

## **New Features:**

### **General:**

Added battery life gauge to main screen if using an Li-Ion battery pack.

Shutter 1 circle will show its current configuration (input to start a sequence, or an input to advance a sequence).

Numerical entry has helper text in the entry window showing limits for the values.

Shutter: The input setting can now be set to "Input - No Abort" to use triggered motion control. Can be combined with Motion Repeat: Auto-return for event/trail moco.

Remote: Initial remote control (joystick) functionality:

- Deadzone/zero position settings
- Joystick configurations -- programmable axis control
- Button configurations -- basic movement, control, and real-time record
- Inversion control for easy flipping of orientation
- Speed override -- allows the joystick speed to be a percentage less than the maximum speed (useful for real-time recording and microscope usage)

### **Stacking:**

Stack modes will remember their start/end position after powering off provided the mode isn't changed.

Auto-distance modes will now round up and take an extra shot instead of ignoring the last fractional step.

3-axis stacking now shows pictures remaining

For multi-axis, a reshoot option was added to go back and reshoot the outermost axis (example: for stack rotate, you can reshoot an entire rotation step).

### **Panoramas:**

Changed "Frame Width" phrase to "Move angle" so the user doesn't think that it is their cameras FOV.

Manual entry was added for the FOV for those who already know it for their lens/zoom setup.

"reshoot" option has been added to go back and reshoot specific frames.

You can now select "manual advance" to move to the next position. This also works with an external input **if** the shutter 1 I/O is set to Input - Advance.

Art-scan mode added -- uses two axes for pan/tilt, and then the Z-axis for slider/rail to compensate for the increased distance to subject at angles (keeps DOF). Thanks to Luis Bravo Pereira!

Panorama-specific settings moved under their own sub-menu in global config.

### **Moco:**

Changed colors for motion buttons to try and emphasize that zeroing all and going to zero can cause trouble for the uninitiated.

Powering down in motion control modes will now ask if you want to return to zero before shutting down.

While in the editing keyframe screen, you can touch the curve at any point to move all axes to that position.

Added an option under "Time Settings" to rescale all the motion profiles by time/percentage (Continuous or SMS).

Add "Motion Repeat" setting in global settings. Single run, auto-return, loop, or ping-pong. Defaults to single run

If "linear" ramping is selected, the user is now prompted for a ramp duration (0 - 25% of the total length). Trapezoidal velocity profile.

When editing keyframes, the playhead remains at the same position when changing axes.

When editing keyframes, the remote can be used to adjust the current time for the playhead.

Added real-time recording in video mode when using the remote (2 minute maximum record).

In SMS mode, under "time settings", there is now an "Interval" that can be adjusted. It speeds up setting the frame interval (no longer have to adjust the settle time/shutter duration)

In video mode, shutter outputs are activated as soon as the motion starts for remote trigger operations

In SMS mode, shutter 1 can be set to "Input - Advance", which will advance to the next frame (useful with bulb rampers and other timing devices)

Pressing and holding "Edit Axis" on the main screen will load the factory defaults for just the bezier curves

Remote: In Moco modes, when editing a keyframe, the remote can be used to scroll through the time/position of all three axes

Remote: In Moco modes, keyframes can be evenly distributed and automatically smoothed when the remote is set for "control" mode.

## **Misc:**

Wifi: Improved Wifi performance and error handling

Wifi: Added Wifi channel select when in AP mode (improves throughput in congested areas)

## **Bug fixes:**

### **General:**

Rapid re-draws of the LCD could cause the screen to become temporarily unreadable.

3-axis slide control touch position coordinates and screen were adjusted so that max velocity can be reached in the forward direction.

Statistics weren't fully utilizing their wear-leveling storage space

NVM writes were sometimes failing due to addressing issues during wear-leveling

### **Stacking:**

Multi-axis would show start and end positions selected on the main screen even if only the start position was selected.

Multi-axis wouldn't properly preserve the initial starting point for the rotary stage (or other non-auto axes). It would always revert back to absolute zero position.

### **Panoramas:**

If in 360 degree, and the overlap was set to zero, the frame angle was incorrectly calculated.

### **Moco:**

Moving the time/frame of a keyframe didn't automatically smooth with the keys next to it, potentially causing discontinuities.

If shutter 1 was set as input, continuous timelapse would not run properly if no other axes used shutter 2 (shutter 1 was always "complete", so no timeframe would be set).

Bezier smoothing could invert the plot if the angle of approach was too small/large.

Starting shutter outputs wouldn't always work properly if more than one axis had command of it

**Misc:**

Wifi: security and regulatory domain were not being committed to NVM

Wifi: Baseband error handling improved