

Keiron PRO Motion Detector User Guide

This user guide applies to the Keiron PRO Motion Detector, hardware revision 2, software revision 1.4

Introduction

The Keiron PRO Motion Detector uses a passive infrared (PIR) sensor to detect motion, then transmits an alert to another device in the Keiron PRO family. It may be paired with and used to trigger an action with a number of other Keiron PRO devices, for example:

1. A Keiron PRO motion actuator to create a physical response, movement
2. A Keiron PRO Swinger target
3. A Keiron PRO audio device (gunshots, screams, instructions, warnings etc)
4. Other compatible devices

Advanced settings (such as channel selection, auto-power off settings) 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.

There is a minimum period of 15 seconds between activation events. The maximum reset time is 4 minutes. The default reset period is 1 minute.

Batteries

The unit uses 2 x AA batteries. Please use quality alkaline batteries. Good quality rechargeable NiMH may also be used, but any percentage of battery life calculations will be in error due to different chemistry / voltage. Open the cover on the rear bottom of the unit and insert the batteries, paying attention to the orientation as indicated inside the battery compartment. When batteries are inserted, the unit performs a self test, checks the battery, and also broadcasts its serial number, battery voltage, reset period and firmware revision. A beep indicates the batteries are still ok (2.5V and up). A long beep followed by 3 short beeps shows the batteries are below 2.2V and need to be replaced soon.

General notes on detection

The Keiron PRO Motion Detector is designed to be used indoors, under typical indoor lighting conditions through to complete darkness (for low light training). The device uses a passive infrared (PIR) sensor for detection. PIR sensors are commonly used in alarm systems and automatic lighting applications and work by sensing changes in radiant heat (infrared radiation) emitted or reflected by objects in its field of view. When this energy changes, such as when a person in it's field of view moves, the change in radiated heat is detected.

Placement and Sensor Information

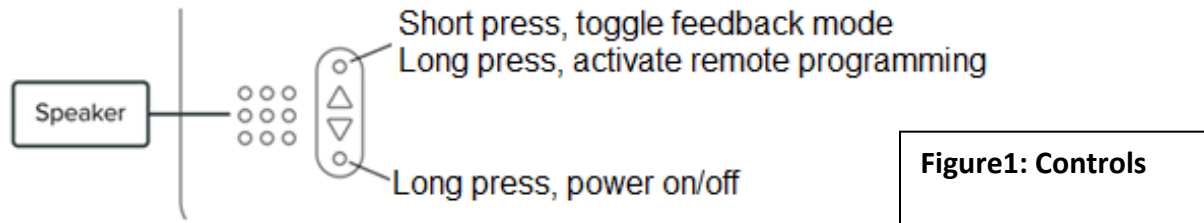
The sensor sits in the middle of the device and may be identified by the white, round Fresnel lens cover. Below it is a red indicator LED behind a translucent cover.

The range is up to 9 metres and the field of view is approximately 160 degrees. When placing the sensor, any solid object may be used to restrict the field of view, so it is easy to set up a limited detection area to trigger a specific function. Remember if you can see the sensor, the sensor can see you!

Careful placement will prevent false alarms. Do not place the sensor with a visible view of a window or some other heat source. If using infrared lasers to shoot the Keiron PRO targets, position the Motion

Detector away from Keiron PRO targets (so it does not “see” the infrared laser) and cause a false alarm. Do not mount the unit under an air-conditioner or heater.

Controls:



Operation Summary

With the motion detector positioned in the desired location, turn on the unit by long pressing the bottom button. The unit will perform a self test then broadcast system information such as the battery voltage and reset period, and will then warm up and calibrate itself to the environment. This takes approximately 45 seconds, and the LED will flash every second to indicate it is busy with calibration. The 45 second period also allows the user to turn it on, position the unit then get clear.

Any button press will cancel the calibration, and the units performance may be erratic for the first minute of operation. This can still be useful if you need to quickly check pairing etc and do not wish to wait for 45 seconds.

Each time motion is detected, this information is sent to the Keiron PRO system to inform other paired Keiron PRO devices that motion was detected. After each detection event, a time delay (RESET PERIOD, default 60 seconds) is activated to prevent multiple detections for the same event. If desired, detection events can also be indicated by the LED and beeper, see below for more.

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

When finished, power the unit off by long pressing the bottom button.

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 Motion Detector 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)

Motion Detection Indication:

A short press of the top button cycles between the type of indication provided by the motion detector. When pressing the button to change the indication mode, the unit will indicate which mode has been selected by flashing the LED a number of times, corresponding to the level of indication that is set. Each time the top button is pressed, the following indication modes are cycled through.

- Mode 1: No indication. The unit operates silently, with no outward indication.
- Mode 2: The LED will light continuously for all motion detection. This is useful for setting up, and is the default.

- Mode 3: The LED will flash when motion is detected, AND sent to the Keiron PRO network.
- Mode 4: The unit will BEEP when motion is detected, AND sent to the Keiron PRO network.

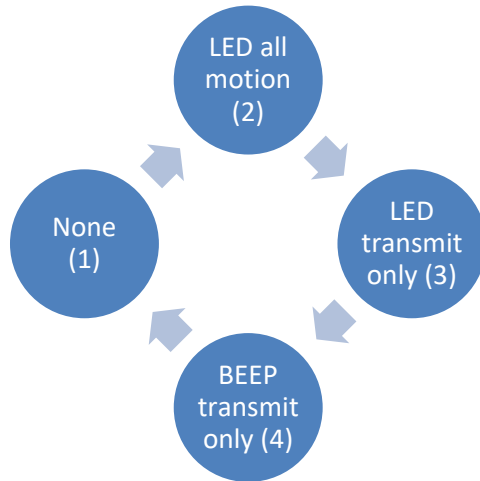


Figure2: LED / BEEP indication, a short press on top button cycles through options.

Remote Command (Receive):

A long press of the top button (1.5 seconds) puts the Motion Detector into a “REMOTE COMMAND RECEIVE” mode. In this mode, the Motion Detector will not respond to movement, and will wait for a command from another Keiron PRO device (for example, a PRO Timer). 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 RESET PERIOD, the active radio channel and the automatic power off period. See Keiron Speed PRO or PRO Timer for more information on sending commands to the Motion Detector.

Power ON/OFF:

A long press on the bottom POWER button turns the unit ON and OFF. When turning on, the unit will perform a battery test and hardware test. It will then signify the turn on by emitting 4 short beeps, and slowly lighting up the LED to full brightness. It then starts a 45 second warm up and calibration process.

To shutdown, long press the bottom button. A beep, and the LED lighting up then gradually dimming to off signifies shutting down.

By default, the unit will turn itself off after 2 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.

Other:

There is no command associated with a short press on the bottom button, or a press of both buttons.

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:

The Motion Detector will broadcast its status when inserting batteries or when turning on. The serial number, battery voltage, software revision and reset time is sent and may be displayed on a PRO Timer.

Pairing:

Each time this unit senses motion, it sends that information to the Keiron network, and the paired device will then act on it.

There are therefore no specific extra actions to pair this unit with any other Keiron PRO unit – follow the directions for the product that you wish to pair with to put it in pairing mode, and activate this device by walking in front of it or waving a hand over the sensor.

Errors:

Any errors that may occur are reported by beeping. 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. The long beep allows the user to take note that an error has occurred, and then count the beeps.

1 long beep: Power save timeout (turning off). After the set period of no activity elapses (default 2 hours), the unit will turn off to conserve power.

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). Replace the batteries as soon as possible to prevent damaging the unit.

6 beeps: TX failure. Contact supplier.

7 beeps: Radio failure. Contact supplier.

8 beeps: Radio failure. Contact supplier.

9 beeps: Voltage regulation circuit unserviceable (undervoltage). Contact supplier.

10 beeps: Voltage regulation circuit unserviceable (over voltage). Contact supplier.

Known bugs:

None

Applicability / Product Version Information

Version 1 of the Motion Detector product did not contain an LED indicator. Version 2 incorporates an LED that may be used to indicate detection events, turning on and off, etc. This manual applies to version 2 of the product, from firmware version 1.4 onwards.