## Target PRO 247 Swinger and the Keiron PRO System

The Keiron Target PRO 247 Swinger (Swinger target) is a networked, moving laser reactive target, that forms part of the Keiron PRO laser training system. The Keiron PRO system comprises multiple elements, all connected together via a licence free, private wireless network. The system allows for true 360 degree, safe, basic and advanced firearm training to be carried out. The core of the system are the targets themselves, used together with a Keiron PRO Timer, which functions as both a shot timer and master controller for the system. Once activated, the swinger target offers a swinging, pendulum motion with a limited time window in which to shoot. The design deliberately mimics swinging steel targets used all over the world. Other elements of the PRO system include motion detectors, motion actuators, lighting etc. Together, sophisticated training environments may be set up, offering the advantage of training under realistic scenarios, for example having to shoot while on the move, from behind cover, from the weak hand, whilst crouched etc.

Note there are different versions of targets to ensure the maximum compatibility with existing lasers and laser emitting training firearms, that react to red or green or infrared etc. Please see the section in the back of this guide titled “Other versions of the Target PRO Swinger”

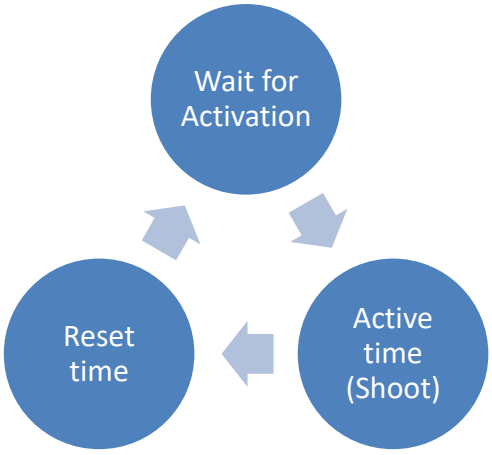
## Target PRO 247 Swinger

The Swinger Target is held captive by a cord in any position from just off vertical, to the left or to the right. A weight at the base of the moving arm provides a pendulum motion. The target incorporates a pin at the top of the target which is retracted when activated, allowing the cord to be released and for the target to swing. This mechanism was chosen for it’s flexibility as well as familiarity, as a similar mechanism is used on steel swinger targets, already in operation for many years around the world. Feel free to experiment with different cord lengths, to set up the target as you see fit. When using the target outdoors, please weight down the base or secure using tent pegs to prevent the wind from blowing it over.

The target provides various means of direct feedback to the user when shot: It can light up the target area, flash a bright external LED and it can provide audible feedback. It can also operate with no feedback, or any combination of these options.

The Swinger target has 3 on states:

1. Waiting to be activated. In this mode, shots are not registered. The laser sensing circuitry is turned off.
2. Activated. Here the swinger target may be shot. By default, the active time is 30 seconds.
3. Reset (Paused), where the swinger target will not register any shots, nor will it be activated. The reset period by default is 30 seconds.




The active time and reset time may be remotely programmed using a PRO Timer. Other settings such as channel selection and auto-power off settings are also performed using a PRO Timer. This allows for fast set up time when changing a range layout, or reconfiguring a system. More detail on this below.

## Activation

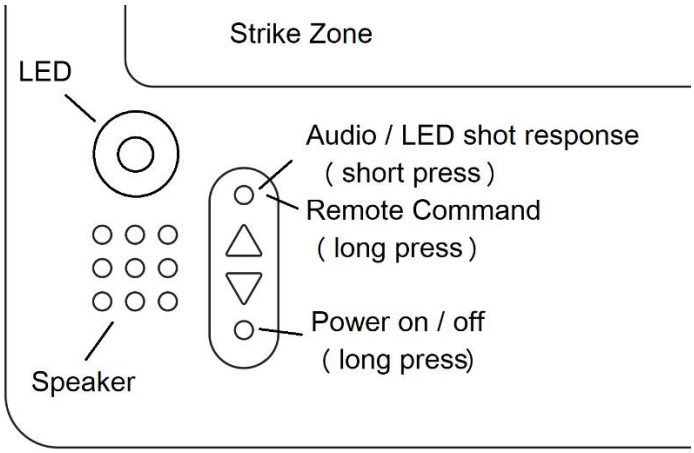
The unit is activated wirelessly via another Keiron PRO device. This could be a target, a remote control, a motion detector, another swinger target, or a PRO Timer.

The Swinger Target PRO may be paired to one remote control, one PRO Timer, and one other device. This allows for both automatic operations, and for a manual override by an instructor.

## Lighting

The swinging target is designed to be used under all lighting conditions, with the SIRT GREEN (long) laser only. It works in direct sunlight, and it works in complete darkness, and everything in between. It filters out other light and other lasers. It may be used outdoors, but please note it is not weather proof. It is great for training with weapon mounted lights, NODS or NVG, filtering out powerful IR lasers and illuminators.

## Controls:




## Operation Summary

With the Swinger Target PRO positioned in the desired location, turn on the unit by long pressing the bottom button and stand clear. The system powers up, performs various internal self-tests, broadcasts information to the Keiron PRO network, pauses for 2 seconds to allow the user to stand clear, then takes multiple samples of the ambient light for analysis. The system is then ready for use.

If required, set the channel to include the unit in a logical Keiron PRO system. See following sections below for more detail.

Swivel the target down to the desired position and engage the loop on the end of the cord over the steel pin to secure the target. If required, adjust the length of the cord to achieve the desired start position.

Ensure the target has a means of being activated. If necessary, pair the target to a Keiron PRO device. This is typically a Target PRO, but could also be another Swinger Target, a PRO Timer, a PRO Remote or a Motion Detector PRO. This is simply accomplished by long pressing both buttons, then triggering the device that you wish to activate the swinger target with (See below).

Shoot your course of fire. When activated, the Swinger Target PRO will retract the pin and the target will start swinging, and become active to shoot. After the active time has elapsed, the pin will be extended, and the Swinger Target may be reset and the cord re-engaged. It will not re-activate until the reset period has elapsed. This allows the target to be set up for semi-auto use, and prevent false triggering for the same shooting session.

When finished, power the unit off by long pressing the bottom button. The screen will light up then fade out.

If a long beep followed by several short beeps are heard, then an error has occurred. The long beep alerts you to an error condition, and the number of short beeps signifies the error. Please see the errors section for more information.

## Keiron PRO Wireless Network

All Keiron PRO elements forming a logical system must be configured to be on the same channel. This allows multiple systems to co-exist, and ensures reliable operation.

If required, place the target into "REMOTE COMMAND RECEIVE" mode by long pressing the top button, and send the channel to be used from the system controller (for example a PRO Timer)

If required, place the target into "PAIRING" mode by long pressing the top AND the bottom button (long press both, until you hear a beep, then release). The Swinger target will beep and flash every second, showing it is waiting to be paired. Then shoot or otherwise operate the ACTIVATOR device so that the Swinger Target PRO can learn and remember the activation device.

## Shot Indication:

A short press of the top button cycles between the type of shot indication provided by the target When pressing the button to change the indication mode, the Swinger Target PRO will indicate which mode has been selected. Each time the top button is pressed, the following shot indication modes are cycled through.

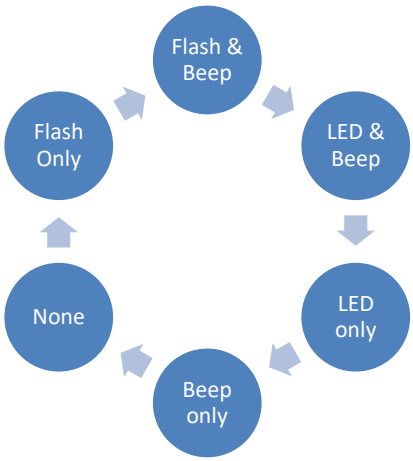



**Figure2: Shot indication**

Please note that changing the direct shot indication on the actual target only affects that target, and does not affect any other means of shot indication that may be set up on the system, such as via a Keiron PRO Audiobox device.

## Remote Command (Receive):

A long press of the top button (1 second) puts the target into a "REMOTE COMMAND RECEIVE" mode. In this mode, the target will not respond to being shot, and will wait for a command from another Keiron PRO device (for example, a PRO Timer). The screen will flash and the beeper will chirp every second, indicating that the unit is waiting for a command. Once the command is received, the system will beep to acknowledge, the command will be performed and normal operation is then resumed. The REMOTE COMMAND RECEIVE mode may be cancelled by any button press.

Use this feature to set the active radio channel and the automatic power off idle period. See Keiron Speed PRO or PRO Timer for more information on sending commands to the Target PRO.

## Active Time and Reset Time

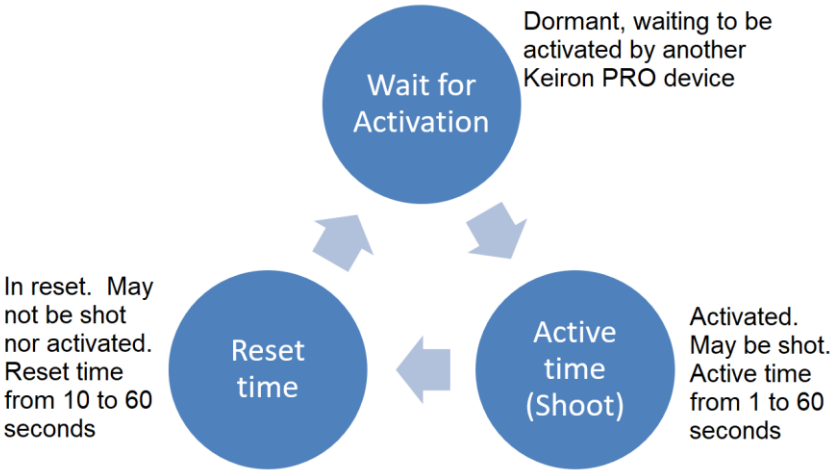
As mentioned in the overview, the Swinger target has 3 states when in normal operation and turned on. In the initial state from power on, it is waiting to be activated by another Keiron PRO device. In this state, it will not react to being shot.

After being activated, the state changes to Active, and the Active state countdown timer starts counting down. In the active state, the target will respond to being shot, and behave in an identical manner to a Target PRO. The Swinger will always transmit shot data to the Keiron PRO Timer, and may also indicate hits by flashing and / or beeping.

When the Active Time countdown timer reaches 0, the Swinger will stop responding the shots. The metal pin will be extended, and a Reset Timer will start counting down. In this Reset state, the Swinger will not respond to being shot, nor will it be activated again. The internal radio is in fact turned off to conserve the battery life.

When the Reset time countdown timer reaches 0, the radio is turned back on, and the Swinger Target again waits to be activated.

Any button press during activation or reset, cancels the state and it reverts back to waiting for activation.




The Active Time, and the Reset Time, may be very simply programmed from a PRO Timer. In the Pro Timer device menu, first set the desired Active Time, then put the Swinger Target into Remote Command (Receive) mode, then send the Active Time. The Swinger Target will beep and save the Active Time. The Active time may be set from 1 to 60 seconds.

You may set the Reset Time in the same way. The Reset Time may be set from 10 to 60 seconds.

From version 1.9 of the software, when powering on the target it will broadcast the version, battery voltage, active time and reset time. This information may be viewed on the PRO Timer using the “Monitor” function on the main menu.

## PAIRING:

A long press of BOTH the top and bottom button ( > 1 second) puts the target into a “pairing” mode, where it listens out for a device to activate it. In this mode, the target will not respond to being shot, and will wait for a

message from another Keiron PRO device (for example, a standard Target PRO) so that it can learn it's unique identification and use it for activation. The screen will flash and the beeper will chirp every second, indicating that the unit is waiting to pair. If pairing with a Target PRO, simply shoot the Target PRO that you wish to use as the activating target. The Swinger Target PRO will beep to acknowledge, and the unique identification number will be saved. Normal operation is then resumed. The PAIRING mode may be cancelled by any button press. Any new pairing overwrites the previous, and any second, identical pairing deletes the pairing.

To pair with a Motion Detector, follow the normal pairing process as described above by long pressing both buttons on the Swinger Target, then cause the motion detector to trigger, by walking in front of it, waving a hand over the front etc. The unit will then pair with the Motion Detector.

To pair with the Keiron PRO Remote, follow the normal pairing process as described above by long pressing both buttons on the Swinger Target and press the desired button on the PRO Remote control. The unit will then pair with the PRO Remote, and will retain any existing pairing with for example a Target PRO.

To pair with a Keiron PRO Timer, ensure that the PRO Timer is set to issue a start command via the PRO Timer (get into main menu, then choose system setup, then ensure "Start Signal" is ON. Then, exit the menu. Follow the normal pairing process by long pressing both buttons on the Swinger Target and then press "Start" on the PRO Timer. The unit will then pair with the PRO Timer, and will retain any existing pairing with for example a Target PRO.

The Swinger target may be paired with a remote control, 1 PRO Timer, and 1 other device, at the same time.

## Delete Pairing:

Pairing with the same device or the same device and button on a PRO Remote for a second time will cancel that pairing. Pairing with a new target or motion detector or different button on a PRO Remote will replace any previous pairings.

### Power ON/OFF:

A long press on the bottom POWER button turns the unit ON and OFF. When turning on, the strike zone will gradually illuminate to indicate the unit is powering up. After a 2 second delay for the user to stand clear, the unit performs a self test then measures and analyses the light in the room. The quality of light is reported by flashing the strike zone with a score, out of 5. Example: 5 flashes out of 5 indicate 100% satisfactory lighting.

When turning off, the strike zone will illuminate and then fade off.

By default, the unit will turn itself off after 1 hour of no activity. The automatic turn off period may be set from 1 hour to 12 hours, via a remote command from (for example) a PRO Timer.

### Power off via Network:

There is a special mode on the Timer PRO that will cause the Swinger Target to shut down. See the Timer PRO manual for more info.

### Other:

There is no command associated with a short press on the bottom button.

### Transmit Power:

There is no manual setting for this, as the Keiron PRO wireless radio protocol automatically adjusts the power output for best battery life and reliable operation.

### Information Broadcast:

From version 1.4 of the software, the Swinger Target PRO will broadcast it's status when inserting batteries or when turning on. The serial number, battery voltage, software revision, active time and reset time is sent and may be displayed on a PRO Timer.

### ERRORS:

Any errors that may occur are reported by beeping and flashing. To draw attention to the error, a long beep followed by a pause is first issued to alert the user to a problem, then the error code is beeped. This allows the user to take note that an error has occurred, and then count the beeps.

2 beeps Master not responding. The target was shot, the shot information was sent but no acknowledgement was received. Explanation: every time a target is shot, information is transmitted wirelessly to the system controller, for example a PRO Timer, or Desktop Gateway. The system controller acknowledges the shot information. 2 beeps means the acknowledgement was not received.

Mostly, this is more a warning than an error, encountered as a result of operator error, because the system controller is not configured to receive the shot information. For example, if you are using a PRO Timer to control the system, and you are busy in a menu or reviewing scores, the system will NOT respond to a target being shot, and the target will then report an error. This is by design, both to conserve battery life (the radio is turned off completely when in a menu or reviewing scores) but also to ensure that a stage is not shot, with no score being recorded because the user forgot to start the stage.

If however your Swinger Target PRO gives a 2 beep error when the system is correctly set up and a shooting stage is underway, then the 2 beeps indicate a genuine transmission failure to the master. You will very rarely, if ever encounter this, as the protocol developed for the Keiron PRO system is highly fault tolerant. Any failure would be due to being "out of range", or radio interference. Either change the channel used by the system, or place the targets closer to the controller.

3 beeps: Battery low. When the 2 x AA batteries are depleted, the unit will turn itself off, both to prevent erratic operation and also to protect the unit from electrolyte leaks. (batteries leak when flat). Remove the batteries as soon as possible to prevent damaging the unit.

4 beeps: Too bright or too much flicker. Reduce the ambient light, or replace the faulty lighting.

5 beeps: Power save timeout (turning off). After the set period of no activity elapses (default 1 hour), the unit will turn off to conserve power.

6 beeps: TX failure. Contact supplier.

7 beeps: Radio fail (dead radio). Contact supplier.

8 beeps: Radio fail (alive, but unserviceable). Contact supplier.

9 beeps: Voltage regulation circuit unserviceable. Contact supplier.

10 beeps: Voltage regulation circuit unserviceable. Contact supplier.

## Tips and Tricks:

Allow space on BOTH sides of the target for the swinging mechanism.

Ensure you have easy access to the cord used to secure the target in the held, inactive position.

It is very easy to make up a cord with extra loops to hook on the target, allowing almost any start position to be set. Try it almost vertical, where the entire target can be hidden behind a barricade.

For transport, activate the swinging target, then power it off while the pin is retracted. This ensures that the pin does not protrude and cause harm or get damaged whilst in transit.

On battery insertion and on normal startup, the software revision, battery voltage, active time and reset time is broadcast and may be viewed on a Timer PRO running version 1.7 or above software.

We keep the frame light for shipping purposes, both to our clients and also because some of our clients travel with their Keiron equipment, using it for training in different locations. The frame is made using 25mm square aluminium tubing, and it is easy to take apart and put back together using only a screwdriver. If the swinger target is going to be used in only one location, one can easily add more weight to the frame by loosening a few screws at the bottom, and filling the bottom part of the frame with lead shot, or sand. This will add to the stability of the target. If you going to do this, first remove the swinger arm using the included 1.5mm allen wrench, and put it back afterward.

## Known bugs:

None

## Software version:

This users guide covers version 2.0 of the Swinger Target PRO software as of August 2024
Version history:
V1.1 2020-10-18
V1.2 Internal improvements to code, better power analysis and handling.
V1.3 Support added for new geographic areas
V1.4 Added “go to sleep” feature to allow target to power down by shooting it. At the end of a shooting exercise, selecting remote shutdown on the PRO Timer "Devices" menu will cause the Swinger target to go to sleep when shooting it.
Better “too bright” error handling.
V1.5 Various internal “under the hood” improvements.
Changes related to hardware design changes forced by global chip shortages. No external difference.
New broadcast feature added – unit will broadcast internal battery voltage, version, active and reset time when turning on. This may be viewed on PRO Timer.
1.6 Improvements to battery handling.
1.7 Bug fix, a bug was introduced in 1.6. This was not visible to user, but increased radio traffic. V1.7 fixes this bug.
V1.8 Better handling of SIRT green lasers for NVG model.
Added ability to be activated by PRO Timer.
Added Light flicker to information broadcast. This gives an indication on how strongly a pulsating light source is flashing.
V1.9 Supports V1.4 of the wireless protocol, created to add new global area.
Added overall light level to information broadcast.
V2.0 Added support for new frequency plan, and for new 247 target.