Keiron PRO Target 247 Introduction

The Keiron Target PRO 247 is a networked, 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. 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.

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

Laser Detection - Target PRO 247

The Target PRO 247 will react to the modulated green lasers installed in the SIRT training pistols made by Next Level Training, and to other lasers supplied by Jacstech or controlled using the Keiron PRO 247 Wingman. The Keiron PRO 247 Wingman is an accessory that controls a laser and enables a code to be sent which the 247 Target will then detect and react to. It may be installed in a laser equipped training weapon.

The Target PRO 247 will not react to other red, green or infrared lasers allowing the use of weapon mounted aiming lasers as well as handheld or vehicle mounted infrared illumination. The Targets may therefore be used for low light training, with the operator using NODS / NVG systems.

For more conventional low light training, weapon mounted lights and handheld flashlights may also be used, these will not interfere with the target, even if set to strobe operation. The targets may also be used in very bright sunny conditions outdoors.

The Target PRO 247 provides various means of direct feedback to the user when shot: A simple press of the top button cycles between the different feedback modes. Visually, it can light up the whole target area (strike zone) with a red flash, or flash a very bright LED, 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. Optional target overlays restrict the strikezone area, enforcing a higher level of accuracy, or simulating greater distance.

Range Setup

Set up your physical training range by placing the Target PRO targets and any other Keiron PRO products in the desired locations. If required, turn on the PRO Timer and select “Device Monitor” to check individual PRO Target battery levels and serial numbers of the targets when turning on.

Turn on the targets by long pressing the bottom button. Ensure the targets are set to provide the required visual or audible feedback.

If required for the scored mode (see the PRO Timer user guide for more information), once all the targets are correctly located and powered on, 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.

Ensure the correct training mode is selected on the PRO Timer, and when ready press the start button to 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.

Controls:

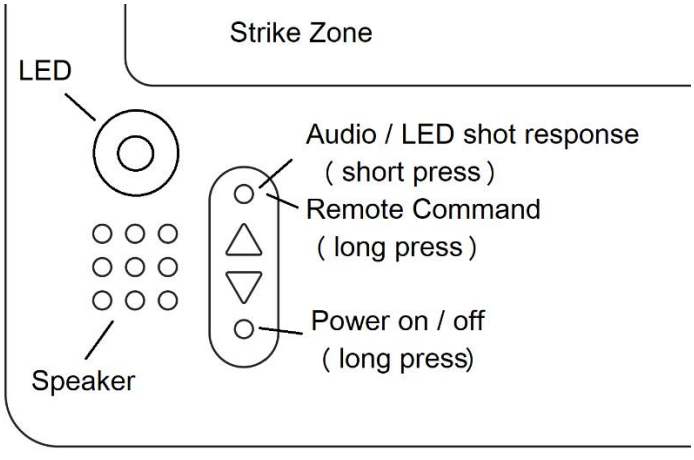

Figure1: Controls

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, and does various other internal self tests. If the battery voltage is over 2.2V the system will beep. If no beep is heard, the batteries are nearly depleted. The serial number and actual battery voltage may be viewed on the PRO Timer if set to “Device monitor”.

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 react to the hit by emitting a beep, flashing the screen or LED. 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 and beep, LED and beep, LED only, etc).

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. You can also select "Device Setup" then "Shoot and sleep target" on the PRO Timer, then simply shoot them to turn them off. Alternatively, they will turn off by themselves.

If you shoot a target and 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. (2 beeps mean the target could not communicate with the PRO Timer).

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.

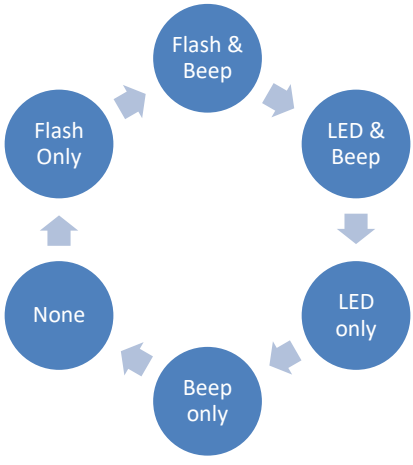

Figure2: Shot indication

Please note that changing the shot indication on a 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 puts the Target PRO 247 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. The unit performs a self test then is ready for use.

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 On / Off - Standalone use:

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 247 a 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).

This standalone 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. Grip, sight alignment, sight picture, trigger control may be practised.

Simply long press both buttons to return the target to normal networked operation. Powering the target off, will reset the standalone mode when powering back on.

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:

The Target PRO 247 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 247 is designed to be used indoors or outdoors, in all lighting conditions, from a complete lack of light to a bright sunny day. For best performance outside, in the main summer months, avoid placing the target in a position that has full sun AND also the suns reflection on the strike zone. For example, on a shiny surface facing into the sun, or where a window or other reflective surface directs the sun onto the targets strike zone.

When placing a target, if there is any doubt, simply test it by shooting the target in the centre and the edges. If the shot is not detected, simply angle the target away slightly from the light source to ensure reliable operation.

The Target PRO 247 has been successfully tested for proper operation even when subject to interference from a wide variety of weapon mounted lights, flashlights, IR lasers and IR illuminators. The target has also been extensively tested with incandescent, fluorescent and LED lighting.

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

Other versions of the Target PRO:

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. 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.

The Target PRO 247, only reacts to the green lasers installed in the SIRT training pistols made by Next Level Training, and to other lasers supplied by Jacstech or controlled using the Keiron PRO 247 Wingman. (This accessory controls a laser and enable a code to be sent which the 247 Target will then detect and react to). The Target PRO 247will not react to other red, green or infrared lasers, allowing the use of weapon mounted aiming lasers as well as weapon mounted, handheld or vehicle mounted infrared illumination.

Software version:

This users guide covers all versions of the Target PRO 247 software as of June 2024. Note that the software numbering starts at 2.0, to ensure easy to identify functionality common of the other PRO targets in the Keiron PRO range.

Software versions:

2.0 Initial release (2024-06-30). Version starts at 2.0 to maintain numbering compatibility with older products.

2.1 TBA