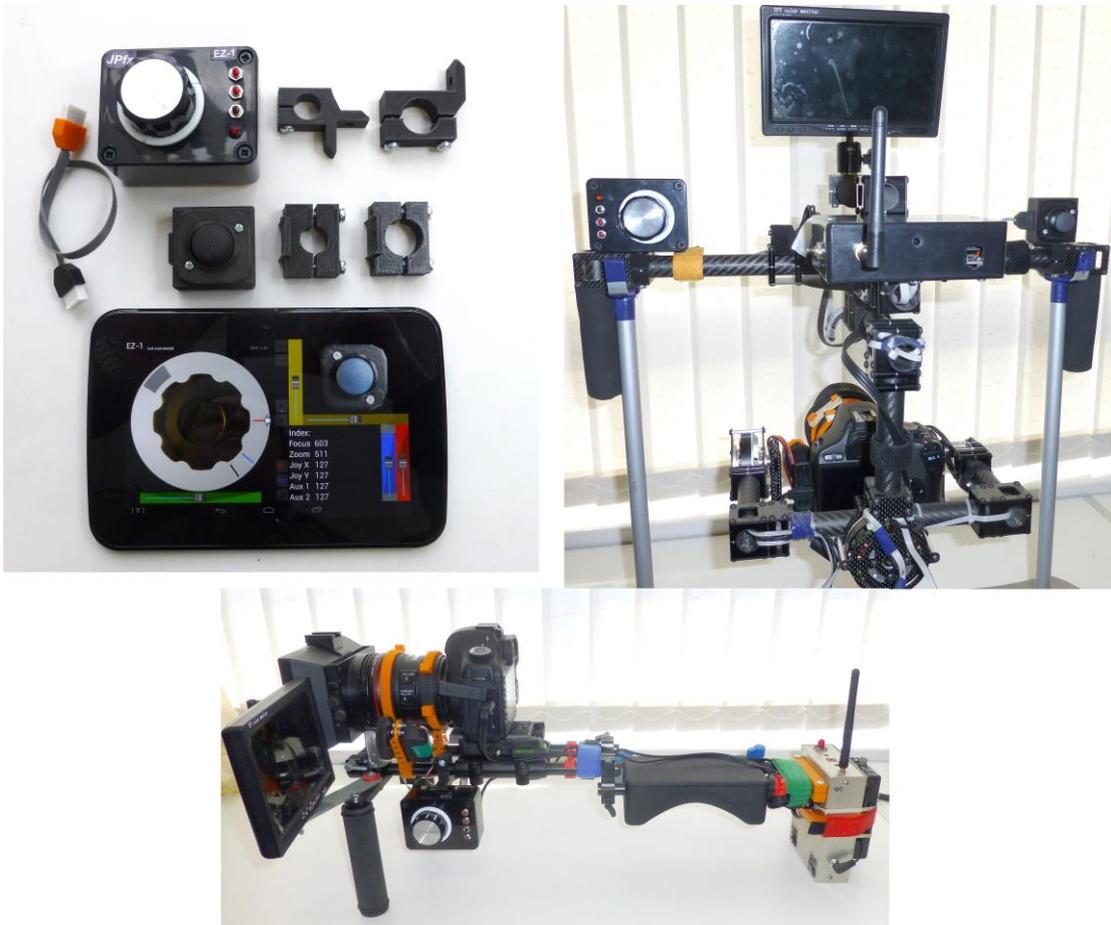


JPfx Ltd.

EZ-1

Lens and Gimbal Control System

User Guide



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Table of Contents

	Page
Introduction	3
Features	3
Operating Modes	3
Controls and Connectors	5
Typical Connections	7
System Setup	8
Focus limits setup	11
Zoom limits setup	13
Using Preset Memories	15
Use with a gimbal stabiliser	17
Specifications	19
EZ-1 Remote Control Android App.	20
App Controls and Indicators	21
Pairing and connecting.	23
Set PWM/Deadband.	25
SET Limits / Rotation.	27
Setting Focus servo Limits	29
Setting Zoom servo Limits.	30
Preset memories.	31
Motion sensors.	32

Introduction.

EZ-1 Lens and gimbal control system.

The EZ-1 is a low cost, compact and lightweight control system for use on DSLR shoulder rigs and brushless gimbal stabilisers.

The system provides three PWM servo control channels for focus zoom and iris/auxiliary, and three control channels for camera attitude (pan, tilt and roll) when used with a gimbal.

Local controls are provided for single operator use, or for multi operator setups, the system can be controlled wirelessly from an Android device running the EZ-1 remote control App.

Features.

- Conventional style follow focus rotary control.
- Joystick for variable speed power zoom or pan/tilt
- Focus and zoom memories with programmable transition speeds.
- Multi operator wireless remote control via EZ-1 Android App.

Operating Modes.

Local Control Mode.

This is the normal single operator mode.

In this mode, focus can be manually adjusted using the follow focus knob, and variable speed power zoom is controlled from the Y axis of the joystick.

The joystick can also be switched between Zoom or Pan/Tilt operation.

Two Focus and one Zoom pre-set memories can be re-called by pressing the appropriate focus or zoom pre-set buttons.

Remote control mode.

This mode is typically used for multi operator setups.

Remote control mode is automatically selected when an Android phone or tablet running the EZ-1 remote control App is paired and connected.

In this mode, all local controls are disabled and all functions are controlled from the Android device.

Pan, Tilt and Roll can be controlled either from the on-screen controls or by using the tablet's built in motion sensors to transfer tablet movements to the camera.

Note. Control of the AUX1/Roll and AUX2/Iris outputs is only available in remote control mode.

Controls and Connectors



1. Focus control knob.

Rotate to adjust Lens Focus.

2. Focus Preset 1.

Press to select or de-select Focus Preset 1. Long press to save current focus setting as preset 1. Also used to set or clear the minimum limit position when in setup mode.

3. Focus Preset 2.

Press to select or de-select Focus Preset 2. Long press to save current focus setting as preset 2. Also used to set or clear the maximum limit position when in setup mode.

4. Zoom Preset.

Press to select the zoom preset position. Long press to save current zoom setting as the zoom preset. Also used, when in setup mode, to select normal or reverse motor rotation (short press) and to save settings and exit setup mode (long press).

5. Led Indicator.

Used to indicate a variety of system states.

6. Joystick and Pushbutton.

Used to control zoom speed (y axis) or Pan and Tilt (x and y axes). A long press on the stick will toggle between zoom and pan/tilt operation. Also used to set transition speeds(x axis) when setting memories. The pushbutton is also used to swap the X-Y axes when in zoom setup mode.

7. DC power input. 7-15vdc

Power supply should be capable of delivering at least 2 amps.

8. Aux2 pwm output.

Standard resolution PWM output for Aux2/Iris servo position.

9. Aux1 pwm output.

Standard resolution PWM output for Aux1/Gimbal Roll position.

10. Tilt control output.

Standard resolution PWM output for Gimbal Tilt speed.

11. Pan control output.

Standard resolution PWM output for Gimbal Pan speed.

12. Zoom servo output.

High resolution PWM output for Zoom servo position.

13. Focus servo output.

High resolution PWM output for Focus servo position.

14. Joystick connector.

Connect to joystick with supplied cable.

15. M5 Mounting.

For attaching to various mounting brackets.

System Setup. (without EZ-1 App)

Setup of the EZ-1 can be performed either as a stand alone system or in combination with an android device running the EZ-1 App.

The following section describes the stand alone setup using just the local pushbuttons and controls.

See the **EZ-1** Android App. Section (page 20) for setup using the EZ-1 Android App.

PWM Range.

The PWM range for the Focus and zoom outputs can be adjusted between 1000 and 2000 microseconds to best suit the type of servo you wish to use and to optimise the rotation range for any particular setup.

A typical standard digital RC servo will accept a PWM signal with a pulse width of between 1000us and 2000us (1000us span) giving a servo rotation of approximately 0-90 degrees.

A typical "Robot" type servo will accept a PWM signal between 500us and 2500us (2000us span) giving a servo rotation of approximately 0-180 degrees or more.

To set the PWM range:

Power down the EZ1

Turn the focus knob to a position corresponding to the desired PW range. ie. Fully anticlockwise = 1000us, mid posn=1500us and fully clockwise = 2000us

Press & hold pushbuttons 2+3 while powering up.

The LED will flash rapidly for a second or so then the LED will illuminate constantly.



When the LED is constantly lit you can release the pushbuttons.

The PWM range is now set.

Focus Deadband.

The deadband setting provides compensation for "backlash" or "slack" in the mechanics of the servo system.

Mechanical backlash will typically cause a focus commanded position to fall slightly short of the mark depending on the direction of approach.

The deadband setting should be set such that a commanded position exactly hits the mark when approached from either direction.

To set the focus deadband:

Power down EZ1

Disengage the Focus servo.

Manually focus on a target. Use zoom and a wide aperture so small changes in focus can be easily seen.

Turn focus knob fully anticlockwise.

Press & hold pushbuttons 1+2 while powering up.

The LED will flash rapidly for a second or so then the LED will illuminate constantly.



When the LED is constantly lit you can release the pushbuttons.

Engage focus servo.

Slowly rotate the focus knob clockwise until the focus starts to noticeably shift back and forth once a second.

Slowly rotate the focus knob anticlockwise until the focus is no longer visibly shifting.

Press pushbutton 3 for 2 seconds to save the setting.

Zoom Deadband.

As with the Focus deadband setting, the Zoom deadband setting should be set such that a commanded position exactly hits the mark when approached from either direction.

To set the zoom deadband:

Power down EZ1

Disengage the Zoom servo

Set the lens to a mid zoom position and focus on a target.

Turn the focus knob fully anticlockwise.

Press & hold pushbuttons 1+3 while powering up.

The LED will flash rapidly for a second or so then the LED will illuminate constantly.



When the LED is constantly lit you can release the pushbuttons.

Engage the zoom servo.

Slowly rotate the focus knob clockwise until the zoom starts to noticeably shift in and out once a second.

Slowly rotate the focus knob anticlockwise until the zoom is no longer visibly shifting.

Press pushbutton 3 for 2 seconds to save the setting

Focus Limits setup.

The focus setup mode is used for setting the servo minimum and maximum travel limits and also the servo rotation polarity. (forward or reverse rotation)

Although limits can be programmed for both minimum and maximum travel, it is usually only necessary to set one or the other as the end of travel of the motor can be used as one limit and a programmed limit for the other.

It is recommended that you watch the EZ-1 lens calibration tutorial video.

Typical Focus servo setup Procedure.

Ensure Focus servo drive gear is disengaged and the EZ-1 is powered up.

To set focus setup mode, press and hold buttons 1 and 2 for 2 seconds. The LED will flash once every 2 seconds to indicate the focus setup mode is active.



Turn the focus control knob fully clockwise or anticlockwise depending on which way, if the drive gear were engaged, would move the lens ring to the infinity focus position.

Turn lens ring to the infinity focus position.

Engage the servo gear and lightly tighten the servo bracket thumb screw.

Slowly rotate the focus knob until the focus ring reaches its minimum focus position or the motor reaches the end of its travel.

If the focus ring reaches its minimum focus position, if rotating clockwise, press button 2 to set the current position as the programmed maximum limit. If rotating anticlockwise, press button 1 to set the current position as the programmed minimum limit. If you need to move the limit, press the button again to release the limit and try again.

If the motor reaches its limit of travel before the lens ring reaches its minimum focus position, you must decide if the focus range is sufficient for your purposes. If not then you will need to fit a slightly larger drive gear to the servo then start the setup procedure again.

If you decide that the focus range is acceptable then there is no need to set a limit.

If necessary, press button 3 (short press) to reverse the servo rotation.

To save the current setting and return to normal operating mode, press and hold button 3 for 2 seconds.

Zoom Limits setup.

The zoom setup mode is used for setting the servo minimum and maximum travel limits, the servo rotation polarity, and the joystick x-y orientation.

As with the focus servo, limits can be set for both minimum and maximum travel but it is usually only necessary to set one or the other.

Typical Zoom servo setup Procedure.

Ensure Zoom servo drive gear is disengaged.

To set zoom setup mode, press and hold buttons 1 and 3 for 2 seconds. The LED will give a double flash every 2 seconds to indicate the zoom setup mode is active.



Press the joystick if you need to swap the X-Y axes. The joystick should be set so that the Y axis is assigned to up-down movement (ie. operates servo) and the X axis to left-right movement.

Push the joystick up or down depending on which way, if the drive gear were engaged, would move the lens ring to the wide angle position. Keep the joystick held until the servo reaches it's end of travel and stops.

Turn lens ring to the wide angle position.

Engage the servo gear and lightly tighten the servo bracket thumb screw.

Push the joystick slightly so that the lens begins to zoom in slowly. Keep going until the zoom ring reaches its full zoom position or the motor reaches the end of its travel.

If the zoom ring reaches its full zoom position, if pushing the stick up, press button 2 to set the current position as the programmed maximum limit. If pushing the stick down, press button 1 to set the current position as the programmed minimum limit.

If the motor reaches its limit of travel before the lens ring reaches full zoom position, you must decide if the zoom range is sufficient for your purposes.

If not then you will need to fit a slightly larger drive gear to the servo then start the setup procedure again.
If you decide that the zoom range is acceptable then there is no need to set a limit.

If necessary, press button 3 (short press) to reverse the servo rotation.

To save the current setting and return to normal operating mode, press and hold button 3 for 2 seconds.

Reset factory defaults.

To reset the controlbox to the factory default settings, ensure the unit is powered down.

Press and hold all three buttons while powering up the control box.

The LED will flash rapidly for a second or so then the LED will illuminate constantly.

When the LED is constantly lit, you can release the buttons.

The factory defaults have now been reset.

Default values.

PW range = 1000us (1000us to 2000us)

Focus backlash compensation = 5us

Zoom backlash compensation = 5us

All limits set to max range.

Using Preset Memories

Using Focus Presets.

There are two focus memories (presets) available, each with it's own push button for setting and recall. The X axis of the joystick can be used to set the transition speed when setting preset memories.

To program a memory, first adjust the focus to the required setting using the focus knob. To set the transition speed, move the joystick to the left for lower speeds or right for higher speeds, then while holding the joystick at the required speed setting, press and hold the focus preset button (1 or 2) for two seconds. After two seconds, the LED will flash once to indicate the position and transition speed has been stored in the memory. It may require some experimentation to determine how far to push the joystick to achieve the required transition speed.

To recall a preset simply press the required preset button (short press) and the focus servo will move to the preset position at the programmed speed. The LED will flash rapidly while the transition is in progress and will then give a single flash for preset1 or double flash for preset2 every second to indicate that the preset is active.

To de-activate a preset, press the preset button again and the focus servo will return at its default speed to the manual control position. The LED will flash rapidly while the transition is in progress.

Using the Zoom Preset.

There is one zoom memory provided, with it's own push button for setting and recall. The X axis of the joystick can be used to set the transition speed when setting preset memories.

To program the memory, first adjust the zoom to the required setting using the Y axis of the joystick. To set the transition speed, move the joystick to the left for lower speeds or right for higher speeds, then while holding the joystick at the required speed setting, press and hold the zoom preset button for two seconds. After two seconds, the LED will flash once to indicate the position and transition speed has been stored in the memory. It may require some experimentation to determine how far to push the joystick to achieve the required transition speed.

To recall the preset simply press the zoom preset button (short press) and the zoom servo will move to the preset position at the programmed speed. The LED will flash rapidly while the transition is in progress. Once the transition is complete, the zoom servo can be controlled from the joystick Y axis as normal.

If you wish to cancel a transition that is in progress, press the zoom preset button again and the servo will stop where it is and control will be returned again to the joystick.

Use with a gimbal stabiliser

In addition to the lens servo outputs the EZ-1 provides three signals for controlling the pan, tilt and roll axes of a brushless gimbal stabiliser. The system has been developed using an "Alexmos" type controller but should work with any controller capable of accepting external PWM control signals for pan, tilt and roll.

You will need to connect the pan, tilt and roll outputs on the EZ-1 to the corresponding inputs on your gimbal controller (see "Typical connections" section.) and then configure the operating modes, polarity and gains of the connected inputs. For specific details on how to do this you will need to refer to the documentation for your controller.

Pan Output.

The pan output is controlled from the X axis of the joystick (when in pan/tilt mode) and provides 1ms pulses when pushed fully left, 1.5ms when in the centre and 2ms when pushed fully right.

The pan input on your gimbal controller should be configured for speed control with a neutral value of 1.5ms (zero speed). The input polarity should be set such that when the stick is pushed left, the camera pans left and when the stick is pushed right, the camera pans right.

The gain setting will control how fast the camera pans when the stick is pushed a particular amount left or right. This setting is not critical and can be set to whatever you feel comfortable with. However, if you intend to use the remote controller motion sensors then the gain should be set so that when the remote controller is rotated about the pan axis the camera rotates, on it's pan axis, a similar amount.

When the motion sensors are active and the joystick is centred, the pan output will give 1ms at -36 degrees/sec, 1.5ms at zero and 2ms at +36 degrees/sec rotation of the remote controller about the pan axis.

Tilt Output.

The tilt output is controlled from the Y axis of the joystick (when in pan/tilt mode) and provides 1ms pulses when pushed fully down, 1.5ms when in the centre and 2ms when pushed fully up.

The tilt input on your gimbal controller should be configured for speed control with a neutral value of 1.5ms (zero speed). The input polarity should be set such that when the stick is pushed down, the camera tilts down and when the stick is pushed up, the camera tilts up.

The gain setting will control how fast the camera tilts when the stick is pushed a particular amount up or down. This setting is not critical and can be set to

whatever you feel comfortable with. However, if you intend to use the remote controller motion sensors then the gain should be set so that when the remote controller is rotated about the tilt axis the camera rotates, on it's tilt axis, a similar amount.

When the motion sensors are active and the joystick is centred, the tilt output will give 1ms at -36 degrees/sec , 1.5ms at zero and 2ms at +36 degrees/sec rotation of the remote controller about the tilt axis.

Roll Output.

The roll output is controllable only from the wireless remote controller. When the remote controller is not connected, the roll output gives a constant 1.5ms PWM (zero roll) signal.

When you have a wireless remote controller connected, the roll output is controlled from the horizontal slider control just below the joystick and provides 1ms pulses when moved fully left, 1.5ms when in the centre and 2ms when fully right.

The roll input on your controller should be configured for position control with zero roll value of 1.5ms.

The input polarity should be set so that when the slider is moved to the left, the camera rolls to the left and when the slider is moved to the right, the camera rolls right.

The gain setting will control how much the camera rolls when the roll slider is moved. This can be set to anything you like. However when using the remote controller roll sensor, when the roll slider is centred, the output will give 1ms at -45 degrees, 1.5ms at zero degrees and 2ms at +45 degrees rotation about the controller roll axis relative to the direction of gravity. Thus the gain should be set to give + - 45 degrees of roll.

Specifications.

Power input

7 to 18 vDC

PWM control channels (1-2ms. 50hz 5vPP)

4 standard resolution (256)

2 high resolution (1024)

Wireless communications

Bluetooth V2.0+EDR

Serial port profile

Emission power <4dBm, Class 2

Range 10m

Dimensions

Control Box. 81mm x 62mm x 62mm

Joystick. 46mm x 44mm x 39mm

Weight

Control Box. 123g

Joystick. 32g

EZ-1 Android App. v1.0



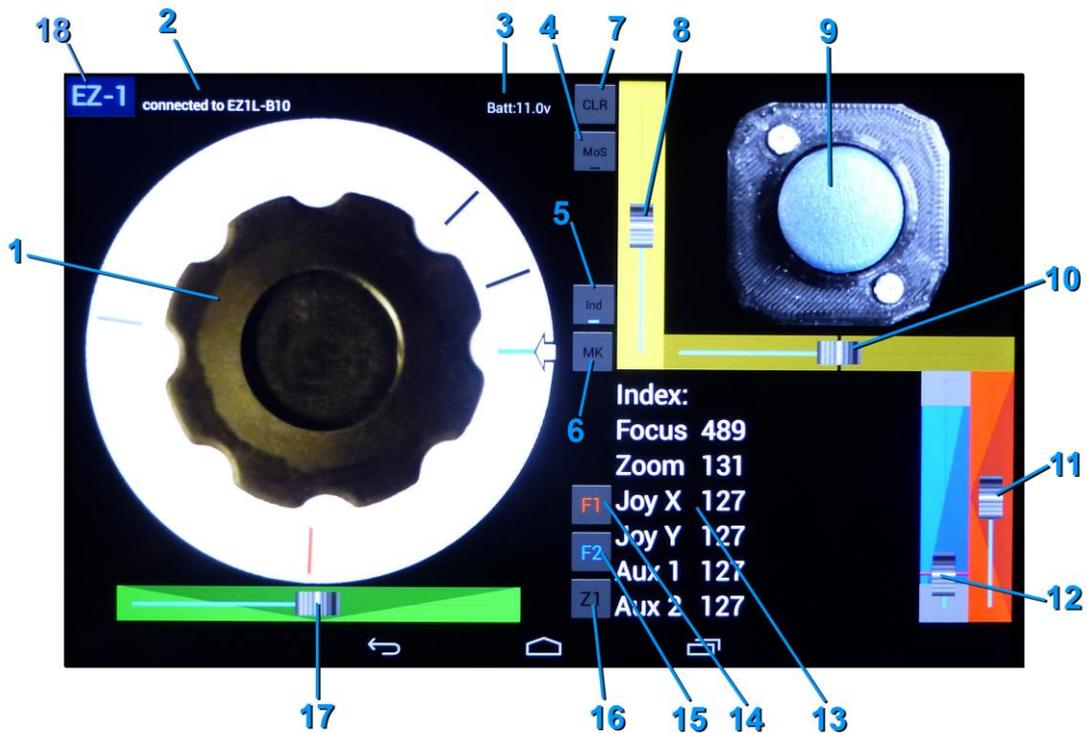
Provides wireless remote control of the EZ1 DSLR lens and gimbal control system.

Control Focus, Zoom, Iris, Pan ,Tilt and Roll via Bluetooth from your Android tablet or phone.

- Large conventional style follow focus rotary control.
- Variable speed and direct position zoom controls.
- Focus and Zoom memories with programmable transition speeds.
- Joystick for gimbal pan and tilt control.
- Horizontal slider control for Aux1/ gimbal Roll.
- Vertical slider control for Aux2/ Iris servo.
- Pan,Tilt and Roll can also be controlled using motion sensors to track tablet/phone movements.

The EZ-1 Android App is available from the google play store.

App Controls and Indicators



1. Focus Control.

Rotate to manually adjust lens focus.
Also used to display focus markers and travel limits.

2. Connection status indicator.

Displays the Bluetooth ID of device when connected or shows "Not Connected" when no connection has been established.

3. Battery voltage indicator.

Shows the battery voltage of the connected device. *Note. This is the battery voltage as seen by the EZ-1 controller on your shoulder rig or gimbal NOT your tablet/phone battery.*

4. Motion sensor control button. (MoS)

Enables or disables the tablet motion sensors. Press to toggle the pan and tilt motion sensors on and off. When the pan and tilt sensors are enabled, a long press will also enable the roll sensor.

5. Index. (Ind)

Enables or disables the control index display area. When enabled, the index display area shows real time reference values for the various control channels. This can be disabled to improve the animation quality on some devices.

6. Manual focus marker button. (MK)

Press to place a visual reference marker on the focus control knob. Up to 10 markers may be placed on the focus control.

7. Clear manual markers / Zero gyros button. (CLR)

Press to clear the manual reference markers.

When the motion sensors are enabled, a long press will perform a zero movement calibration on the gyros.

8. Aux2/Iris slider control.

Controls the signal from the Aux2 PWM output. This signal can be used as an auxiliary control signal or an iris servo output.

9. Joystick control.

Controls camera pan and tilt rate when used with a gimbal stabiliser. When the joystick is released, it will automatically return to the centre position.

10. Aux2/Roll slider control.

Controls the signal from the Aux1 PWM output. This signal can be used to control the roll position when used with a gimbal stabiliser. When this control is released, it will automatically return to the centre position.

11. Variable speed Zoom control.

Controls the speed of the zoom servo. Move the control up to zoom in and down to zoom out. When this control is released, it will automatically return to the centre position and the zoom servo will stop.

12. Zoom position indicator/control.

This control indicates the relative position of the zoom servo. Manually moving or tapping this control will cause the zoom servo to move as quickly as it can to the selected position. Also used to display zoom preset marker and travel limits.

13. Index display area.

Displays reference index values for the various control channels.

14. Focus preset1 button. (F1)

Press to select Focus Preset 1. When pressed, the focus servo will move at the programmed speed to the focus preset1 position. Long press to save current focus setting as preset 1.

15. Focus preset2 button. (F2)

Press to select Focus Preset 2. When pressed, the focus servo will move at the programmed speed to the focus preset2 position. Long press to save current focus setting as preset 2.

16. Zoom preset button. (Z1)

Press to select the zoom preset position. When pressed, the zoom servo will move at the programmed speed to the zoom preset position. Long press to save current zoom setting as the zoom preset.

17. Variable speed Focus control.

Controls the speed of the focus servo. Move the control left or right to adjust the speed of the focus servo. When this control is released, it will automatically return to the centre position and the focus servo will stop.

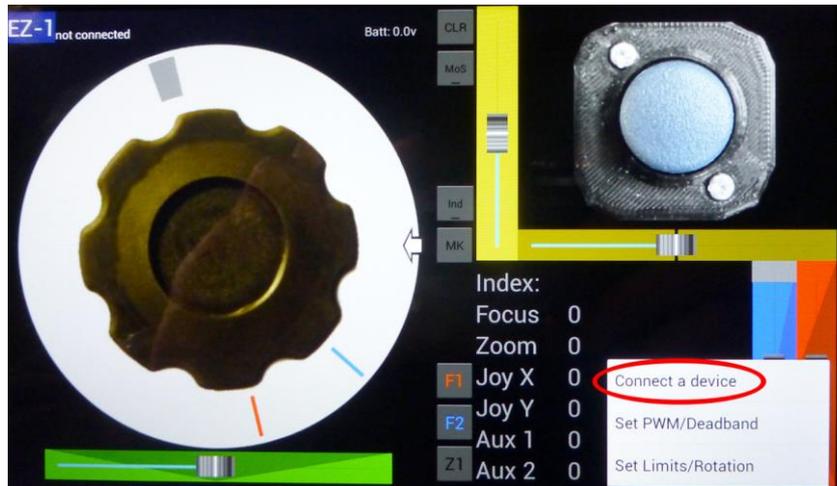
18. EZ-1 Main menu button.

A long press on this button will display the menu for settings and bluetooth device connection.

Pairing and connecting.

Before you can connect your tablet to the EZ-1 controller, you must first "pair" it like any other bluetooth device.

Ensure the EZ-1 local controller is powered up and somewhere near by, then long press (press and hold for a second or so) the "EZ-1" menu button to display the main menu then select "connect device".



Alternatively, if your tablet has a hardware menu button then you can press that then select "Connect Device".



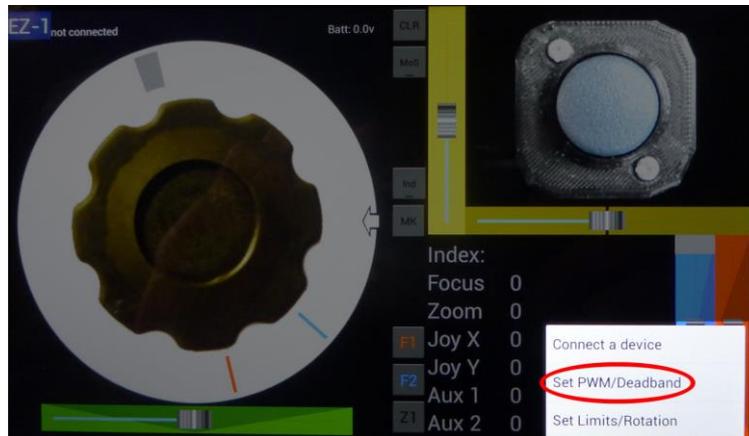
The "connect device" dialog shows a list of previously paired devices along with a "scan for devices" button. If you have already paired the controller, simply select it from the list to connect, otherwise press the "scan for devices" button.

When scanning is complete, a list of available devices will be shown. Select the "EZ1L-B10" device then enter "1234" for the pairing code. Pairing is now complete and you can connect to your controller.

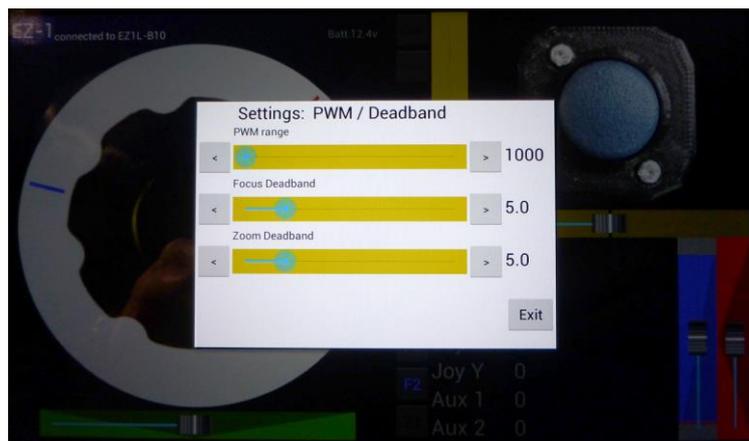
Note. On some small screen devices (phone size) the "scan for devices" button may not show. In this case you will need to pair using the Android Bluetooth settings.

Set PWM/Deadband.

Long press the blue "EZ-1" button (top right corner) or press "Menu" then select "Set PWM/Deadband"



The system will then show the following setup screen.



PWM Range. (1000-2000us)

Sets the PWM range for the two high resolution servo outputs. (Focus and Zoom.)

The PWM range for the Focus and zoom outputs can be adjusted between 1000 and 2000 microseconds to best suit the type of servo you wish to use and to optimise the rotation range for any particular setup.

Move the PWM range slider bar left or right to adjust the PWM range.

Fine adjustments can be made by pressing the buttons at either end of the slider bar.

A typical standard digital RC servo will accept a PWM signal with a pulse width of between 1000us and 2000us (1000us span) giving a servo rotation of approximately 0-90 degrees.

A typical "Robot" type servo will accept a PWM signal between 500us and 2500us (2000us span) giving a servo rotation of approximately 0-180 degrees or more.

Focus Deadband. (0-5us)

The deadband setting provides compensation for "backlash" or "slack" in the mechanics of the servo system.

Mechanical backlash will typically cause a focus commanded position to fall slightly short of the mark depending on the direction of approach.

The deadband setting should be set such that a commanded position exactly hits the mark when approached from either direction.

If the position falls short of the mark then the setting should be increased. If the position overshoots the mark then the setting should be reduced.

To increase the value, move the slider to the Right.

To decrease the value, move the slider to the Left.

Fine adjustments can be made by pressing the buttons at either end of the slider bar.

Zoom Deadband. (0-5us)

As with the Focus deadband setting, the Zoom deadband setting should be set such that a commanded position exactly hits the mark when approached from either direction.

If the position falls short of the mark then the setting should be increased. If the position overshoots the mark then the setting should be reduced.

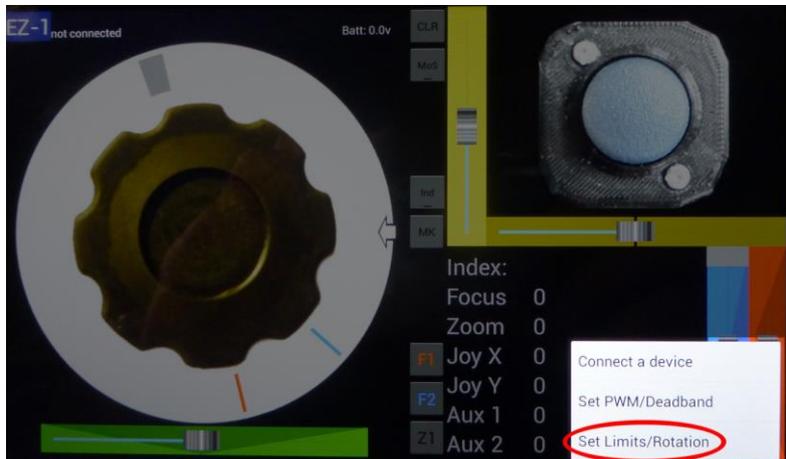
To increase the value, move the slider to the Right.

To decrease the value, move the slider to the Left.

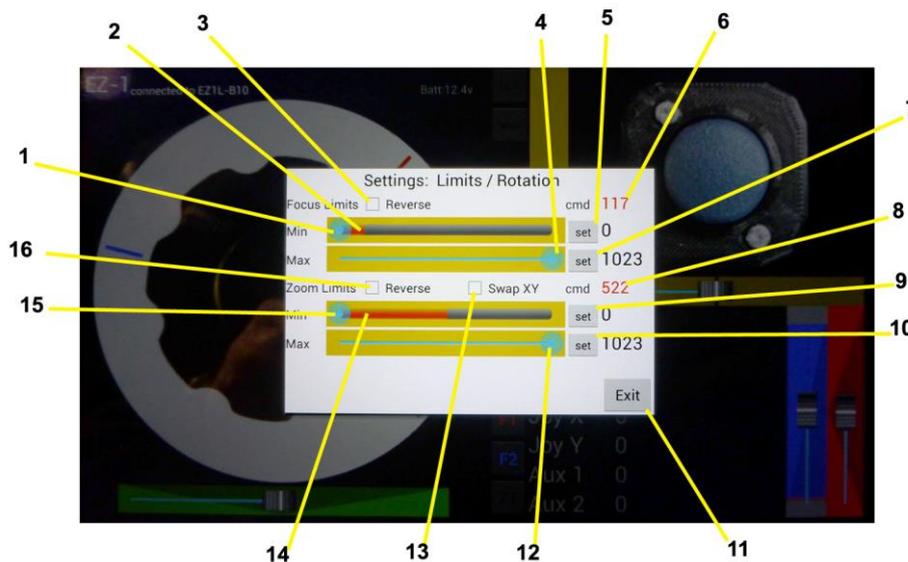
Fine adjustments can be made by pressing the buttons at either end of the slider bar.

SET Limits / Rotation.

Long press the blue "EZ-1" button (top right corner) or press "Menu" then select "Set Limits / Rotation"



The system will then show the following setup screen.



- 1 Focus low limit slider control.
Adjusts minimum focus servo limit.
- 2 Focus command value indicator bar.
Shows position of focus control knob.
- 3 Focus servo rotation polarity check box.
Reverses rotation direction of focus servo.

- 4 Focus high limit slider control.
Adjusts maximum focus servo limit.
- 5 Focus low limit set button.
Sets focus low limit to the currently commanded position.
- 6 Focus command value.
Shows the numerical value of the focus control input.
- 7 Focus high limit set button.
Sets focus high limit to the currently commanded position.
- 8 Zoom command value.
Shows the numerical value of the Zoom command position.
- 9 Zoom low limit set button.
Sets Zoom low limit to the currently commanded position
- 10 Zoom high limit set button.
Sets Zoom high limit to the currently commanded position.
- 11 Exit limits setup.
- 12 Zoom high limit slider control.
Adjusts maximum zoom servo limit.
- 13 Joystick zoom axis selection check box.
Unchecked = "Y" axis controls the zoom servo.
Checked = "X" axis controls the zoom servo.
- 14 Zoom command value indicator bar.
Shows zoom commanded position.
- 15 Zoom low limit slider control.
Adjusts minimum zoom servo limit.
- 16 Zoom servo rotation polarity check box.
Reverses rotation direction of zoom servo.

Setting Focus servo Limits.

Although limits can be programmed for both minimum and maximum travel, it is usually only necessary to set one or the other as the end of travel of the motor can be used as one limit and a programmed limit for the other.

Typical Focus servo setup Procedure.

Disengage the Focus servo drive gear from the focus lens gear.

Ensure that the device running the EZ1 App is paired and connected.
(see *Pairing and connecting. page 23*)

Press "Menu" or long press the blue "EZ1" button and select "Set Limits / Rotation" as above to display the set limits screen.

Move the focus minimum limit slider(1) fully Left and the focus maximum limit slider(4) fully Right to allow maximum movement range of the servo.

Note. When the "Set Limits / Rotation" screen is displayed, the App remote controls are disabled and the local manual controls become active.

Turn the focus control knob fully clockwise or anticlockwise depending on which way, if the drive gear were engaged, would move the lens ring to the infinity focus position.

If you prefer the motor to run in the opposite direction, tap the focus limits "Reverse" checkbox(3)

Turn lens ring to the infinity focus position.

Engage the servo gear and lightly tighten the servo bracket thumb screw.

Slowly rotate the focus knob until the focus ring reaches its minimum focus position or the motor reaches the end of its travel.

If the focus ring reaches its minimum focus position, press the min "set" button(5) or max "set" button(7) depending on the direction of approach.

If the motor reaches its limit of travel before the lens ring reaches its minimum focus position, you must decide if the focus range is sufficient for your purposes. If not then you will need to fit a larger drive gear to the servo then start the setup procedure again.

If you decide that the focus range is acceptable then there is no need to set a limit.

Press "Exit"(11) to save the current settings and return to normal operating mode.

Setting Zoom servo Limits.

As with the focus servo, it is usually only necessary to set one limit as the end of travel of the motor can be used as one limit and a programmed limit for the other.

Typical Zoom servo setup Procedure.

Disengage the zoom servo drive gear from the zoom lens gear.

Press "Menu" or long press the blue "EZ1" button and select "Set Limits / Rotation" as above to display the set limits screen.

Move the zoom minimum limit slider(15) fully Left and the zoom maximum limit slider(12) fully Right to allow maximum movement range of the servo.

Note. When the "Set Limits / Rotation" screen is displayed, the App remote controls are disabled and the local manual controls become active.

Push the joystick up or down depending on which way, if the drive gear were engaged, would move the lens ring to the minimum zoom (wide angle) position.

If you prefer the motor to run in the opposite direction, tap the zoom limits "Reverse" checkbox(16)

Turn lens ring to the minimum zoom position.

Engage the servo gear and lightly tighten the servo bracket thumb screw.

Push the joystick up or down until the zoom ring reaches its maximum zoom position or the motor reaches the end of its travel.

If the zoom ring reaches its maximum zoom position, press the min "set" button(9) or max "set" button(10) depending on the direction of approach.

If the motor reaches its limit of travel before the lens ring reaches its maximum zoom position, you must decide if the zoom range is sufficient for your purposes. If not then you will need to fit a larger drive gear to the servo then start the setup procedure again.

If you decide that the zoom range is acceptable then there is no need to set a limit.

Press "Exit"(11) to save the current settings and return to normal operating mode.

Preset memories.

When the connection between your tablet and the local controller is established, the servo travel limits and preset memory information stored in the controller is copied to the tablet.

The focus presets 1 and 2 will show on the focus knob as red and blue markers respectively and the zoom preset will show as a red marker on the zoom position control.

The travel limits will show as grey areas.

To recall a preset memory, simply press the appropriate preset button (F1 & F2 for focus and Z1 for zoom) and the servo will move at the programmed speed to the target position. The preset button will flash slowly while the transition is in progress.

Touching or moving a control while a transition is in progress will immediately terminate the transition and return to manual control.

To program a focus memory, first adjust the focus to the required setting using the focus control then long press the F1 or F2 preset button. This will display the save preset dialog box.



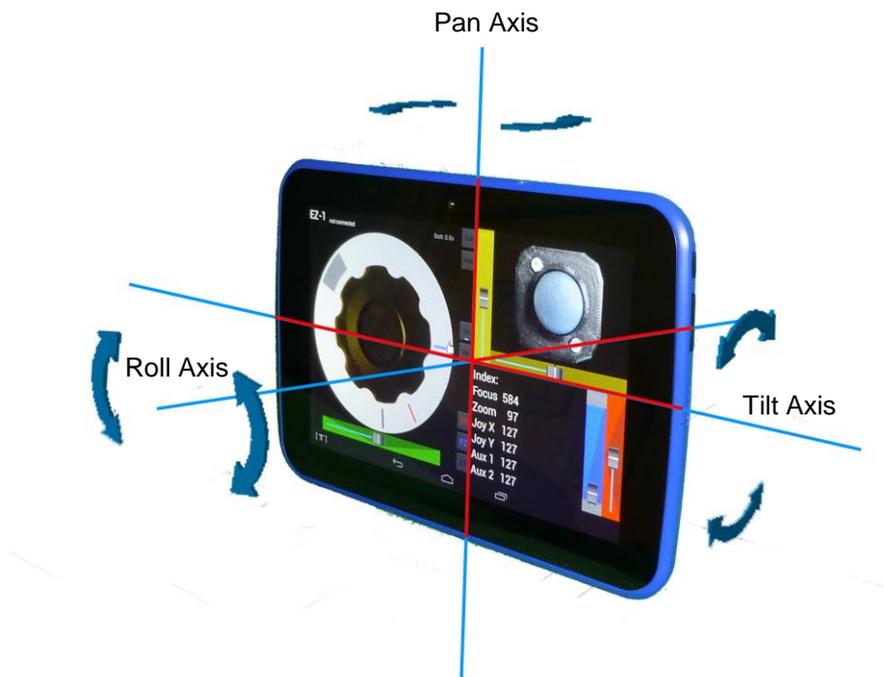
To set the transition speed, move the slider to the left for lower speeds or right for higher speeds, then press the "Save" button to finish. The data will be saved and a marker, red for preset1 and blue for preset2, placed on the focus knob at the current position. The data is also sent back to the EZ-1 local controller to synchronise the controller and tablet presets.

Programming the zoom memory is a similar procedure to the above but with reference to the zoom controls and Z1 preset button.

Motion sensors.

When using a gimbal stabiliser, the built in motion sensors in your tablet can be used to control the pan, tilt and roll of the camera.

The system uses two gyro sensors to measure the tablets rotation rate about the pan and tilt axes and an accelerometer to calculate the roll angle relative to the direction of gravity.



Press the "MoS" button to toggle the pan and tilt sensors on and off. A long press on the "MoS" button when the pan and tilt sensors are active will also enable the roll sensor.

The signals from the motion sensors are mixed with the signals from the on-screen controls to allow attitude control using a combination of joystick input for larger camera movements and motion sensors for fine adjustments and moving subject tracking.

Important Notice

All statements, technical information, and recommendations related to Seller's products are based on information believed to be reliable, but the accuracy or completeness thereof is not guaranteed. Before utilising the product, the user should determine the suitability of the product for its intended use. The user assumes all risks and liability whatsoever in connection with such use.

Limited Warranty

JPfx Ltd. warrants this product to be free from defects in materials and workmanship for one year from the date of purchase. JPfx Ltd. will at its sole option, repair or replace any components which fail in normal use. Such repair or replacement will be made at no charge to the customer for parts and labour. The customer is however responsible for any transportation costs. This warranty does not cover failures due to abuse, misuse, accident or unauthorised alteration or repairs. JPfx Ltd. assumes no responsibility for special, incidental, punitive or consequential damages, or loss of use. A copy of the original sales receipt is required as proof of purchase for warranty repairs.



We, JPfx Ltd, declare that the product, the EZ-1 controller, to which this declaration relates, is in material conformity with the appropriate CE standards and directives for an electronic product designed for consumer use.

Any unauthorized modification of the products voids this Declaration.

For a copy of the original signed declaration of conformity, please contact JPfx Ltd at the following address.

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