Keiron PRO Motion Actuator (Desktop)

Introduction

The Keiron PRO Movement Actuator provides a method to convert an event on the Keiron PRO network to a physical movement. This movement may be used to drop an object, push an object over, reveal or hide a target, etc. It may be used to add stress to training, create a jump scare, or simulate some real life event.

Built into the device is a small motor, operating a steel rod. This steel rod may be programmed to either move inwards or outwards when activated. It may therefore be used to push an object, or pull an object via a cord attached to it. The standard, battery operated desktop version is convenient to use and may be placed anywhere very easily, but due to the nature of it's battery operation, has limited power. Care should be used to not stall the motor. Powerful motion actuators are available from Jacstech should force be required to (for example) open a door.

The device may be activated by any compatible Keiron PRO network device, such as a target, or motion detector. When receiving the activation signal, the steel rod moves from the idle position to the active position for several seconds, then returns to the idle position.

Depending on your purchased configuration, the Movement Actuator may be triggered by:

1. A Keiron PRO Target
2. A Keiron PRO motion detector
3. A Keiron PRO Intellitarget
4. Manually via a Keiron PRO Remote
5. Other Keiron PRO 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.

Guidelines on Placement

This device may be used to either push or pull another object. It's use is really limited only by the imagination of the range designer, and the physical constraints of the actual mechanism itself. For maximum flexibility it is battery operated allowing it to be placed almost anywhere, without regard to cabling, electrical outlets etc. This limits the actuation force and care should be taken to arrange the geometry of the push or pulled object to maximise the power of the actuator. When the motor is not being commanded to a position, the entire drive circuitry is switched off, to conserve battery power.

It is a lightweight unit, and so in some cases it may be necessary to secure the unit with a heavier object, or use Velcro or Prestik to hold it down.

Some ideas on using this device are detailed below.

1. Pushing an object: You could use the Movement Actuator to create a diversion and reveal a target by pushing over an object. A simple but very effective use of this device is to lean an object such as a thin sheet of wood against the device, with the piece of wood obscuring a target. When the device activates, it pushes the piece of wood away, allowing it to fall over and revealing the target. The piece of wood falling also create a noise and audible distraction. A

thin metal tray (such as the disposable trays used for fast food packaging) falling on a concrete or tiled floor creates a very loud and startling sound.

2. Pulling an object: A piece of cord may be tied to the pin on the steel rod. This in turn, may be connected to a rod or pin holding up an object. When the pin is pulled, the object is released.

Controls:

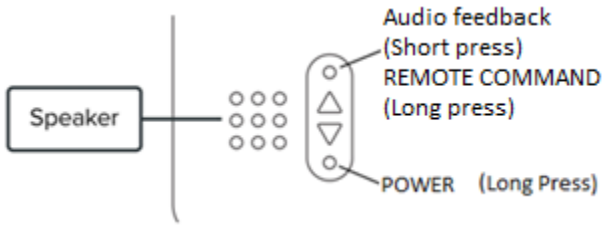

Figure1: Controls

Operation Summary

With the movement actuator positioned in the desired location, turn on the unit by long pressing the bottom button. After various internal system checks, the system is 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.

The top button may be used to toggle the beeper on and off.

If not logically connected to a Keiron PRO device to be triggered, do this now by following the instruction further down below.

Arrange the device in the desired position and manner to either push or pull some other object. The default operation is to push an object. This may be changed using the Keiron PRO Timer.

Each time the device is activated, the motor will move the steel bar to the activated position for a period of time (default 5 seconds), and then move it back again. After each actuation, a reset period (default 30 seconds) is activated to prevent multiple actuations for the same event.

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

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 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)

Audio Indication

A short press of the top button toggles the beeper on and off.

Pairing:

A long press of both the top and bottom buttons (1.5 seconds) puts the Movement Actuator into a pairing mode.

In the pairing mode the beeper will chirp every second, indicating that the unit is waiting for an identification signal from another Keiron PRO device.

Now simply activate the other Keiron PRO device that you wish to use as the master activator unit, and the identification details will be saved. For a Keiron PRO Target, simply shoot the target and the ID of the target will be received and saved. If using a Motion Detector as the master, simply move in front of it and it will send out it's signal, and it's ID will be received and saved.

Once an identification signal is received, a long beep will be heard and the unit is ready for use. If a target is being used as the master, then each time the target is shot the Movement Actuator will be activated. If a Motion Detector is being used as the master, then each time somebody walks in front of the sensor, the Motion Detector will be activated and this will activate the Movement Actuator.

If an incompatible signal is received, the unit will beep error code 5.

Remote Command (Receive):

A long press of the top button (1.5 seconds) puts the Movement Actuator into a "REMOTE COMMAND RECEIVE" mode. In this mode, the Movement Actuator 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 active radio channel, the active time, the direction of movement, the reset period and the automatic power off idle period. See Keiron Speed PRO or PRO Timer for more information on sending commands to the Motion Detector, and see below for specific information on programming direction and active time.

Programming active time and direction:

The active time and the movement direction is set remotely using the PRO Remote. A time of less than 100 seconds will cause the metal rod to move out when activated, and pull in when reset.

A time equal to or greater than 100 will reverse the default operation, causing the unit to pull the metal rod in when activated, and push it back out when reset. To use this mode, simply add 100 to the desired activation time, and send this time to the Keiron PRO Movement Actuator.

Example 1: Active Time set to 5, Reset Time set to 10: When activated, the rod will move OUT for 5 seconds, then move back IN. The unit will ignore any further activations for 10 seconds (Reset Time).

Example 2: Active Time set to 105, Reset Time set to 20: When activated, the rod will move IN for 5 seconds, then move back OUT. The unit will ignore any further activations for 20 seconds (Reset Time).

Programming reset time:

The reset time (or ignore time) is set remotely using the PRO Remote. After the activation cycle is complete, this time period will begin and while active, will cause the unit to ignore any further activation attempts. This prevents unwanted duplicate events. Example above.

Power ON/OFF:

A long press on the bottom POWER button turns the unit ON and OFF. When turning on, the unit performs a self test then starts a 15 second delay timer. A single beep while holding down the bottom button signifies shutting down. 3 short beeps while holding the bottom button signifies powering on.

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.

Information Broadcast:

The Motion Actuator broadcasts 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.

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.

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 long beep: Power save timeout (turning off). After the set period of no activity elapses (default 1 hour), 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). Remove the batteries as soon as possible to prevent damaging the unit.

5 beeps: Invalid activation identification received. Resend from correct device.

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 (over voltage). Contact supplier.

Known bugs:

None