STACKSHOT 3X
Remote

Owner's Manual

Revision 1.0

COGNISYS INC.
Capture the Hidden World

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1. Safety Instructions

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

Follow all CAUTION notices to reduce the risk of personal injury, prevent damage to the StackShot 3X Remote, accessories, and devices (computers, cameras, flashes, etc). Failure to follow all CAUTION notices may void your warranty. CAUTION may also indicate a potentially hazardous situation which, if not avoided, may result in personal injury.

The safety alert symbol ⚠ precedes a general CAUTION or WARNING statement.

The electrical hazard symbol ⚠ precedes an electric shock hazard CAUTION or WARNING statement.

⚠ **CAUTION:** Only use the AC/DC power adapter (cube) that was included with your StackShot 3X. Use of other power adapters may damage the controller and/or attached equipment.

⚠ **CAUTION: The StackShot 3X Remote moves your camera equipment and/or the subject you are photographing.** Motion control gives you incredible flexibility for your photography. However, this motion can cause a shift in weight potentially causing injury or damage if the equipment is not properly secured and/or balanced. It is your responsibility as a user to ensure the equipment will remain properly secured and safe. Additionally, incorrect settings or misuse of the controller could potentially damage your equipment. Cognisys, Inc. will not be held liable for damage to your equipment. To stop the motors from moving at any point touch the display and/or remove power from the controller.

2. Getting Started

The latest version of this manual is available at http://www.cognisys-inc.com.

The graphics included in this manual may not be identical to the software that you are running. Improvements and adjustments to the software may happen prior to an updated version of the manual.

This product is only compatible with the StackShot 3X controller. It is not compatible with other Cognisys products.

2.1 Cleaning and Care

We want your StackShot 3X Remote to last – so here are some brief steps to keep your controller happy!

2.1.1 Cleaning

For cleaning use a dry micro-fiber cloth. If that doesn't remove debris or smudges you can use a slightly dampened (not wet) micro-fiber cloth. Do not spray water directly onto the remote. Do not use a flammable liquid or cleaning agent on the remote – just a micro-fiber cloth (dampened, only if needed).

2.1.2 Care and storage

StackShot 3X Remote is a precision piece of electronics. It's designed to handle normal wear and tear but there are some things to avoid:

- Do not get the unit wet.
- Do not drop the unit.
- Remove the batteries if storing for an extended period.

2.2 The StackShot 3X Remote

The top of the Remote has two indicator LED's:

1. Power / Wifi status
   This LED has three modes:
   a. Slowly ramping up and down in brightness: The Remote is looking for a StackShot 3X that has pairing mode enabled.
   b. Flashing on and off: The Remote is currently trying to connect to a previously paired StackShot 3X.
   c. Solid on: The Remote is connected to your StackShot 3X.

2. Alternate Axis / Record / Low Battery indicator
   a. Solid Green: The joystick button is pressed in letting you control the alternate axis.
   b. Solid Red: The StackShot 3X is currently recording a real-time move.
   c. Flashing Red: The batteries need to be replaced and the Remote will now turn off.

The buttons on the Remote have different functions depending on their current setting. See section "*5.1.1 - Buttons*" for details.

To power off the Remote, press and hold the center “B” (power) button for one second until the blue LED goes out.

3. Pairing Process

In order to use the Remote with your StackShot 3X, you first must go through a pairing process. You will only need to do this once (unless you update your Remote software). Start with your Remote turned off.

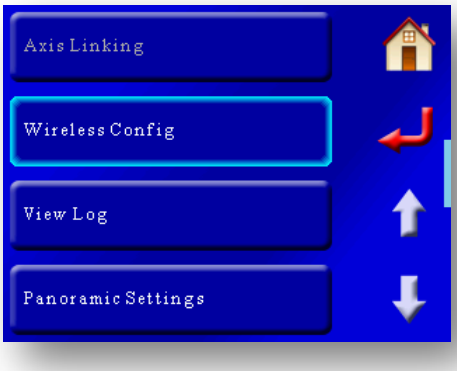
Note: The Remote requires that your StackShot 3X be running software version 1.0.01 or later. You can see the current version of your controller when you first turn it on. If you need to update your StackShot 3X version, please visit the following link:

StackShot 3X Technical Specs

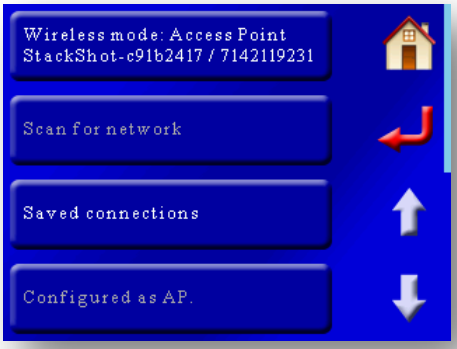
The following instructions may appear slightly different for versions later than the 1.0.01 software, but the process is the same.

On your StackShot 3X controller, press the “Settings” button:

Use the down arrow and navigate to the “Wireless Config” option:



Confirm that your StackShot 3X is set up as an “Access Point”:



If you do not see “Wireless mode: Access point”, then simply press that button to switch the controller to an access point.

Press the down arrow until you see “Remote Pairing: Enable”. Press this button:

The button will then show “Remote Pairing: Active”.

Now turn on your remote (Press and release the “B” button). You will see the blue LED on your remote slowly ramp up and down as it looks for your StackShot 3X controller. Once the Remote finds it, the blue LED will turn solid on. That concludes the pairing process!

Note: The remote can be paired to only one StackShot 3X at a time.

If you wish to re-pair the remote with a new StackShot 3X controller you will have to erase the previous pairing. To do this start with the remote turned off. Press and hold the “B” (power) button until the blue LED goes out. Release the “B” button. The Remote will now start looking for a StackShot 3X with pairing mode enabled.

4. Connecting to StackShot 3X

Once your Remote is paired to your StackShot 3X, you simply have to press the "B" (power) button to turn on your Remote. It will automatically connect up to your StackShot 3X.

5. Using your Remote

The features and functionality of your Remote are discussed in the StackShot 3X owner's manual. These features depend on the version of software on your StackShot 3X. Please refer to that owner's manual for additional details.

To view the settings for your Remote, press the "Settings" button on your StackShot 3X and navigate to the "Remote Settings" button.

5.1.1 Buttons

5.1.1.1 Basic

This lets you control two axes with the joystick, and then the left/right button (buttons A and C) control the third axis. The "third" axis is whichever one isn't controlled in the "Joystick" setting. The center "B" button fires the shutter outputs.

As the name implies, this provides basic control over the motion of all three axes. It is useful for remote controlled camera positioning or video recording.

5.1.1.2 Control

When the buttons are set as "Control", they no longer adjust the position of the third axis. To control the third axis you will need to press IN (and hold) the joystick, and then adjust the position. The function of the buttons depends on what global mode you are in.

Stacking:

The remote can be used in any of the auto modes. The left button ("A") will set the start position of a stack. The right button ("C") will set the end position of a stack. The center button ("B") will start the stack, provided a start and end position have been set.

If a stack is in progress, any button press will abort the stack.

Motion Control:

The left "A" button will remove all key frames for all axes. The right "C" button will add a keyframe at the current position. The center button "B" will start the move. The keyframes will be evenly divided into the duration you've set under "Time Settings". The keyframes will automatically be smoothed between each other. The process would be:

1. Use the joystick to move to the start position.
2. Press the left “A” button. This will set the initial position. This isn’t a “move” yet, since we only have the start position.
3. Use the joystick to move to the next keyframe.
4. Press the right “C” button to add a keyframe.
5. Move to the next position (if desired).

When you’re done, just press the center button to return to the first keyframe and start the move.

The thing to remember is once you have a profile created do NOT press the “A” button again because you’ll lose your settings.

5.1.1.3 Real-time MoCo Recording

This setting is only available for motion modes.

The “A” and “C” buttons control the third axis. The center “B” button starts or stops the playback.

To start the real-time recording, press in the joystick button. This will start the recording process (the remote LED will turn red, and “Recording” will be displayed on the StackShot 3X display). Move the axes using the joystick and/or the “A” and “C” buttons. When you are done recording, press in the joystick button again.

To play back the recorded movement, press the center “B” button.

There is a maximum record time of two minutes.

5.1.2 Joystick speed

The default speed for the joystick is to run at 100% of the axis speed. For setting start/end points this is usually just fine. If, however, you’re using the remote to adjust the position of a microscope slide, or you’re doing a real-time motion recording – sometimes a little more finesse is required. By decreasing the speed percentage you can achieve better control over the movement of the joystick. You can also set the speed to 0% to disable control of that axis.

Each axis can have its joystick (or button, in the case of the third axis) maximum speed adjusted independently.

5.1.3 Joystick configuration

The axis that the joystick and “A”/”C” buttons control can be adjusted to suit your needs. This setting will define which axes are controlled by the joystick. The axis that is NOT mapped to the joystick will be controlled by using the “A”/”C” buttons.

The default is “Left/Right=X Up/down=Y”. What this means is that moving left or right on the joystick will control the X-axis, and moving the joystick up and down (forward and back) will control the Y-axis. The Z-axis will then be controlled by the “”A”/”C” buttons.

5.1.4 Invert axes

Sometimes it is useful to invert an axis. A perfect example is the “tilt” portion of a pan/tilt setup. Up makes sense if you’re on one side of the camera, but if you’re on the opposite side of the camera, now “Up” makes the camera go down. The same is true for a slider. Left makes the slider go left on one side of the slider, but if you move to the other, left now makes the slider go right! The easiest way to fix this is just to invert the axis for the remote.

5.1.5 Deadzone

The deadzone is a percentage of the remote’s joystick that is ignored when it is sitting at its resting position. This is typical for all analog joysticks. If this is set too big, you have to move the joystick quite a ways before you get a response. If set too small, the remote could cause the motors to start moving on their own even when the joystick is not being moved.

If the motors are moving but the joystick is at its resting/center position, you may need to increase this setting slightly.

The default setting is 15%.

5.1.6 Shutdown time

The remote will not shut down while you are using it. This “Shutdown time” is how long to wait after the last time you used the remote before it will automatically shut off. This will conserve the remote’s batteries.

The default is five minutes.

6. Troubleshooting

Problem	Cause	Solution
Blue Wifi LED is not lit.	Not turned on	Press the center "B" power button to turn on remote.
	Batteries not installed	Place two AA batteries into the remote.
	Wrong battery polarity	Check that the batteries are inserted in the correct orientation.
Remote won't connect (blue LED flashing quickly)	Remote not paired to your StackShot 3X.	Follow the pairing procedure in section "*3 - Pairing Process*".
	StackShot 3X not in "Access Point" mode.	See section "*3 - Pairing Process*" for details on how to enable "Access Point" mode on your StackShot 3X.
Motors are moving but the joystick isn't being used	Joystick wasn't centered at power-up.	When you first turn on the Remote, it will perform a calibration for the center position. Be sure to not be tilting the joystick when turning on the remote.
	Dead-zone setting is too small.	Increase the dead-zone setting (default is 15%).
Red LED flashing and then remote turns off.	Batteries are discharged.	Replace with fresh batteries.
Need to restore factory settings	Operator Error -- you did something bad!	With the remote off, press and hold the power button until the blue LED goes out. Release the power button. You will have to re-pair your remote with your StackShot 3X controller.

If you cannot resolve a problem with StackShot 3X Remote, please contact us at support@cognisys-inc.com. We want to make sure that you are completely satisfied!

7. Specifications

Specifications are intended for reference only. The design may be modified to improve features or functionality without notice.

Specifications	MIN	NOM	MAX	UNITS
Battery Life (continuous use)		12		Hr
Wireless Range		>100		ft
		>30		m
Operating Temperature	-20	25	70	C
	-4	77	158	F

- ARM Processor
- 3-Axis control
- Wireless connectivity: 802.11a/b/g/n 2.4GHz
- 2 AA Batteries Required (Alkaline or NiMH – new batteries recommended)

8. Warranty

Limited Warranty

The StackShot 3X Remote and related equipment is provided by Cognisys, Inc. "as is" and "with all faults." Cognisys, Inc. makes no representations or warranties of any kind concerning the safety, suitability, lack of viruses, inaccuracies, typographical errors, or other harmful components of StackShot 3X Remote. There are inherent dangers in the use of any product, and you are solely responsible for determining whether StackShot 3X Remote is compatible with your equipment and other software installed on your equipment. You are also solely responsible for the protection of your equipment and backup of your data, and Cognisys, Inc. will not be liable for any damages you may suffer in connection with using or modifying StackShot 3X Remote.

All electronic products are warranted to be free from defects in materials or workmanship for two (2) years from the date of purchase. Within this period, Cognisys Inc. will, at its sole option, repair or replace any components which fail in normal use. Such repairs or replacement will be made at no charge to the customer for parts or labor, provided that the customer shall be responsible for any transportation cost. This warranty does not cover failures due to abuse, misuse, accident or unauthorized alterations or repairs.

THE WARRANTIES AND REMEDIES CONTAINED HEREIN ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING ANY LIABILITY ARISING UNDER ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, STATUTORY OR OTHERWISE. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, WHICH MAY VARY FROM STATE TO STATE.

IN NO EVENT SHALL COGNISYS BE LIABLE FOR ANY INCIDENTAL, SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, WHETHER RESULTING FROM THE USE, MISUSE OR INABILITY TO USE THE PRODUCT OR FROM DEFECTS IN THE PRODUCT. SOME STATES DO NOT ALLOW THE EXCLUSION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU.

Cognisys, Inc. retains the exclusive right to repair or replace the product or offer a full refund of the purchase price at its sole discretion. SUCH REMEDY SHALL BE YOUR SOLE AND EXCLUSIVE REMEDY FOR ANY BREACH OF WARRANTY.

9. Wireless Certification

9.1 FCC Certification - USA

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate frequency energy and, if not installed and used in accordance with the instructions may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

FCC Caution:
To assure continued compliance, (example - use only shielded interface cables when connecting to computer or peripheral devices). Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and
(2) This device must accept any interference received, including interference that may cause undesired operation.

FCC & IC Radiation Exposure Statement:
This equipment complies with FCC & IC radiation exposure limits set forth for an uncontrolled environment.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. This device intended only for OEM integrators under the following conditions:

FCC Identification: YOPGS2011MIZ

9.2 IC Certification – Canada

English

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

1. This device may not cause harmful interference
2. This device must accept any interference received, including received, including interference that may cause undesired operation of the device

French

Cet appareil est conforme à Industrie Canada une licence standard RSS exonérés (s). Son fonctionnement est soumis aux deux conditions suivantes:

1. Cet appareil ne doit pas provoquer d'interférences
2. Cet appareil doit accepter toute interférence reçue, y compris les interférences pouvant provoquer un fonctionnement indésirable de l'appareil.

IC Certification Number: 9154A-GS2011MIZ

10. Revision History

Revision	Date	Change
1.0	03/08/2016	Initial Release