential score	12	

Buttons: OK <F10>, Cancel <Esc>

To do so, open Program Options and change the Scoring Rules according to the rules of the championship.

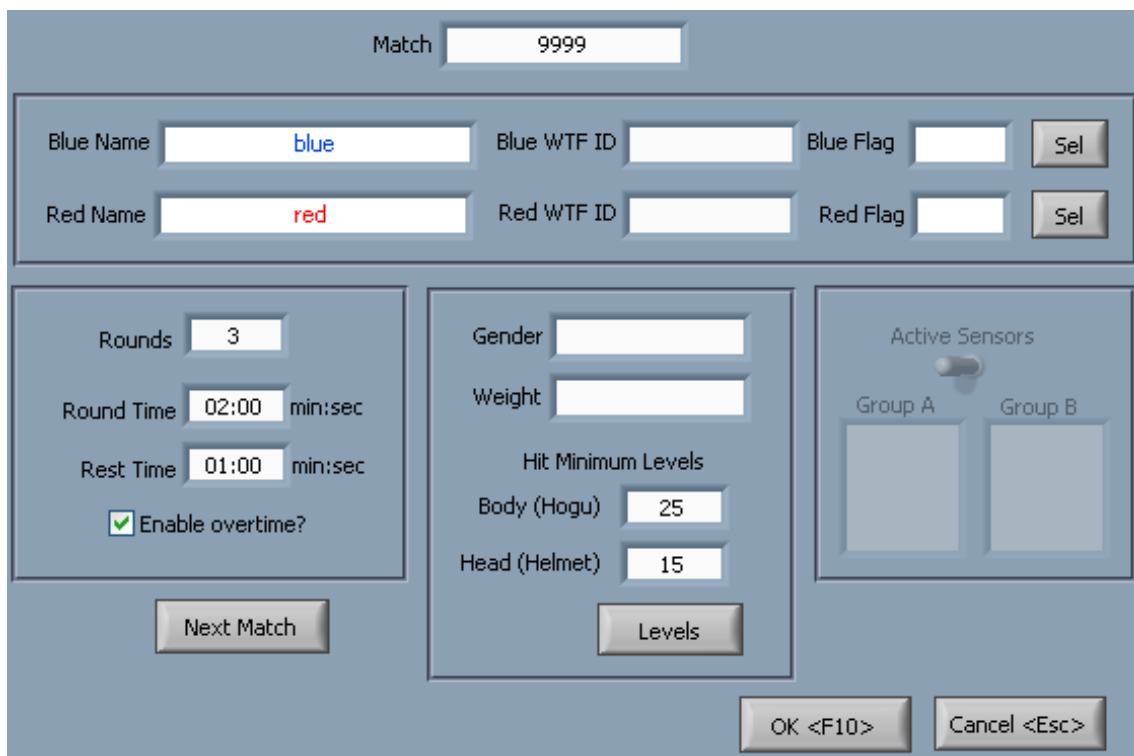
Once done, click on "OK <F10>" to save the settings.

Manual Setup

- Open “Ring Manager”



- Input all the details of the fight, the fighters, and their respective hit levels



The screenshot shows the 'Ring Manager' software interface. At the top, there is a 'Match' field containing the number '9999'. Below this, there are two rows of input fields for the fighters: 'Blue Name' (containing 'blue'), 'Blue WTF ID', 'Blue Flag', and a 'Sel' button; and 'Red Name' (containing 'red'), 'Red WTF ID', 'Red Flag', and a 'Sel' button. The interface is divided into three main sections. The left section contains 'Rounds' (3), 'Round Time' (02:00 min:sec), 'Rest Time' (01:00 min:sec), and a checked 'Enable overtime?' checkbox. The middle section contains 'Gender', 'Weight', 'Hit Minimum Levels' (with 'Body (Hogu)' at 25 and 'Head (Helmet)' at 15), and a 'Levels' button. The right section is titled 'Active Sensors' and has a toggle switch, with two empty boxes labeled 'Group A' and 'Group B'. At the bottom, there is a 'Next Match' button, and two buttons for 'OK <F10>' and 'Cancel <Esc>'.

- To change the hit level, click on Levels, select the Level, Gender, and Weight Category of the fighters and press OK.
- Click on “OK <F10>” to apply the new match.

Venue Management System

- Send us an email to tkstrike@daedo.com for more information

Running a Match

Once everything is connected and set up, the status of the system will appear as “ready”. Remember that at this point, all transmitters should be connected to the protectors and turned on. At this point, you can open the “Hardware Test” window and test all your hardware or you can start the match by clicking on the “Start” button or the “ENTER” key on your keyboard.

To pause the time on the scoreboard, you can click on “timeout” or press the “SPACEBAR” on your keyboard.

Kyong-go’s and Gam-jeom’s are given from the TA screen, clicking on the buttons at the right of the screen.

End a Match

The match will end automatically in the following scenarios:

- At the end of the 3rd round, when there is a winner (PTF)
- At the end of the 2nd round, when there is a 12 point gap (PTG)
- During the 3rd round, when a 12 point gap is created (PTG)
- At the end of the 4th round when there is no winner (SUP)
- During the 4th round, when there is a winner (SDP)

When there is a knockout (KO), the referee stops contest (RSC), one of the athletes is disqualified (DSQ) or withdraws (WRD), or it ends by referee punitive decision (PUN), the match should be stopped manually. To do so, click on “Final Result”. Once opened the window, select the winner and the reason of victory, and press OK once the center referee declares a winner.

Exit Truescore 2013

Once the competition is over, the software can be turned off by clicking on the “Exit” button and on “OK”.

This will not disconnect the hardware connected to the receiver. To do so, you will need to disconnect the USB receiver and turn off all the hardware.

Hit Levels

Senior Male

Category	-54	-58	-63	-68	-74	-80	-87	+87
Size PSS	#2	#3	#3	#3	#3	#4	#4	#4
Hit Level	26	30	31	32	33	34	36	38

Senior Female

Category	-46	-49	-53	-57	-62	-67	-73	+73
Size PSS	#1	#2	#2	#3	#3	#3	#3	#4
Hit Level	22	25	26	27	28	30	31	32

Junior Male

Category	-45	-48	-51	-55	-59	-63	-68	-73	-78	+78
Size PSS	#1	#2	#2	#2	#3	#3	#3	#3	#4	#4
Hit Level	20	22	23	25	27	28	30	32	33	34

Junior Female

Category	-42	-44	-46	-49	-52	-55	-59	-63	-68	+68
Size PSS	#1	#1	#1	#2	#2	#2	#3	#3	#3	#4
Hit Level	18	19	20	21	22	23	25	26	28	30

Cadet Male

Category	-33	-37	-41	-45	-49	-53	-57	-61	-65	+65
Size PSS	#0	#0	#1	#1	#2	#2	#2	#3	#3	#3
Hit Level	17	18	19	21	22	24	25	27	28	30

Cadet Female

Category	-42	-44	-46	-49	-52	-55	-59	-63	-68	+68
Size PSS	#1	#1	#1	#2	#2	#2	#3	#3	#3	#4
Hit Level	18	19	20	21	22	23	25	26	28	30

Kids (8-10 years)

Category	-26	-28	-30	-32	-34	-36	-39	-41	+41
Size PSS	# 00	# 00	# 0	# 0	# 0	# 1	# 1	# 1	# 2
Hit Level	14	15	15	16	17	18	19	19	20

Kids (11-12 years)

Category	-42	-44	-46	-49	-52	-55	-59	-63	-68	+68
Size PSS	#1	#1	#1	#2	#2	#2	#3	#3	#3	#4
Hit Level	18	19	20	21	22	23	25	26	28	30

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