

**SeaViewer Cameras, Inc.**

**HD-SDI  
SURFACE  
CONSOLE**

User's Manual

Please read this User's Manual carefully to ensure that you can use the device correctly and safely. The contents of this manual are subject to change without notice.



# SeaViewer Cameras, Inc.

## HD-SDI SURFACE CONSOLE INSTRUCTIONS

### CONNECT SEAVIEWER CAMERA

- 1) Plug in the SeaViewer Camera's VIDEO-OUT cable to the Surface Console's *BNC* video connector (marked **#1a** in drawing)
- 2) Plug in the power connector (marked **#1b** in drawing) to the other surface end of the Camera cable, usually marked "12-Volt DC power IN". This will power the Camera from the Surface Console.

### POWERING UP

#### TO POWER THE SYSTEM FROM THE SYSTEM'S INTERNAL BATTERY:

- 3A) PUSH/HOLD the battery *Pushbutton switch* (**#3p**) to be sure the Battery Meter (**#3m**) shows at least 10-1/2 Volts (if not, see Charging up the Battery below before use *OR* run the System from External Power - see 4A below)
- 3B) Throw the Main Power switch (**#3a**) to the "**BAT**" position (push down on the *single bar* button marking).
- 3C) Go to "**CONFIRMING POWER SOURCE**" below.

#### TO POWER THE SYSTEM FROM EXTERNAL POWER SOURCES:

- 4A) Connect the cord from either the 12-Volt DC cigarette-lighter plug or the AC transformer (if equipped) to the "External Power" jack of the Surface Console (**#2e** in drawing).
- 4B) Plug the cigarette-lighter plug (or the AC transformer, if equipped) into your corresponding cigarette-lighter jack or electrical outlet, whichever you are using. (*Alligator Clips may be provided as an alternative*)
- 4C) Throw the Main Power switch (**#3a**) to the "**EXT**" position (push down on the *double bar* button marking).
- 4D) Go to "**CONFIRMING POWER SOURCE**" below.

#### CONFIRMING POWER SOURCE:

If equipped with a Monitor in the lid (**#4a**) the Monitor's RED LED light should turn ON. Press *POWER* button on Monitor (or Remote **#4b**) to see camera video if no HD-DVR installed. If HD-DVR installed, only color bars may appear.

If equipped with a Sea-Trak (**#5a**), push the *POWER* button on this unit and its light should turn ON.

IF NO LIGHT(S) on Monitor, throw the MAIN POWER switch to "**OFF**" (center position) and check the System FUSE (**#3f**).

**If no HD-DVR installed in Console, The Monitor should now display video from the camera.** (To see the video with a DVR installed, go to Step **#6a**)

### CHARGING UP THE BATTERY

#### TO CHARGE THE SYSTEM'S INTERNAL BATTERY:

- A) **\*Be sure the Main Power switch** (marked **#3a**) is in either the "**EXT**" (double bars) or the "**OFF**" (center) position.
- B) Connect the cord from Battery Charger to the "Battery Charger" jack (marked **#2c** in drawing) of the Surface Console.
- C) Plug the Battery Charger into your 110-240 Volt AC (50/60Hz) electrical outlet.

**\*NOTE:** It is recommended **not to charge** the Battery while running the equipment *from the Battery* since this could cause the current rating of the Battery Charger to be exceeded in some cases.

## **VIEWING & RECORDING VIDEO FROM THE CAMERA**

**IF EQUIPPED WITH SEA-TRAK™, FOLLOW STEP #5, OTHERWISE SKIP STEP #5.**

- 5) The Sea-Trak™ is marked **#5a** in the drawing. Connect the *Data Cable* (or *PC Cable*) from your GPS Receiver to the 9-PIN connector marked **#5b** in drawing. This will provide GPS data to the Sea-Trak™. See the Sea-Trak™ manual for further instructions.

**USING THE HD-DVR (if equipped), FOLLOW STEPS # 6a-c. OTHERWISE SKIP.**

**(Refer to the first 2 Hyperdeck Shuttle pages at the end of this Manual for pictures and descriptions of the buttons described below.)**

- 6a) If equipped with HD-DVR (marked **#6a** in the drawing) hold down the *POWER* button on front of unit for 3 seconds. The *POWER* and *STOP* buttons should illuminate. Live video from the camera should appear on Monitor. If not, press *STOP* button on HD-DVR one time.

- 6b) To record video, lift HD-DVR from foam and confirm SSD Drive is installed.

**(Refer to the third Hyperdeck Shuttle page at the end of this Manual for Important Notes about SSD if not installed. Be sure HD-DVR is TURNED OFF before installing or removing any SSD Drive)**

### **RECORDING:**

- 6c) To begin recording, press RECORD button (circle). The circle will illuminate RED when recording and you will see the SSD light flashing.

- 6d) To stop recording, press the non-illuminated square *STOP* button on front. Square *STOP* button will turn green indicating recording has stopped.

- 6e) Repeat STEPS 6c & 6d to make multiple recordings in separate files.

### **PLAYBACK:**

- 6f) To playback the most recent recording, press the arrow-shaped *PLAY* button. The *PLAY* button illuminates green when playing back.

- 6g) To playback earlier recorded files, just allow playback to continue.

- 6h) To skip to a recorded file, press LEFT or RIGHT ARROW button (forward or back) until you see the video you want.

### **NOTE ABOUT COMPRESSION & QUALITY:**

***Default compression is set to Apple ProRes 422 (HQ). This will require about 1GB disk space per minute of recording.***

**(Refer to the complete *Hyperdeck Manual* on the CD for more detailed information, such as changing compression, quality, and transferring files to a computer.)**

(IF EQUIPPED WITH HDMI/USB CONVERTOR)

## VIEWING/RECORDING THE VIDEO ON A PC OR LAPTOP USING THE HDMI/USB (CAPTURE) CONVERTOR/CABLE

ONLY IF EQUIPPED WITH HDMI/USB CONVERTOR, FOLLOW STEP #7a, OTHERWISE SKIP STEPS #7.

**Note:** An HDMI pass-thru port is provided (may replace #6tv in the drawing) to show video on an external HDMI device, but USB cable in #7a below must be connected first to computer to provide power for the pass-thru.

7a) The HDMI/USB (CAPTURE) CONVERTOR/CABLE may replace #6tvx in the drawing. Connect this USB Cable to the HDMI/USB convertor port in the Surface Console (may replace #6tv in the drawing) and the other end to a USB port in your computer.

7b) Use this same computer to connect to the Internet site:

<http://www.gamecapture.com/download>

7c) Download the appropriate version of Game Capture HD Software for your system.

### SYSTEM REQUIREMENTS:

- 4 GB Ram
- USB 2.0 or higher
- MAC OSX 10.7 or newer, 2.0 GHz Intel core #2 Duo
- PC windows 7 or newer, 2.0 GHz dual core CPU

7d) Follow the installation instructions

7e) Start the Game Capture HD software, and select settings desired.

## NOTES FOR ALL USERS ...

- A) The Display Console should always be ventilated (lid open) when using or charging to avoid heat issues.
- B) It is recommended not to use the Battery Charger while running the equipment since this could cause the current rating of the Charger to be exceeded in some cases.
- C) **TURN "OFF" ALL individual components separately (EXCEPT THE MONITOR), before turning the MAIN POWER SWITCH "OFF", after EACH USE.**
- D) Documentation for some individual components are sometimes behind the foam in the lid.
- E) The DVR draws power from the MAIN POWER BATTERY .
- F) The **BATTERY CHARGER** (110-240 Volt AC @ 50/60Hz) for the MAIN BATTERY is inside the foam. You may expect to power the Surface Console and a SeaViewer Camera for *up to* 8 hours with the MAIN BATTERY charged, depending on your choice of components. See the pages below concerning *Battery Information* to get a more accurate estimation.
- G) CABLE WITH ALLIGATOR CLIPS (IF EQUIPPED) – is used to power system when internal battery is low, or to conserve internal battery. First turn OFF main battery switch. Then follow the instructions on Page 1 titled "TO POWER THE SYSTEM FROM EXTERNAL SOURCES", except hook the Alligator Clips to your external battery. BE SURE RED CLIP IS ON POSITIVE (+) BATTERY POST.

## CONSOLE BATTERY, CHARGER & SWITCH INFORMATION

There are two different size batteries available. Both are sealed lead-acid (SLA) batteries, and output approximately 12 Volts DC. They are maintenance-free and come with a charger that uses 110-240 Volt (50/60 Hz) AC input, along with an inline 12-Volt DC fuse which is replaceable. Those built into the Surface Console units also include an ON/OFF switch. It is recommended not to use the Battery Charger while running the equipment since this could cause the current rating of the Charger to be exceeded in some cases.

### BATTERY SIZES

The difference between the batteries, other than size and weight, is the running-time which they will allow before needing to be re-charged. Of course, the more equipment that is powered, the less the running-time will be; and also the larger the battery that will be required to achieve the same running-time. The size of the battery is rated in Amp-Hours (AH). You can estimate how long your battery will last by dividing its rating (AH) by the TOTAL current draw (AMPS) used by all the equipment which is turned "ON". Your answer will be in HOURS. Use the table on the following page to find the current draw for each device.

#### EXAMPLE 1:

CONSOLE: LARGE CASE

BATTERY: **7AH battery**

EQUIPMENT "ON": Sea-Drop Camera, Internal Sea-Light (21-LED's), 7" LCD Monitor

AMPS: approx. 1.360 Amps

CALCULATION:  $7 \div 1.360 = 5.15$

**APPROX. RUNNING-TIME: ~5 Hours**

#### EXAMPLE 2 :

CONSOLE: LARGE CASE

BATTERY: **7AH battery**

EQUIPMENT "ON": Sea-Drop Camera, Internal Sea-Light (21-LED's), 7" LCD Monitor, HD-DVR

AMPS: approx. 2.360 Amps

CALCULATION:  $7 \div 2.360 = 2.97$

**APPROX. RUNNING-TIME: ~3 Hours**

EXAMPLE 3:

CONSOLE: SUPER CASE

BATTERY: **18AH battery**

EQUIPMENT "ON": Sea-Drop Camera, Internal Sea-Light (21-LED's), 10.4" LCD Monitor, HD-DVR

AMPS: approx. 2.360 Amps

CALCULATION:  $18 \div 2.360 = 7.62$

**APPROX. RUNNING-TIME: ~ 7-1/2 Hours**

POWER-SAVING TIPS:

- turn off components when not being used (except HD-DVR must be *ON* to get camera video on Monitor)
- only use camera lights when necessary

### CURRENT DRAW (AMPS) FOR SEAVIEWER ACCESSORIES

APPROXIMATE CURRENT DRAW OF COMPONENTS AT \*12-VOLTS DC :

1. Camera: 0.150 Amps
2. Internal SeaLight: 0.210 Amps
3. External SeaLight: 0.420 Amps
4. 7" LCD Monitor: 1.000 Amps
5. 10.4" LCD Monitor: 1.000 Amps
6. HD-DVR (recording): 1.000 Amps (not considering internal battery)
7. HDMI/USB Converter: no draw from Console (powered by computer USB port)
8. Sea-Trak: 0.050 Amps
11. SDI/HDMI Converter: 0.500 Amps

\* not considering camera cable voltage-drop









## Using HyperDeck Shuttle

### HyperDeck Shuttle Controls



#### Buttons

##### 1. Record

HyperDeck Shuttle will instantly record the moment you press the Record button, even if you're playing back a clip. This means you'll never miss a good take that's happening. If the button flashes red, the SSD is too slow and cannot keep up with recording.

##### 2. Previous Clip

If you hold down the Previous Clip, the clip will reverse at 2x speed. Pressing the button again will increase the speed to 4x and 8x. If you want to resume playing back at normal speed, just press the Play button. Or you can press the Stop button to pause when reversing.

##### 3. Stop

The Stop button also switches HyperDeck Shuttle between playback and video loop through mode.

##### 4. Play

When a clip is playing, pressing Play again will loop it continuously.

##### 5. Next clip

If you hold down Next Clip, the clip will fast forward at 2x speed. Pressing the button again will increase the speed to 4x and 8x. If you want to resume playing back at normal speed, just press the Play button. Or you can also press the Stop button to pause when fast forwarding.

##### 6. DISP

This button isn't currently used but will soon be enabled by a software update. You will be able to download this for free at [www.blackmagicdesign.com](http://www.blackmagicdesign.com)

##### 7. Power On/Off

The Power button turns the HyperDeck Shuttle on or off. To prevent someone from accidentally switching off the unit, you must hold the Power button down for 2 seconds to turn it off. If you're running off the built-in batteries, the unit will turn itself off to conserve power after 8 minutes if you're not recording.

#### Status Indicators

##### 8. VIDEO

The VIDEO indicator lights up when a video signal is detected by HyperDeck Shuttle.

##### 9. SSD

The SSD indicator lights up in green when it is accessing a correctly formatted SSD. If the SSD has not been formatted correctly, or fails to work, the SSD light will illuminate solid red until the SSD is removed.

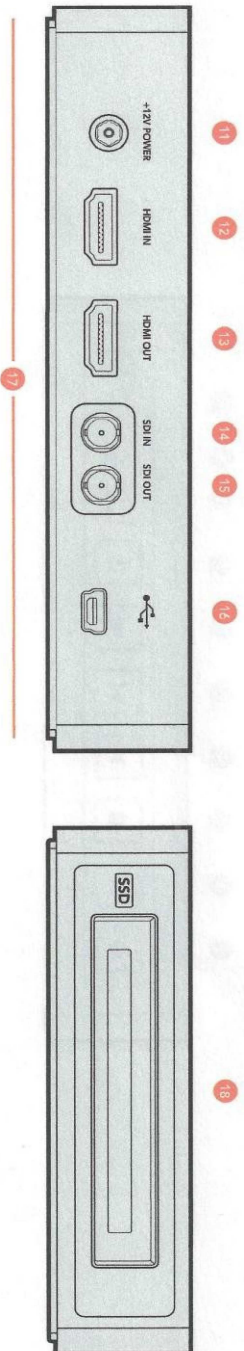
##### 10. Battery

The four green battery indicators display the internal battery charge level. When all the LEDs go off, there's approximately 4 minutes of battery power left. So you should plug in your external power source or switch to another charged HyperDeck Shuttle.



# Using HyperDeck Shuttle

## HyperDeck Shuttle Connections



### Connections

#### 11. +12V POWER

You can use the power adapter supplied with HyperDeck Shuttle or power it off an external camera battery as the connector supports an input range of 12V to 18V. When a power source is connected, the built-in internal battery will also be charged.

#### 12. HDMI IN

You can connect your HDMI video sources to this input – such as a camera, games console or the output of a switcher.

#### 13. HDMI OUT

Connect an HDMI display or TV to this output to monitor your video while recording or playing back clips. You can also connect this output to the HDMI input of capture cards, production switchers and other recording devices.

#### 14. SDI IN

You can connect your SDI video sources, such as cameras, routers, capture cards, switcher outputs or decks to this input. A DIN 1.0/2.3 miniature connector is used for SDI input. A short DIN 1.0/2.3 to BNC adapter cable can be used to connect to SDI cables with BNC connectors.

#### 15. SDI OUT

Connect this output to monitors, routers, production switchers, decks or other recording devices. A DIN 1.0/2.3 miniature connector is used for SDI output. A short DIN 1.0/2.3 to BNC adapter cable can be used to connect to SDI cables with BNC connectors.

#### 16. USB 2.0

Use the USB Mini-B port for software configuration and updates.

### Mounts

#### 17. Rubber Mat or HyperDeck Shuttle Mounting Plate

HyperDeck Shuttle has a non-slip rubber base for use on a desk. If you want to mount HyperDeck Shuttle on a camera or tripod, the base can be removed and replaced with an optional HyperDeck Shuttle Mounting Plate that is available for purchase from Blackmagic Design resellers.

#### SSD Slot

##### 18. SSD Slot

Insert a 2.5" SSD into the SSD slot until you feel the SSD press into place. Hard drives are not supported and should not be used. To remove the SSD, simply pull it out.



## Getting Started

Welcome to the incredible quality of uncompressed recording and playback with HyperDeck Shuttle! Your new HyperDeck Shuttle is quick and simple to use. Please follow these simple steps to start recording the highest quality uncompressed video!

### How to Record

- Step 1.** Turn on the HyperDeck Shuttle.
  - Step 2.** Format a certified SSD in either the HFS+ or exFAT format. See the "How to Prepare the SSD" section for details.
  - Step 3.** Insert the formatted SSD into HyperDeck Shuttle. As it reads the disk, the SSD light on the unit will illuminate. When the light goes off, HyperDeck Shuttle is ready to record.
  - Step 4.** Connect your video source to the HyperDeck Shuttle's input. It doesn't matter if you use the HDMI or SDI input, as HyperDeck Shuttle will automatically detect which one is connected. You can also connect the video output of the HyperDeck Shuttle to your HDMI or SDI monitor. All outputs are active so you can use either one connection or both SDI and HDMI outputs together.
  - Step 5.** If you see the Video status LED light up, it means that HyperDeck Shuttle has detected a valid video input.
  - Step 6.** If you don't see your source video on the output, press the Stop button to switch HyperDeck Shuttle between video input loop through and playback.
  - Step 7.** Press the Record button and HyperDeck Shuttle will start recording to the SSD instantly. The SSD light will also flash to indicate the SSD activity. Once you've finished recording, press the Stop button.
- If the Stop button starts flashing while recording, there are only 3 minutes of recording time left on the SSD. Make sure you have another empty SSD ready so you don't miss the next take.

### How to Play Back

Playing back a clip is simple. If you're recording, press the Stop button once to stop recording. Press it again to switch to playback. Then simply press Play. You can also skip between clips by pressing the Previous Clip or Next Clip button. The controls of HyperDeck Shuttle work just like a CD player so pressing Next Clip will skip to the start of the next clip and continue playing.

If you're reviewing a long clip and need to reverse or fast forward to a particular section, just hold down the Previous Clip or Next Clip button. This will allow you to reverse or fast forward through the clip at 2x speed. To go faster, press the Previous Clip or Next Clip button again and the speed will increase to 4x and then 8x. Once you've found the section you want to review, press Play and playback will resume at normal speed.

### Connecting the SSD to your Computer

If you only need to format an SSD or transfer clips, a USB to SATA dock will be adequate. An eSATA dock should be used for very fast clip transfers and editing clips directly off the SSD.

### How to Prepare the SSD

SSDs used by HyperDeck Shuttle must be either HFS+ or exFAT formatted. Simply connect the SSD to your computer via an external dock or cable adapter and format it as you would a regular disk. Make sure you check there's nothing important on your SSDs as you will lose everything on it when you format it.

If you're using a Mac, the Disk Utility application included with Mac OS X will format a SSD in the HFS+ or exFAT format. If you're using a Windows PC, right click on the SSD you want to format and select exFAT from the subsequent menu.

### How to Access the Clips

HyperDeck Shuttle records video in Uncompressed, Apple ProRes 422 (HQ) and Avid DNxHD formats. Playback of Quicktime files requires QuickTime™ to be installed on your computer. QuickTime for Mac is built into Mac OS X™. QuickTime for Windows™ can be downloaded free from the Apple website.

### Important Notes About SSD Speed

Some models of SSD can't save video data at the speed the manufacturer claims. This is due to the disk using hidden data compression to attain higher write speeds. This data compression can only save data at the manufacturer's claimed speed when storing data such as blank data or simple files. Video data includes video noise and pixels which are more random so compression will not help, therefore revealing the true speed of the disk.

Some SSDs can have up to 50% lower write speed than the manufacturer's claimed speed. So even though the disk specifications claim an SSD has speeds fast enough to handle video, in reality the disk isn't fast enough when used to store video data for real time capture. However, this mostly affects HD capture and often these disks can still be used for playback.

Download the free Blackmagic Disk Speed Test to accurately measure whether your SSD will be able to handle uncompressed video capture and playback. Blackmagic Disk Speed Test uses data to simulate the storage of video so you get results similar to what you'll see when capturing video to a disk. During our testing, we have found newer, larger models of SSD and larger capacity SSDs are generally faster.

SSDs certified for use with HyperDeck Shuttle include: Crucial 256GB C300, Crucial 512GB M4 (firmware 009), Kingston 64GB SSDNow V+100, Kingston 128GB SSDNow V+100, Kingston 240GB SSDNow V+200, Kingston HyperX 240GB, OCZ 240GB Vertex 3, OCZ 480GB Vertex 3 and Sandisk Extreme 480GB. Check the tech notes on the Blackmagic Design web site for more information. More disk models will be listed as they are certified.

Learn more at [www.blackmagicdesign.com/products/hyperdeckshuttle](http://www.blackmagicdesign.com/products/hyperdeckshuttle)