

Keiron Target PRO Introduction

The Keiron Target PRO functions as a professional level reactive laser target, as part of the Keiron PRO system. The Keiron PRO laser training system is a fully networked, comprehensive firearm training target system. Various elements of the system work together, allowing true 360 degree, safe, basic and advanced training to be carried out. The core of the system are the PRO Targets, used together with a Keiron PRO Timer, which functions as both a shot timer and master controller for the system. Other elements include the Keiron PRO Swinger (a moving target), 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.

To ensure the maximum compatibility with existing lasers and laser emitting training firearms, there are various versions of the Target PRO. Some detect and react on red and infrared lasers, other will ignore red and infrared lasers and react on green lasers. By design, a red / infrared sensitive Target PRO will not react to being shot with green lasers. The green laser light is filtered out, allowing operators to train using weapon mounted green lasers, but still use red or infrared lasers for shot activation. An NVG edition of Target PRO reacts to green lasers but completely filters out light in the infrared spectrum, allowing the use of weapon mounted infrared aiming lasers as well as weapon mounted, handheld or vehicle mounted infrared illumination. These targets are typically used with the green lasered SIRT pistols, AR bolt or STIC. A lower cost version reacts to green lasers. A version of Target PRO is also available that reacts to all commonly used lasers, i.e. red, green and infrared. This provides the maximum flexibility, at the expense of being more sensitive to bright rooms / streaming sunlight.

All Target PRO targets provides various means of direct feedback to the user when shot: It can light up the whole target area (strike zone) and it can provide audible feedback. It can also operate with no feedback, or any combination of these options.

Advanced settings (such as channel selection, auto-power off) are performed by remote command, typically by using a PRO Timer. This allows for fast set up time when changing a range layout, or reconfiguring a system.

Target Preparation

If required, prep any targets by inserting Target Overlays, including any targets that will be designated as NO-SHOOT targets. Targets may be simply placed where required, or mounted using a screw and the keyhole slot on the back, or mounted with hook and loop tape. Target overlays restrict the strikezone area, enforcing a higher level of accuracy, or simulating greater distance.

Range Setup

Set up your actual training range by placing the Target PRO targets and any other Keiron PRO products in the desired locations. Avoid placing the targets such that they point directly at bright sunny windows or bright lights. Avoid placing the targets pointing at each other if they are close. Turn on the units by



long pressing the bottom button. If required for the scored feature (see the PRO Timer user guide for more information), register the targets with the PRO Timer as “SHOOT” and “NO-SHOOT” targets.

If required, pair any Keiron PRO devices now, such as a motion detector with a moving target.

Turn on the PRO Timer, and when ready press the start button, and start your training. The Target PRO saves its settings when powered off, so once you have it configured the way you wish, all that is required is to turn it on. If desired, use the monitor mode on the PRO Timer to check individual PRO Target battery levels and serial numbers of the targets when turning on.

Controls:

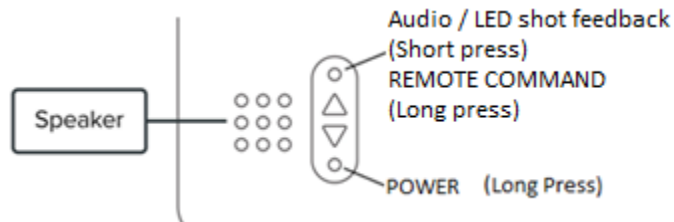


Figure1: Controls

Operation Summary

Only 2 buttons (switches) are used to control the Target PRO. The unit is turned on and off by long pressing the bottom button. When turning on, the system powers up, tests the battery, does various other internal self tests, pauses for 2 seconds for the user to stand clear, then analyses the light in the room. The analysis checks for excessive flicker and erratic or excessive light that may interfere with operation. A score (out of 5) is flashed, great lighting being shown as 5 flashes.

When hit by a laser, the targets will send the hit information to the PRO Timer. This is done using the Keiron PRO wireless network, and includes full error recovery.

The target can also optionally react to the hit by emitting a beep, and flashing the screen. The default factory setting is to both flash the screen and beep. A short press of the top button cycles between the type of shot indication provided by Target PRO. (Flash only, flash and beep, beep only, none.)

More advanced settings are performed remotely, using the PRO Timer and sent to the target. You can set the sleep timer, and also the channel number. Up to 20 separate Keiron PRO systems can co-exist in one location, all with multiple targets. If required, set the channel to include the unit in a logical Keiron PRO system.

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

If a long beep followed by 2 short beeps are heard, you probably started shooting but forgot to start the Timer PRO. Any errors are reported by a long beep, a pause, then a number of short beeps. The long beep alerts you to an error condition, and the number of short beeps signifies the error.

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 PRO 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). The default channel number is 8. You should not need to change this unless running multiple, separate Keiron PRO systems, or if interference is encountered.

Shot Indication:

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

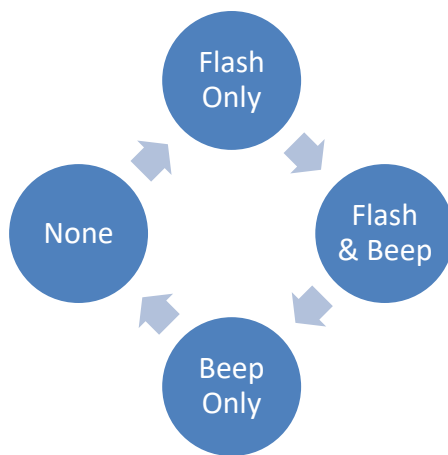


Figure2: Shot indication

Please note that changing the shot indication on the actual Target PRO only affects that Target PRO, 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 puts the Target PRO into a “Remote Command Receive” mode, and allows the target to be programmed remotely using a Keiron 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, if valid the command will be actioned and normal operation is then resumed. This mode may be cancelled by pressing either button. A valid, successful action will be notified as a long beep, whereas a invalid command will be signified by Error 5 (a long beep, followed by 5 short beeps).

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

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 several hours 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.

HINT: when using a PRO Target as a NO-SHOOT, set the sleep timer to an appropriate number. If everybody does their job, the target will not get shot regularly and may turn itself off!

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

Network Off:

A long press on both the top and bottom buttons at the same time, turns off the radio and all network functionality. This makes the Target PRO a simple, standalone reactive target. If the “Shot Indication” was previously set to None, turning off the radio automatically turns on the screen flash indication. A long beep and 2 flashes indicate RADIO OFF, while a long beep and 5 flashes indicate RADIO ON (normal operation).

Being able to set the Target PRO into a simple reactive target mode may be used to good effect if training a number of different shooters in basic handling skills, where speed and tactics are not important.

Transmit Power:

The Keiron PRO wireless radio protocol automatically adjusts the power output for best battery life and reliable operation.

Power off via Network:

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

Information Broadcast:

From version 1.7 of the software, the Target PRO will broadcast it’s status when inserting batteries or when turning on. The serial number, battery voltage and software revision is sent and may be viewed on a PRO Timer. (On the PRO Timer, from the main menu, select “Device Monitor”).

Lighting

The Target PRO is designed to be used indoors, under typical indoor lighting conditions. For best performance, position the unit away from windows, sunlight and any bright flickering lights. If necessary, partially close the blinds or curtains. Be mindful that some of the latest smart phones incorporate powerful infrared LEDs or lasers (e.g. for face scanning) which may interfere with the Target PRO. If you do encounter flickering lights that interfere with the Target PRO targets, consider changing out the lights. See https://en.wikipedia.org/wiki/Fluorescent_lamps_and_health for more info on health hazards associated with flickering lights.

Target PRO will not work in sunlight, but has been successfully used outdoors on cloudy days and between dusk and dawn. It works perfectly for low light training.

If training low light with weapon mounted lights or handheld flashlights, the Target PRO may be swept with the lights and will not react, but will still detect shots from the laser.

Be aware that some powerful LED flashlights dim their output by turning on the LED to full brightness then off again. By varying the on and off time, the apparent brightness is increased or decreased. This happens many times a second, and will also interfere with the targets. If you encounter this, try using the flashlight at full output.

Should your training requirements not be met with a standard Target PRO, please contact Jacstech (Pty) Ltd to discuss your specific training requirement.

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.

- 1 beep: Unit powering down via sleep timer. If no activity is detected for a period of time, the Target PRO will shut itself off to conserve battery. Set the required sleep timer period using the TIMER PRO.
- 2 beeps Master not responding. The Target PRO was shot, the shot information was sent but no acknowledgement was received. Explanation: every time a Target PRO 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 a 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 Target PRO is turned on and operating, a battery check is periodically performed. When the 2 x AA batteries are depleted, the unit will beep 3 times and then 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.

When changing batteries, the system also checks the battery voltage. Here, a 3 beep error means the combined battery voltage is around 2.2 Volts, or almost depleted.

- 4 beeps: Too bright or too much flicker. Reduce the ambient light, or replace the faulty lighting.
- 5 beeps: Invalid command received. Many different commands may be sent over the Keiron PRO network, the Target PRO will only action a subset of the available commands.
- 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.

Known bugs:

None

Software version:

This users guide covers all version of the Target PRO software as of November 2022, up to Version 1.8. Note that features such as information broadcast & power off from network may not be available on early models of the Target PRO.

Software versions:

1.0 Initial release

1.1 Enhanced auto sleep periods.

Enhanced Error routine: any error now pauses for 3 seconds after signifying the error.
Some “under the hood” improved light handling

1.2 Bug fix

1.3 Some more “under the hood” improved light handling

1.4 Enhanced internal power regulation, and error handling

1.5 A major upgrade to the Keiron PRO protocol that underpins all Keiron PRO devices. This version of Target PRO changed to incorporate the new protocol. Protocol enhanced with better power handling and range, and also to incorporate new global restrictions on bandwidth and frequency allocation. (country specific)

Bugfix also incorporated on Target PRO automatic power handling

1.6 Some under the hood improvements to the way battery voltage variations are handled.

1.7 A long standing bug that affected targets in very bright (almost too bright) light was finally fixed.

1.8 Feature update. At the end of a shooting exercise, selecting remote shutdown on the PRO Timer will cause the Target PRO to go to sleep when shot.