CineMoco v1.3

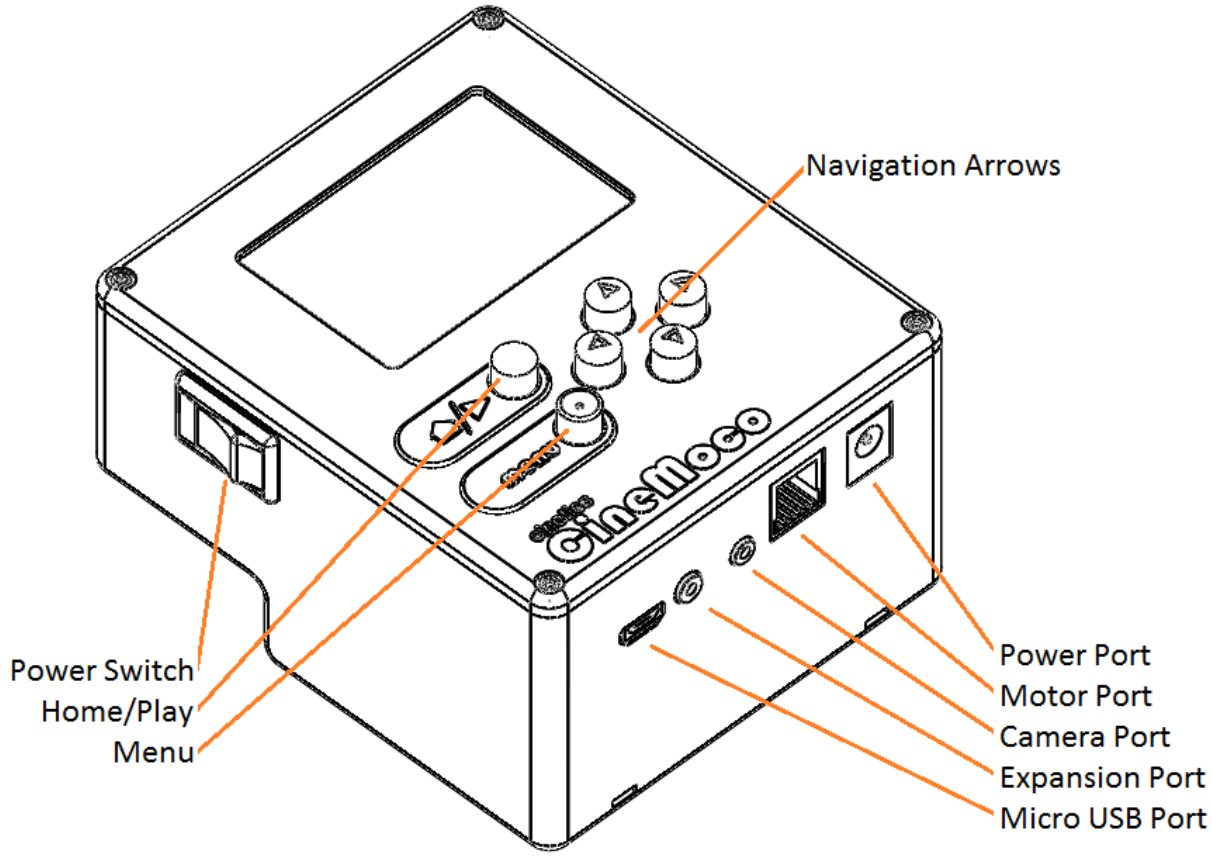
Instruction Manual

1| Introduction

CineMoco is a lightweight motion controller designed to drive and power a single stepper motor and camera. The controller provides a compact and powerful solution to programming precise and otherwise impossible movements for time-lapse photography and video.

2| Hardware

The CineMoco controller includes a 128x64 graphic LCD screen and 12v rechargeable Lithium polymer battery enclosed in a durable housing weighing a total of 0.84 lb (0.38 kg). The controller can last up to 5 hours with heavy use, and beyond 36 hours with conservative use to support long time-lapses. It takes 3 hours on average to fully charge the batteries.

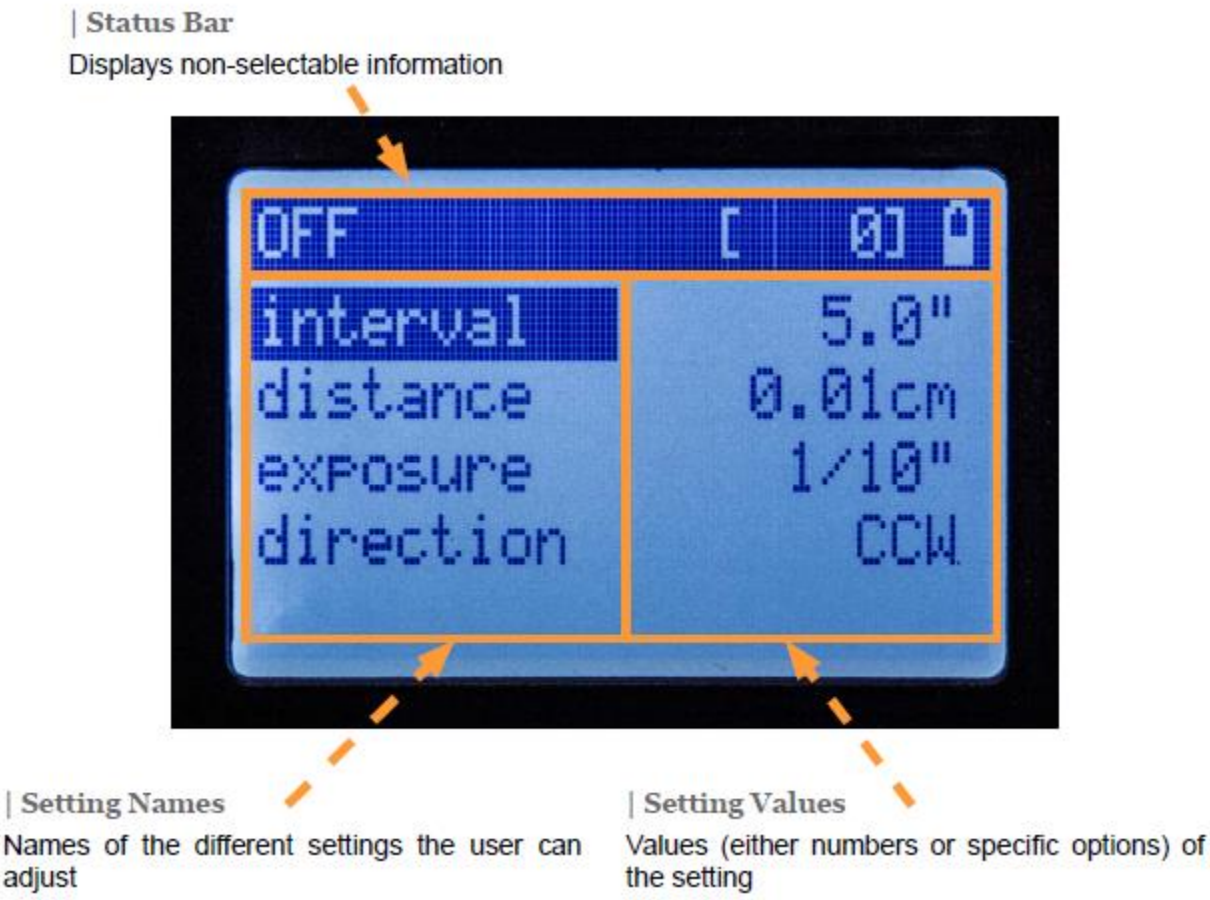


The controller can automate the camera shutter with the included camera cables for most Canon and Nikon cameras. However, does not require a camera cable to function (many cameras support time-lapse with a built-in intervalometer). The included cables support the following cameras (cameras not listed require optional cables not included with the controller):

- N3 - Canon 1D Series, 5D Series, 6D Series, 7D, 10D, 20D, 30D, 40D, 50D
- E3 - Canon 60D, 60Da, Rebel (300D), Rebel XT (350D), Rebel XTi (400D), Rebel XSi (450D), Rebel T1i (500D), Rebel T2i (550D), Rebel T3i (600D), Rebel T4i (650D), Rebel XS (1000D), Rebel T3 (1100D), Pentax K series DSLR
- DC0 - Nikon D800, D700, D300s, D300, D200, D4, D3 series, D2 series

3| User Interface

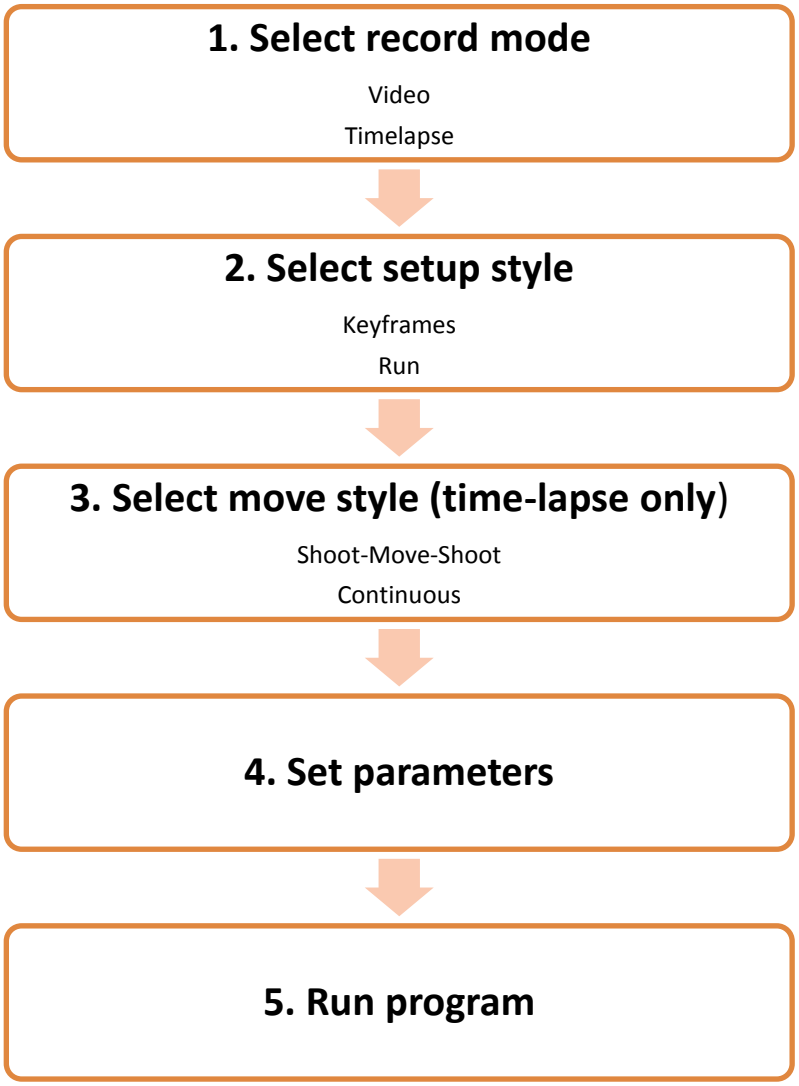
There are two types of screens in the CineMoco system: the main screen and menu screens. Every screen is divided into three sections.



Use the up/down navigation buttons to cycle through parameters and the left/right buttons to adjust the parameter or perform an action. Pressing the home/play button while on the main page executes the current program, or it will return to the main page if currently viewing the menu screen. Pressing the menu button switches to the menu screen; while in the menu, pressing the menu button again will cycle through the different menu tabs.

4| Using the CineMoco

The CineMoco system allows the user to record in two different modes: video or time-lapse. In these record modes, the program can be setup using keyframes or a run command. When recording time-lapse, the move style can be set to shoot-move-shoot or move continuously.



5| Recording Modes

Video – A recording mode where the motor will move a distance based on a specified speed.

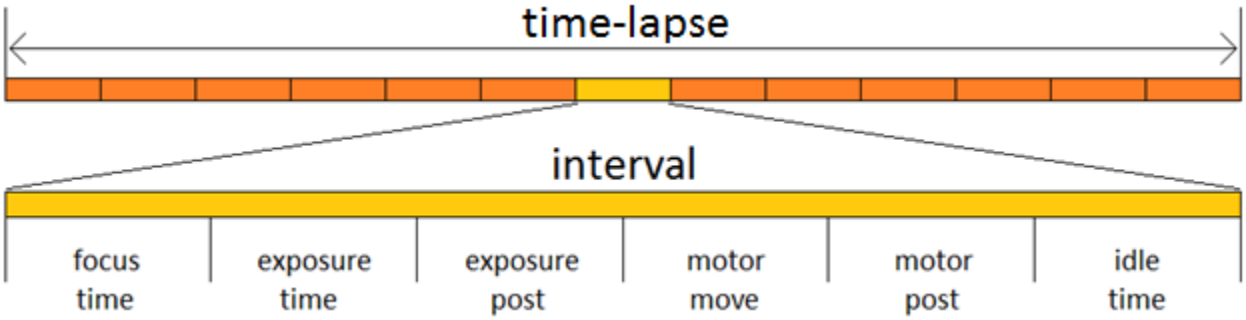
Time-lapse – A recording mode where the motor will move a distance in a specified amount of time. The motor may move continuously or with a stuttered motion (See section 7, move styles). In this mode, the user must select an exposure time, record time, playback time, and playback FPS to determine the interval and set up a time-lapse.

- Exposure Time – The shutter speed of the camera (Note: It can be used to trigger the camera in manual mode, or adjust the exposure time in bulb mode)
- Record Time – The time the entire program will take to run.

- Playback Time – The play time of the compiled time-lapse video.
- Playback FPS – The frames per second of the compiled time-lapse video.

Time-lapse Interval

An interval is described as a repeated cycle that makes up a time-lapse. The interval includes the focus time, exposure time, exposure post, motor movement, and motor post; if the interval is longer than the sum of these parts, there will be an idling time after the motor post.



6| Setup Styles

The setup style allows the user to define the distance that the motor will travel. It is independent of recording mode. Given the same amount of distance, both setup styles will achieve the exact same effect; however, one may be easier to program than the other for certain shots.

Keyframes – The keyframes style allows the user to define a start point and an end point. This requires the user to manually scroll with the motor to define an endpoint, which may be disadvantageous for long distances. This style is best used when the first and last shots are clearly defined.

Run – The run style allows the user to input a distance (in cm) that the motor will run. This style is best used for longer distances that may be too difficult to set up with the keyframes style.

7| Move Styles (Time-lapse only)

The move style allows the user to select how the motor will run in a time-lapse. The move style can have a significant impact on time-lapses due to its effect on motion blur.

Shoot-move-shoot – The SMS style will cause the motor to stop while taking a shot, then move before proceeding to take the next shot. This stuttering minimizes the amount of motion blur in a time-lapse.

Continuous – The continuous style will make the motor move non-stop for the entire time-lapse. This will maximize the amount of motion blur in a time-lapse.

8| Menu

General (GEN)

Record – Sets the recording mode (See section 5)

Setup – Sets the setup style (See section 6)

Bouncing – When enabled, the program will repeat in reverse and then repeat again endlessly until the user cancels the program

Scroll Speed – Sets the speed of manual scrolling

Scroll Ramp – Sets the ramping of manual scrolling

Controller (CON)

Brightness – Sets the brightness of the screen

System Sleep – When enabled, the controller will turn off when not in use to conserve power. It is particularly useful for longer time-lapses

USB Mode – When enabled, the controller allows use of stop-motion software such as Dragonframe

Chain ID – Sets the identity of the current controller for simultaneous controller use (e.g. pan + tilt)

Update Chain – Updates the identities of all daisy-chained controllers

Reset Settings – Resets all of the settings to its default setting

Information – Displays version information and developer credits

Motor (MTR)

Motor Type – Sets the motor type for calibration purposes

Motor Delay – Sets the motor delay to avoid post-movement vibrations

Motor Sleep – When enabled, the motor will not be powered when not in use to conserve power. When disabled, the motor will constantly power to maintain its position

Step – Sets the stepping size of the motor. Increasing the step size allows for faster motor movement at the cost of step resolution

Camera (CAM)

Camera Type – Sets the camera type

Fire Test Shot – Test fires the camera

Camera Delay – Sets the camera delay to ensure that the camera has enough time to finish an exposure before the motor begins to move

High Dynamic Range (HDR) – When enabled, multiple photographs at different exposure values are combined to get more detail across all the lighting ranges

Bulb Ramping – When enabled, the exposure will change over the length of a time-lapse to account for changes in lighting conditions