



Gen.2 Electronic Protector and Scoring System (PSS)

TK-Strike User Manual

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Introduction

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 to deliver accurate and precise scoring.

The second generation Daedo TK-STRIKE Protector & Scoring System (PSS) is a World Taekwondo Federation recognized electronic scoring system for Taekwondo training and competition. This system incorporates various improvements to both the scoring mechanism and radio communications protocol to facilitate the highest level of competition.

For more information and/or technical reference, visit the official website at www.truescore.com.

System Overview

The following elements comprise the TK-STRIKE Gen2 scoring system:

1. **Receiver** – Plugs into the PC's USB port.
2. **Body Transmitter** – Required for E-Hogu scoring.
3. **Electronic Hogu** (“E-Hogu”)
4. **Head Transmitter** – Required for E-Helmet scoring
5. **Electronic Helmet** (“E-Helmet”)
6. **Judge Box** – Enables corner judge scoring.
7. **Charger** – For recharging transmitter and judge box batteries.
8. **TK-Strike** - Ring Management Software
9. **Electronic Footgear** (“E-Footgear”) - Required to register impacts on the E-Hogu and E-Helmet. Official events which use the Gen2 system will only permit the use of matching Gen2 E-Footgear.

Based on your needs, the system may be configured to run with some, or all of the elements. In all configurations, a receiver and the ring management software will be required.

Installation and Setup

Installing the TK-Strike Software

Typically, the TK-Strike Ring Management Software will be provided in the form of a USB storage device. Open the USB drive in your operating system's file manager and locate the TK-Strike installer (application file ending in “.exe”). Double-click and follow all instructions on the installation wizard.

Important: After installation, the TK-Strike Ring Management Software will automatically launch in order to initialize the database and operating parameters. This process may take more than 10 minutes depending on the speed of your machine. Avoid closing the software or shutting off power during this time.

Installing Receiver Drivers

Plug in the Receiver to your machine's USB port. The operating system will automatically scan and install new drivers.

In some cases, the drivers may require manual installation. To manually install drivers:

1. Navigate to the Device Manager. On Windows 10 machines, the device manager may be found by pressing the Windows key and typing in “Device Manager.”
2. Locate and expand the section labeled “Ports (Com and LPT)”
3. Locate “USB Serial Device” with a driver malfunction flag (usually a yellow triangle).
4. Right click the entry and select the option to “Update Driver”
5. Select the option to “Browse my computer for driver software”
6. Use the display panel to navigate to the folder containing the receiver drivers and click OK. For most users, the drivers are contained in a folder labeled “USB_DRIVER_FOR_TI_USB” on the software USB drive.
7. When this step completes, update the driver software one additional time. Drivers will be fully installed when the USB Serial Device shows a COM port assignment; for example: “USB Serial Device (COM10).”

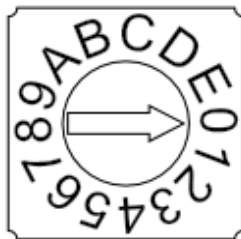
Configuring Radio Hardware

Each set of radios must be configured for the proper ring/channel and player assignment prior to operation.

Channel:

Receivers, Body Transmitters, Helmet Transmitters, and Judge Boxes belonging to the same ring must operate on the same channel setting.

A rotary switch is located on all radio devices as illustrated below:



Receiver – Located on the rear (gray) of case near the bottom

Transmitters – Located on top face, near the charging port and power switch

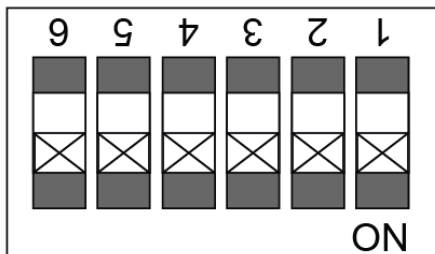
Judge Box – Located under access panel on top of case (where buttons are located)

Use a precision screwdriver or other tool to assign a group of radios to channel 0 through 9, or A to F.

Player/Judge Configuration

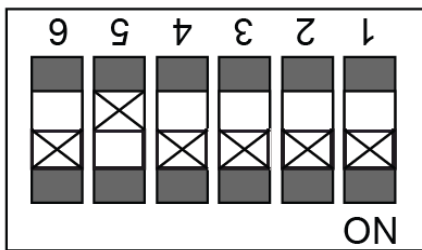
An additional row of switches are used to configure player color and judge position on transmitters and judge boxes respectively.

Judge Box - Each judge box must be configured to correspond to position #1, #2, or #3.



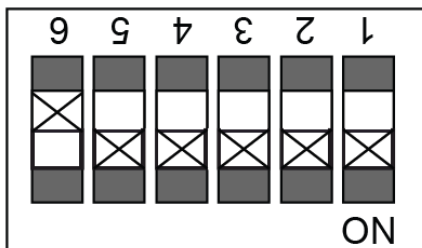
Judge #1

The LED indicator will flash **RED** when powered up and awaiting connection to the receiver



Judge #2

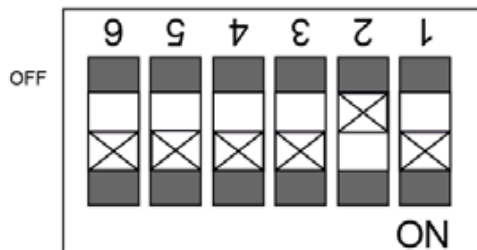
The LED indicator will flash **GREEN** when powered up and awaiting connection to the receiver



Judge #3

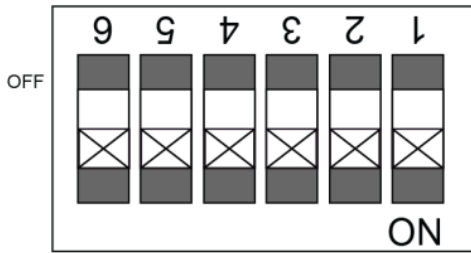
The LED indicator will flash **BLUE** when powered up and awaiting connection to the receiver

Transmitters – Both body and helmet transmitters must be set to their corresponding player color.



BLUE Player

Switch #2 set to “off” position



RED Player

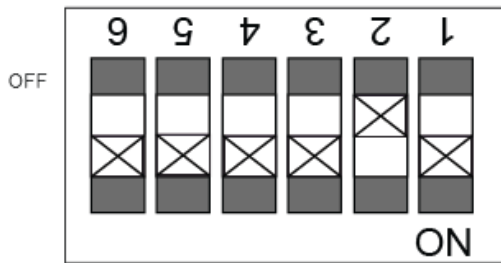
Switch #2 set to “off” position

Configuring a Second Transmitter Group

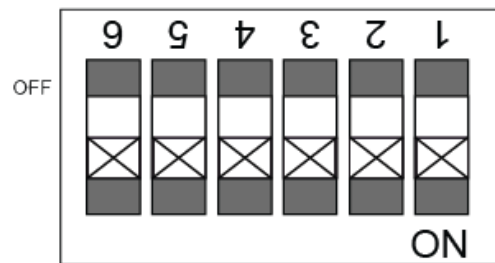
If desired, a second set of transmitters may be configured to serve as an “on-deck” group to minimize ring downtime. While the first group's match is in progress, the second transmitter group may stand-by in a nearby waiting area.

Switch #4 determines the transmitter group setting. To configure a second set of transmitters (body and/or head), follow the switch settings as illustrated below:

Group I

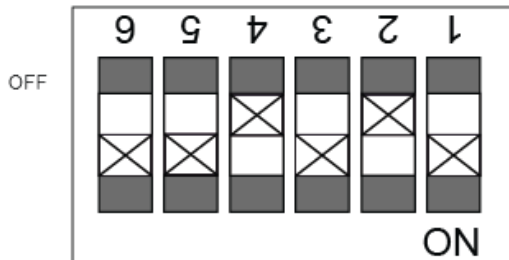


BLUE

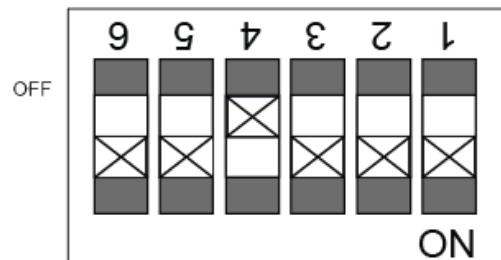


RED

Group II



BLUE



RED

TK-Strike Control Panel



1. Radio Connection Status

- Yellow indicates a radio which is connected, but not attached to electronic protectors
- Red indicates that the receiver is unable to establish a link to this radio
- Green indicates that a radio is functioning correctly.
- If a second group of transmitters is configured, pressing the group buttons will allow toggling between group 1 and 2.

2. Ring/Match Status Indicators

Network Configuration: Indicator will turn red if TK-Strike is unable to initialize the receiver.

Match Configured: Indicator will turn green when the next match is set up.

Ready 4 Match: Indicator will turn green when all radios are connected and plugged in, there are no network errors, and the next match is configured.

Network Error: Indicator will turn red if a device is disconnected during a match, or when a transmitter loses contact with the receiver.

3. Match Control – Buttons that control timing and match score adjustment

4. Match Scoreboard - Displays current score and sensor/judge inputs. Penalties are numbered in the lower corners of the scoreboard. Judge button presses and sensor inputs will appear on the left and right edges. On the bottom of the scoreboard under

each respective player's score, the last two registered impacts will be displayed.

5. *Video Replay Quota/Scoreboard Button* - Pressing this button automatically launches a scoreboard adjustment window. Rejected video replays are shown with a marked cross over the button icon.
6. *System Configuration Buttons* - Buttons which access various hardware setup and match configuration options.
7. *Current Hit Level Settings* – Current hogu (trunk protector icon) and helmet (head gear icon) minimum hit levels.

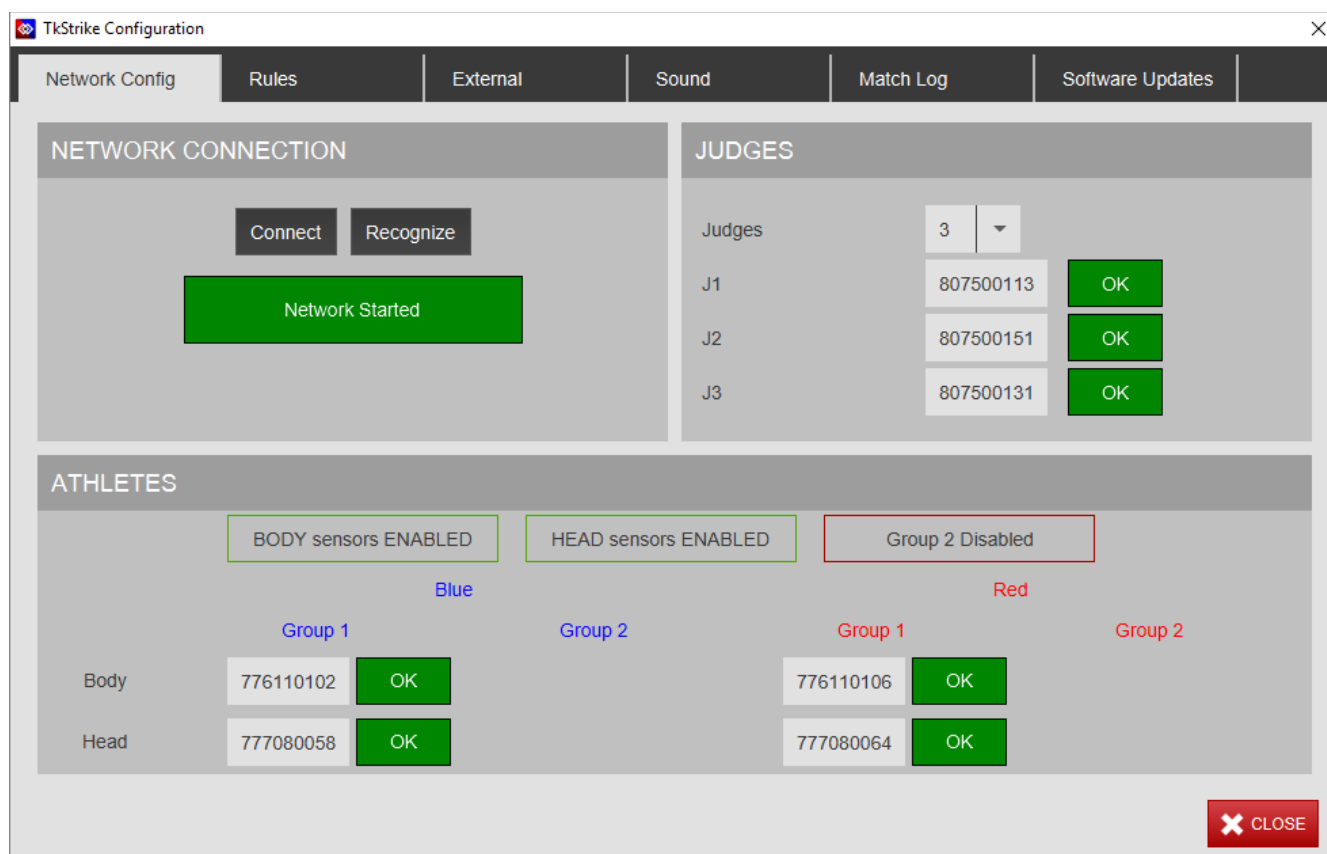
Keyboard Shortcuts

Timeout/Resume	Spacebar
Apply Gamjeom to Red Player	R
Apply Gamjeom to Blue Player	B
Start Round	Enter

Ring Configuration

Connecting Radio Devices

In the Gen2 system, transmitter and judge box ID numbers are stored within the receiver and connected each time the TK-Strike software is launched. However, transmitters may be manually logged in via the “Network Config” tab of the “Configuration” menu located on the bottom row of buttons:



Each transmitter or judge box has an ID number printed or engraved (usually a 9 digit number). This ID number is inputted into each respective field.

When all ID numbers are inputted and radios powered on, pressing “Connect” will start the process of connecting all active radios.

The “Recognize” button is used to retrieve the list of ID numbers currently stored on the attached receiver. These IDs will automatically be entered into their respective fields.

Note: *If the status indicator in the top left of the screen reads “Network not started,” either the receiver is not attached via USB, or the software is unable to communicate with the receiver. Exit and restart the program after confirming that the receiver is attached and powered up.*

Projecting the Scoreboard to an External Monitor

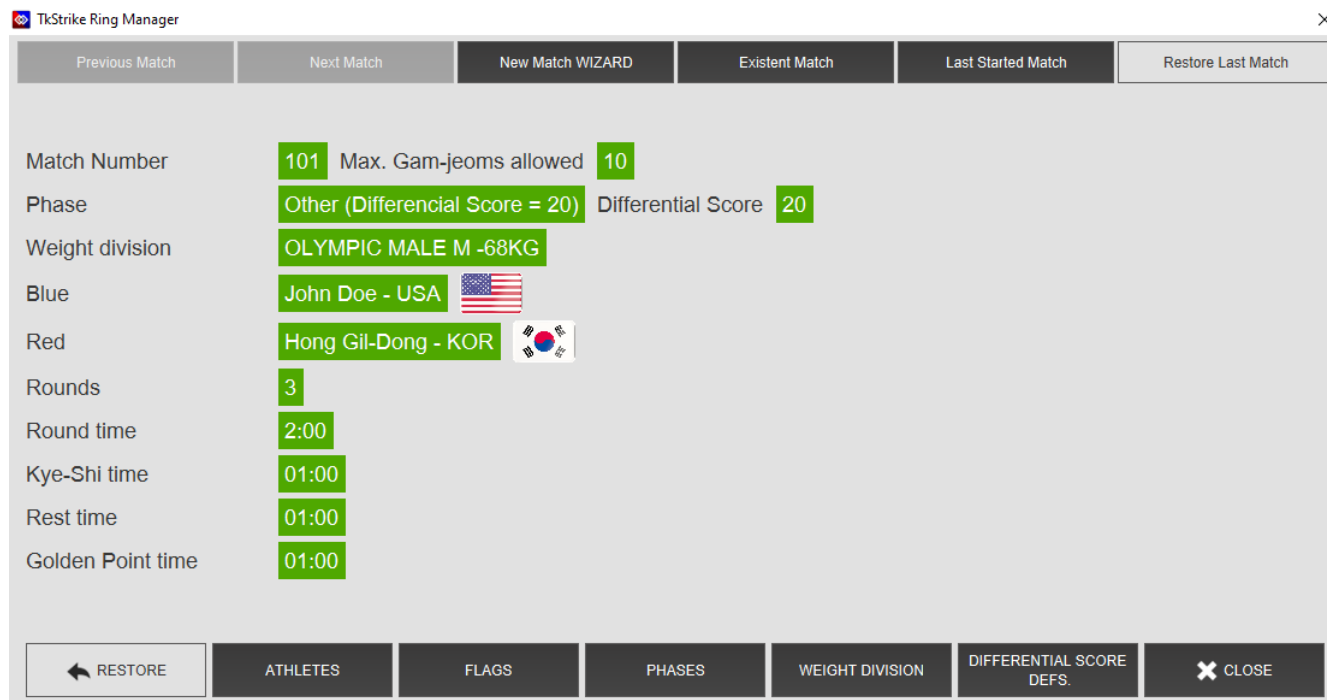
To project the scoreboard to an external monitor, the computer's second screen must be configured as an "extended desktop." On Windows 10 machines, this is adjusted by right clicking the desktop and selecting "Display Settings."

Next, adjust the external monitor's resolution to closely match HD (1280 x 720) or Full HD (1920 x 1080) resolutions.

The current setting for external output can be found in the "Configuration" → "External" section of the tkStrike control panel.

Match Setup

Before a match may be started, the parameters of each match must be set. To begin setup for a new match, enter the “Match/Ring Manager.”



The screenshot shows the TtStrike Ring Manager interface. At the top, there are navigation tabs: Previous Match, Next Match, New Match WIZARD (selected), Existent Match, Last Started Match, and Restore Last Match. Below the tabs, the match parameters are displayed in a list format:

- Match Number: 101
- Max. Gam-Jeoms allowed: 10
- Phase: Other (Differential Score = 20)
- Differential Score: 20
- Weight division: OLYMPIC MALE M -68KG
- Blue: John Doe - USA (with USA flag)
- Red: Hong Gil-Dong - KOR (with KOR flag)
- Rounds: 3
- Round time: 2:00
- Kye-Shi time: 01:00
- Rest time: 01:00
- Golden Point time: 01:00

At the bottom, there is a navigation bar with buttons: RESTORE, ATHLETES, FLAGS, PHASES, WEIGHT DIVISION, DIFFERENTIAL SCORE DEFS., and CLOSE.

Typically, matches may be manually entered through the New Match Wizard, which will prompt the user for all relevant match parameters. At the conclusion of the wizard, closing the Match/Ring manager will automatically enter the new match to the scoreboard.

Restore Last Match – Reloads the exact state of the last match in progress in the event of a system crash or other error.

Existent Match – Load a match previously entered into the match database

Restore – Restore all divisions to default presets.

Tip: Using “Last Started Match” will reload the previous match settings; this is useful for a rapid succession of training matches with the same weight class and thresholds.

Custom Divisions

Clicking the “Weight Division” button enters the Division management panel. Here you may create and alter all weight divisions and thresholds.

Maintenance and Product Care

As with any tool or precision instrumentation, proper care and handling will lengthen the serviceable product lifespan.

Electronic Hogu

The electronic hogu is built to withstand the rigors of competitive impacts, however, some basic care may prevent wear and tear over time:

1. When storing electronic chest protectors, avoid storing folded or bent. Protectors stored in this manner tend to develop creases and subjects the protective foam layer to prolonged stresses.
2. During practices, develop the habit of keeping toenails and fingernails neatly trimmed. Sharp nails contribute towards wearing down the outer layer of the protector.

Lithium-ion Batteries

All radio transmitters and judge boxes make use of lithium-ion rechargeable batteries and follow conventional guidelines for their use.

1. Avoid prolonged exposure to extreme heat.
2. When placed in non-use for long periods of time, be sure to store units with a partial charge to avoid fully depleting the battery while in storage.