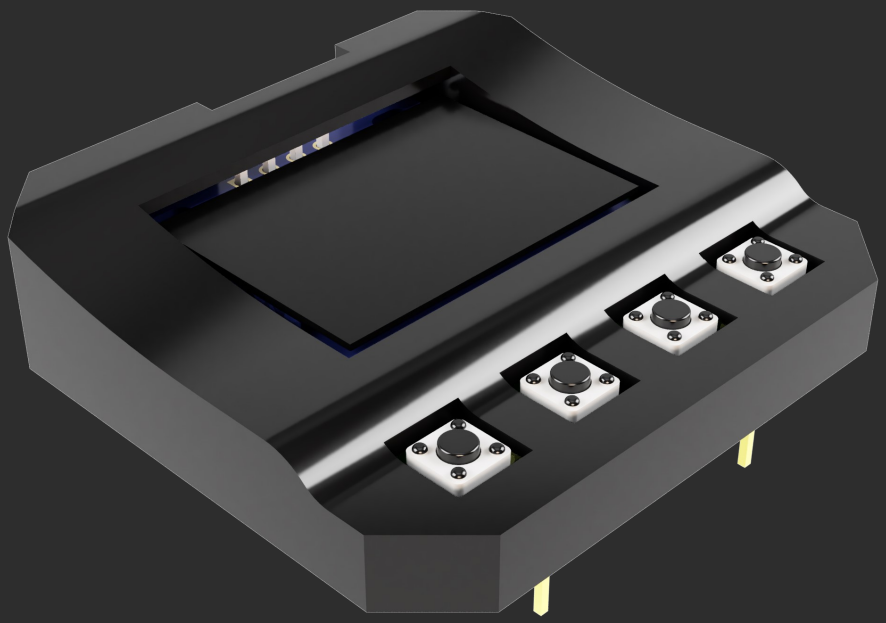
uStepper S Ego Shield

Product sheet

Make uStepper truly standalone !



By uStepper ApS

Product: uStepper S Ego Shield

Document revision: 1.2

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Approved by: THO

Approval date: November 19th 2019

System overview

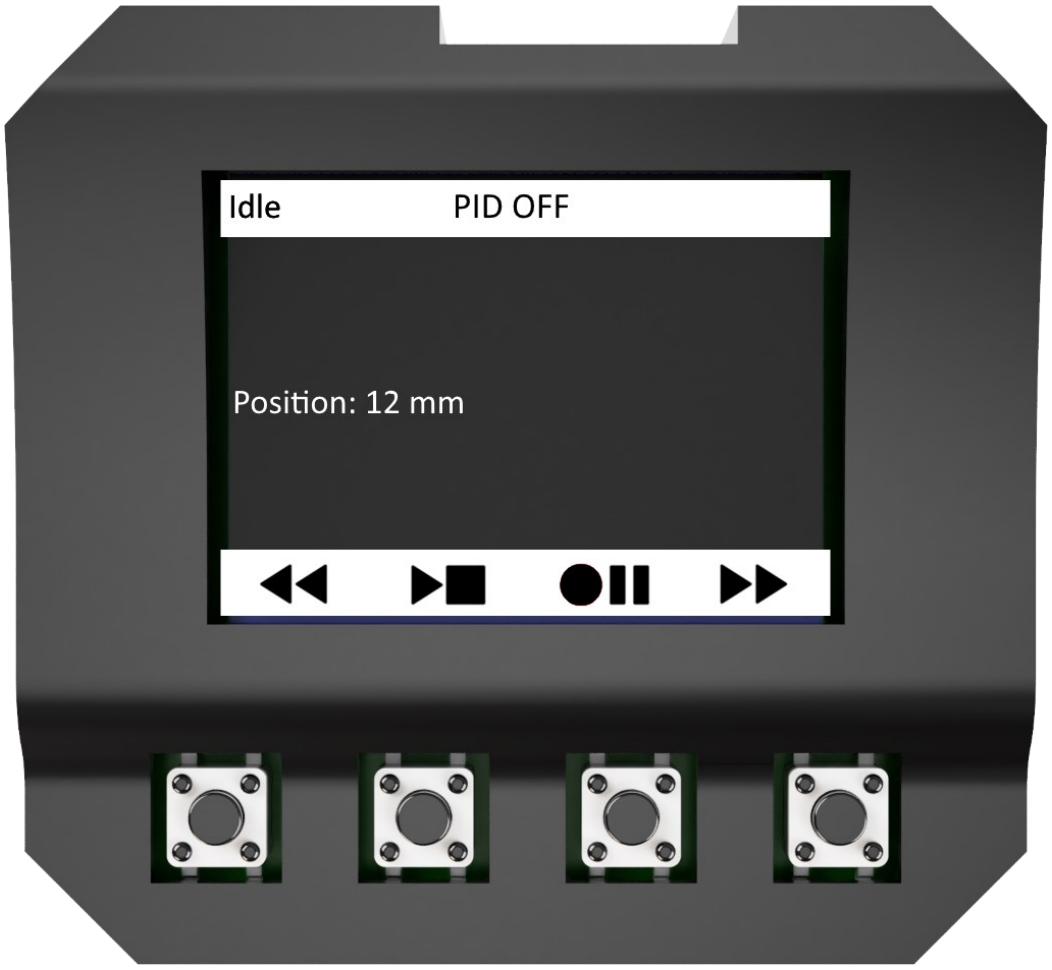
uStepper S Ego Shield makes **uStepper** truly standalone with its four pushputtons, OLED screen and optocoupled output. **uStepper S Ego Shield** has a library with two basic functions:

1. Teach sequence control
2. Time lapse control (specifically for camera time-lapse)

The functional description of each are described in the following.

uStepper S Ego Shield Teach mode

After loading the Teach sketch from the Ego Shield S library to a uStepper S board and connecting the Ego Shield an initialization is done where firstly a search for an encoder magnet is done and secondly end-stop detection is done to home the system. After this the following screen is shown:



uStepper S Ego Shield Teach mode

- **Idle state**
  - Press **FWD** or **REV** to manually move 1mm in either direction
  - Press and hold **FWD** or **REV** to move continuous until releasing
  - Press **RECORD** to enter recording state
  - Press **PLAY** to enter Play state, and play recorded sequence
  - Press and hold **STOP** to invert PID mode in play state (either PID ON or PID OFF)
- **Record state**
  - Press **FWD** or **REV** to manually move 1mm in either direction
  - Press and hold **FWD** or **REV** to move continuous until releasing
  - Press **RECORD** to record position
  - Press **STOP** to go into Idle state again
- **Play state**
  - Press and hold **PAUSE** to enter "change speed mode"
  - **FWD** or **REV** to change speed
  - Press **PLAY** again to start sequence
  - Press **PAUSE** to enter Pause state at next position
  - Press and hold **STOP** to stop play and go into Idle state
  - Press and hold **FWD** to play sequence in loop (loop sign appears in upper right corner)
  - Press and hold **REV** to stop looping
- **Pause state**
  - Press **PLAY** to continue playing by entering Play state
  - Press and hold **STOP** to go into Idle state

uStepper S Ego Shield Time lapse mode

After loading the Time Lapse sketch from the Ego Shield S library to a uStepper S board and connecting the Ego Shield an initialization is done where firstly a search for an encoder magnet is done and secondly end-stop detection is done to home the system. After this the following screen is shown:

The Time Lapse library makes use of the opto-coupled output to trigger the camera on each event. The collector and emitter pins of the opto-coupler are readily available for connecting to a camera (damage to connected equipment is at your own risk)

uStepper S Ego Shield Time lapse mode

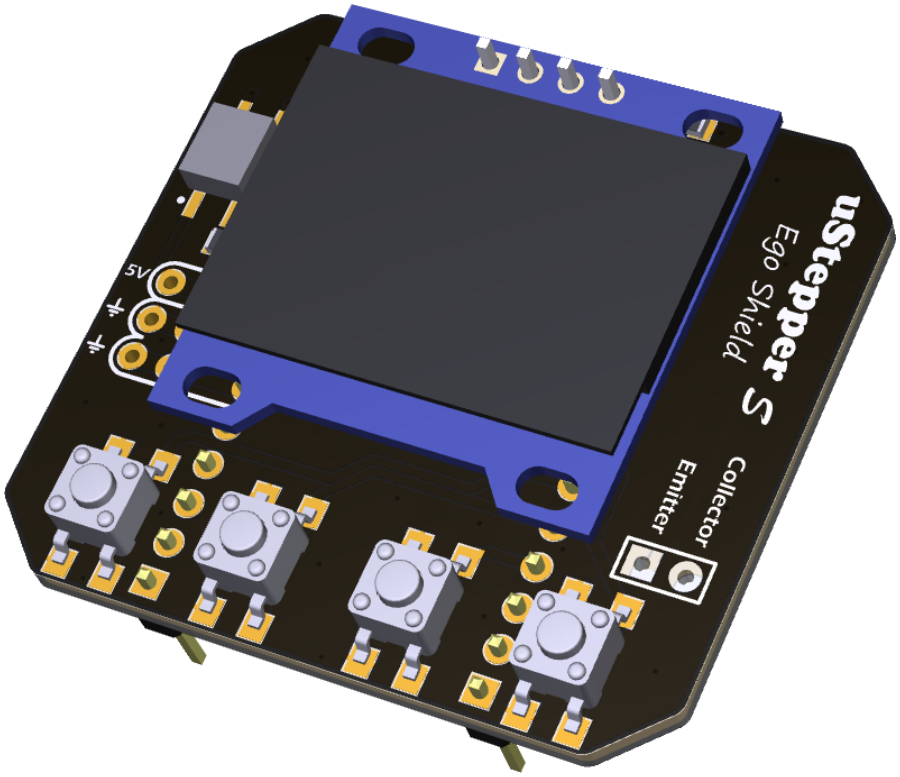
- **Idle state**
  - Press **FWD** or **REV** to manually move 1mm in either direction
  - Press and hold **FWD** or **REV** to move continuous until releasing
  - Press **RECORD** to enter Time lapse state
  - Press and hold **STOP** to invert PID mode in play state (either PID ON or PID OFF)
- **Time Lapse state**
  - Press **FWD** or **REV** to change the value in the menu
  - Press **RECORD** to Move to the next menu item
  - After reaching the final item, press **PLAY** to start TimeLapse
  - Press **STOP** to exit Time Lapse state, and return to Idle state

uStepper S Ego Shield mounting

Mounting the Ego Shield is simply done as shown below where the buttons on the shield are located at the same end as the USB connector of the uStepper S.

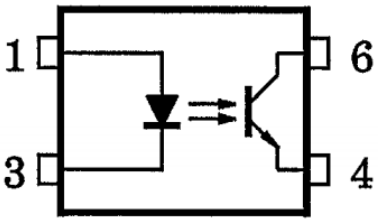
uStepper S Ego Shield opto-coupler output

The Ego Shield contains an optocoupler output to be used for triggering some external circuit like e.g. a camera trigger in the Time Lapse mode.

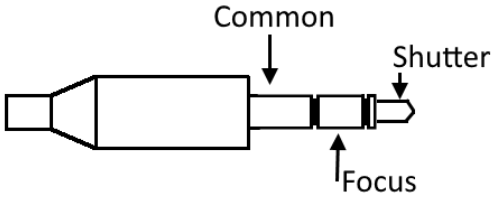


A Toshiba TLP185 opto-coupler is place on the board where the collector and emitter are pulled out on two pads as is visible on the right hand side of the shield rendering above.

A typical connection could be like below where a Canon EOS camera external shutter pin-out is shown on the right, and the opto-coupler on the left. The **Shutter** and **Focus** would be connected to **Collector** and the **Common** signal to **Emitter**.



1: Anode
3: Cathode
4: Emitter
6: Collector



Check camera compatibility and shutter pin-out before connecting it to the Ego Shield !

uStepper S Ego Shield applications

You will find more info on the Ego Shield on our GitHub where detailed description and source code is available for Ego Shield.

PRESS HERE or scan the QR code on the right to get to GitHub !

Besides the documentation you will also find instructive videos on our YouTube channel

Video Tutorials

On our YouTube channel you will find video tutorials on how to mount uStepper S, setting it up in the Arduino IDE and programming it. You will also find a tutorial for using the Ego Shield with the linear actuator !

Mounting uStepper S

Programming uStepper S

Using Ego Shield

For further info visit www.uStepper.com and our YouTube channel !

Disclaimer

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