ATOMOS SUMO19

USER MANUAL

EDITION 1: SEPTEMBER 2017



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Safety Instructions

The Sumo19 is designed to a high standard but there are some things you should be aware of to prolong the life of the unit and for your own safety.

Using the Sumo19 safely

Although the Sumo19 is very lightweight compared to all the devices it replaces, it is still a solid object that could cause injury if misused.

- Always make sure that the Sumo19 is mounted securely and is unable to fall onto anyone nearby. This is especially important when there are children present who might be tempted to pull on cables.
- Always ensure that cable runs to the Sumo19 are clearly visible and do not present a trip hazard.
- Do not place on uneven or unstable surfaces.
- Do not insert anything but Sumo19 Master Disk caddies in the Master Disk slot on the side of the Sumo19.
- Do not touch the Sumo19's screen with sharp, metallic or abrasive objects.
- Do not expose to strong electrical or magnetic fields.
- Do not expose to or use near liquids, rain or moisture.
- Do not dispose of the Sumo19 in municipal waste and do not incinerate it, always follow local regulations for safe disposal.

Care of disk drives

Spinning disks and SSDs are very sensitive to damage from static electricity. Please observe all the usual ESD precautions when handling them.

Please see the section Mechanical shock and vibration later in this manual for information about how to handle and care for your disk drives.

SDI Cables

Please remember that SDI cables use locking connectors and will not simply pull out if they are jerked or tripped over. They are therefore a significant trip hazard to your equipment, which may be damaged if the cables are misused.

HDMI cables

Please remember that HDMI cables do not use locking connectors and will simply pull out if they are jerked or tripped over. Please ensure your cables make a secure connection and avoid flexing them excessively to maintain reliability.

User Manual Conventions

To keep things simple but clear, we've only adopted two conventions in this manual:

A helpful tip, suggestion or something to note because it's not obvious at first.

An important note or warning

Warranty & Conditions

Notice

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International Hardware Limited Warranty

ATOMOS warrants that:

• The main product, not including the IPS screen, or any external accessories, will be free from defects in materials and workmanship for a period of 1 year from the date of purchase; or 3 years upon completion of product registration within 1 year from the date of purchase at www.atomos.com

• The TFT/LCD, HDD/SSD Docking Station, Master Caddy II and Cable will be free from defects in materials and workmanship for a period of 1 year from the date of purchase.

This warranty is exclusively for the benefit of the original purchaser and is not assignable or transferable.

If during the warranty period the product is shown to be defective ATOMOS may at its option:

a) replace the goods or supply equivalent ones,

b) repair the goods,

c) pay the cost of replacing the goods or of acquiring equivalent ones and

d) paying the cost of having the goods repaired;

The customer must notify ATOMOS of any defect in the goods in writing prior to the expiry of the warranty periods set out above. The customer will be solely responsible for returning the goods to ATOMOS or its authorized distributor. Upon acceptance of a warranty claim by ATOMOS, where ATOMOS repairs or replaces the goods, it will be responsible for reasonable shipping costs incurred in sending the goods to the Customer, provided that customer is located in a country in which ATOMOS has an authorized distributor or repair centre or agent.

Warranty Exclusions

This warranty applies only to defects in workmanship and does not cover defects caused by:

- Neglect;
- Improper or negligent acts or omissions;
- Repairs or attempted repairs;
- Tampering with or modification of the goods;
- Connection to incompatible equipment or power sources;
- Exposure to water or weather;
- Exposure to magnetic fields or corrosive liquids or substances;
- Physical damage

Except as stated in this warranty, Atomos, it's vendors, agents, resellers and distributors disclaim in their entirety all other warranties, express or implied, including without limitation all warranties of merchantability or fitness for a particular purpose. The remedies outlined in this warranty are the exclusive remedy a customer from defective goods, which are subject to the warranty.

Atomos does not warrant that the goods will operate in a manner that is error free, or uninterrupted. The goods are not intended to be the primary or only data storage device for data – customers are solely responsible for back up and protection of data.

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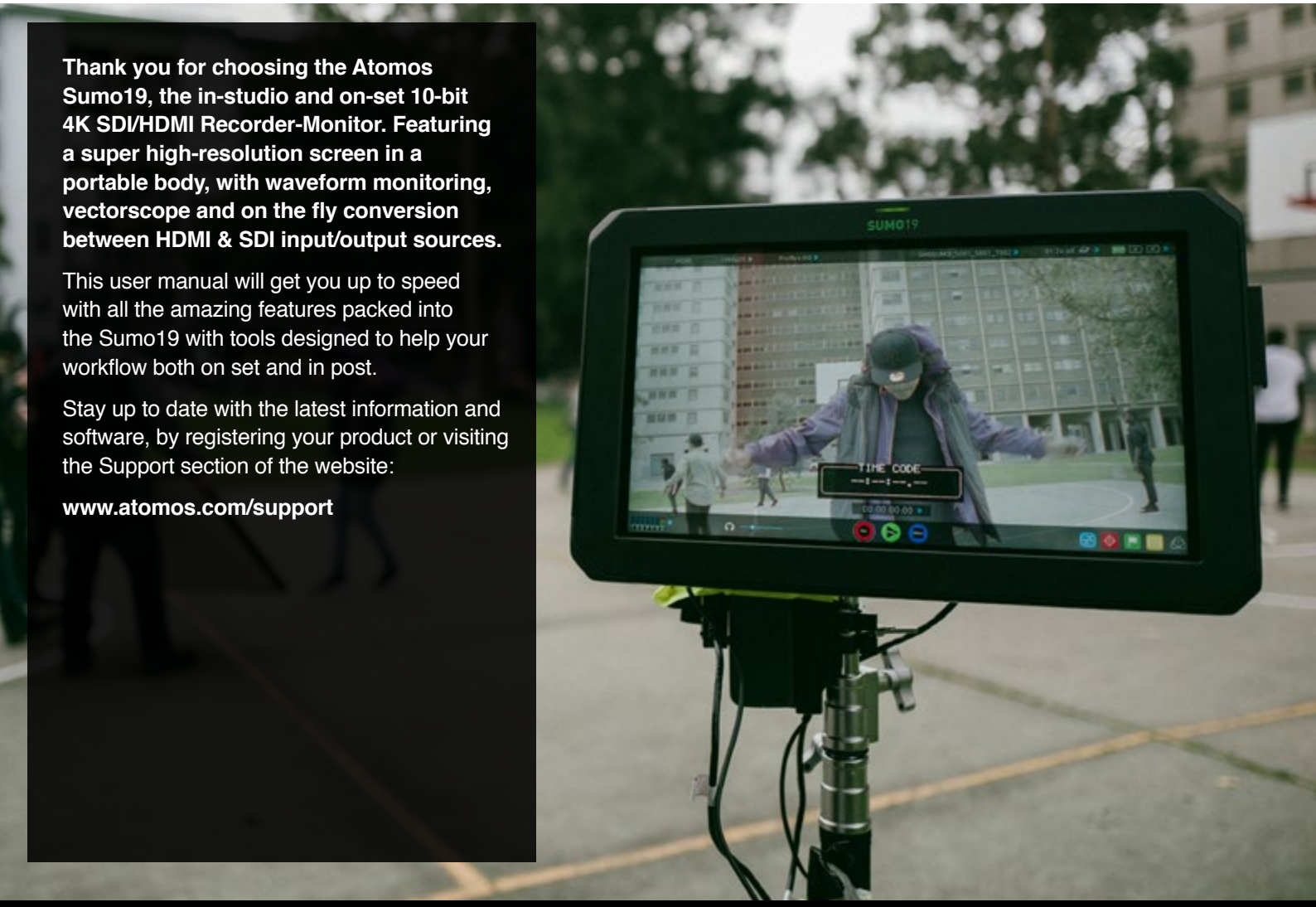
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ATOMOS reserves the right to terminate this license without prejudice to any additional recourse ATOMOS may have against you if you violate any of its terms and conditions.

Registration + Warranty Upgrade

Standard warranty is 1 year.
Register within 12 months of purchase date to upgrade your warranty to 3 years. Visit: www.atomos.com/registration



Thank you for choosing the Atomos Sumo19, the in-studio and on-set 10-bit 4K SDI/HDMI Recorder-Monitor. Featuring a super high-resolution screen in a portable body, with waveform monitoring, vectorscope and on the fly conversion between HDMI & SDI input/output sources.

This user manual will get you up to speed with all the amazing features packed into the Sumo19 with tools designed to help your workflow both on set and in post.

Stay up to date with the latest information and software, by registering your product or visiting the Support section of the website:

www.atomos.com/support

ProRes | HD 240P | QUAD SDI | HDMI | 19" HIGH BRIGHT 1200 nit | XLR AUDIO



Your Sumo19 comes with a standard 1 year warranty on all parts and accessories. You can upgrade to a 3 year warranty on the main Sumo19 unit alone (excluding IPS screen) by registering your Sumo19 online at www.atomos.com/registration

This will enable us to let you know about updates to the product and other important information surrounding your purchase.

What's Included

The Sumo19 comes with a power supply and Master Caddy to get you going right out of the box - all you need to add is 2.5" SSD storage media and accessories to suit your workflow like HDMI or SDI cables and tripod screws.

Here's the complete list

1. Sumo19 recorder/monitor

2. 1 x Empty Master Caddy II with fixing screws

3. Sumo19 19" power supply

4. BattWing - Dual battery plate mounting bracket with 4 x screws

5. 2 x Desktop Feet with 4 x 1/4" mounting screws

6. Sumo19 Quick Start Guide (not pictured)

** Contents may differ slightly from those shown here.*

Atomos does not sell storage and your package will not contain any spinning disks or SSDs. You can buy these locally to keep running costs as low as possible.

We recommend drives, please refer to **Part 15** (Technical Specifications) of this manual. For the most up-to-date information please visit:

www.atomos.com/drives



What you also need

Widely available 2.5” drives are the basic storage medium for 4K Monitor recorder. We work closely with all the leading drive manufacturers to qualify as many options as possible. Hard drives / HDD or Spinning disk can only be used for HD recording. Solid State Drives / SSD are required for 4K recording or for more demanding production environments that may not be suited to HDDs.

See the section below about when you should consider using SSDs.



Which drives should you use?

There are so many drives available, and newer models appear all the time. We are not able to test all drives but here are some guidelines.

Spinning Disk Drives (HDD) are recommended for recording up to 1080p30/1080i60 HD video only

Solid State Drives (SSDs) are recommended for recording up to 4KUHDp30 and 4KDCIp30 from RAW

Speed and reliability are the main factors. Here are a few things to bear in mind:

- Disk drive data rates tend to be given in megabytes per second, and codec data rates are normally given in megabits per second. It’s very easy to get confused. But there’s no need to be, because all you have to do to convert megabits to megabytes is divide by 8. So if you’re recording at 220 megabits per second, that’s going to result in 220/8 megabytes per second, which is 27.5 megabytes per second.
- We recommend at least 7200 RPM drives. Just remember that the higher the bit-rate of the codec you’re using, the faster the drive needs to be, with 4K recording your data rate is four times from that of HD recording, please ensure your drive is capable of keeping up with 4K write speed requirements.

Atomos regularly test hard drives – please check this link before purchasing drives: **http://www.atomos.com/drives**

Mechanical Shock and Vibration for Spinning Disk HDD’s

Hard disks are precision mechanical devices that need to be handled carefully. The use of mechanical drives or Solid State drives will vary depending on the intended filming application.

We can’t give rigid guidelines because there are so many different kinds of drives, each which has different mechanical properties. You may find variations between drives of the same type.

What we have found is that mechanical drives are suitable for most purposes that don’t involve harsh vibration or mechanical shocks. We would not advise using mechanical disks if there is a likelihood that they might be dropped onto a hard surface.

Here are some things that you should bear in mind when using spinning disks:

- Even though spinning drives can withstand substantial shocks when they are not in use, they are more vulnerable when running. Harsh treatment that may not actually damage the drive may interrupt recordings at a much lower level of severity. We recommend that you experiment with your drives by testing them in the conditions that you normally work in.
- Do not bang or jolt the Sumo19 while recording.
- Do not use spinning drives (HDD) for recording 4K video
- You will find noticeable differences in the ability of drives to withstand shock and to continue recording during vibration and movement.

File Recovery

- Your Sumo19 is able to detect when the drive is under stress and it will recover from any break in a recording by waiting until the drive is ready to continue, and then resuming from that point. If frames have been dropped because of shock or vibration, a "**Skippy**" Kangaroo symbol will appear on the home screen on the Sumo19, in the top left hand corner of the display. This means that you will not normally have to restart the Sumo19, even if a recording has been interrupted by mechanical disruption to the disk drive. (see *Monitoring and Recording : Anti-shock technology* for more information)

Taking into account most usage scenarios, we think that mechanical disks will be suitable in the majority of cases when recording up to 1080p30 HD. Spinning disks are most sensitive when they are rotating. It is obviously best to avoid dropping them but many disks now have a "drop detector" that will lock the most fragile mechanical parts in place and protect them from surprisingly hard knocks. We recommend that if you want to experiment with this, you do so with a drive that doesn't contain the day's shoot!

Backing up and archiving

Remember that no storage medium, including tape, optical disks, spinning disks and flash memory, is completely immune from failure.

You should bear this in mind when deciding how to manage your recorded content. At the very least, you should consider the consequences for you and your business if your storage medium were to suffer from a sudden failure, and you should back up your content accordingly. Hard drives that you can use for archiving are becoming increasingly affordable. You may find that it is completely feasible for your to keep your master Sumo19 disks on a shelf (just like tapes!), and, as a backup, store copies on large hard drives, RAID arrays, Network Attached Storage (NAS) or LTO.

4K SDI cables (not included)

SDI cables are robust physically and electrically: you should rarely have problems with signal transmission unless your cables are either damaged or too long. Please remember that SDI cables use locking connectors and will not simply pull out if they are jerked or tripped over. They are therefore a significant trip hazard, and also a hazard to your equipment, which may be damaged if the cables are mishandled or of a low grade. Please ensure you test and check your SDI cables for 4K, for longer runs cables of a Belden 1694A specification are recommended.

HDMI cables (not included)

HDMI cables are robust physically and electrically: you should rarely have problems with signal transmission unless your cables are either damaged or too long.

Atomos make a range of Professional HDMI cables which are ideal for connecting between your camera and Atomos device.

Not all HDMI cables are created equal and there are a variety of different qualities available. Please make sure you test your cables prior to shooting.

Also check your connectivity at both the camera connector and the recorder/monitor connector to make sure you have a firm connection to avoid any signal drop out.



If the SDI / HDMI cable is removed while recording the "Skippy" image will also be displayed. To remove touch Skippy and he will disappear ready for his next notification.



*Refer to **page 35**: Atomos Anti-shock technology for more information about "Skippy".*

3. Mounting disks in the Master Caddy II

Mounting drives in the Master Caddy II

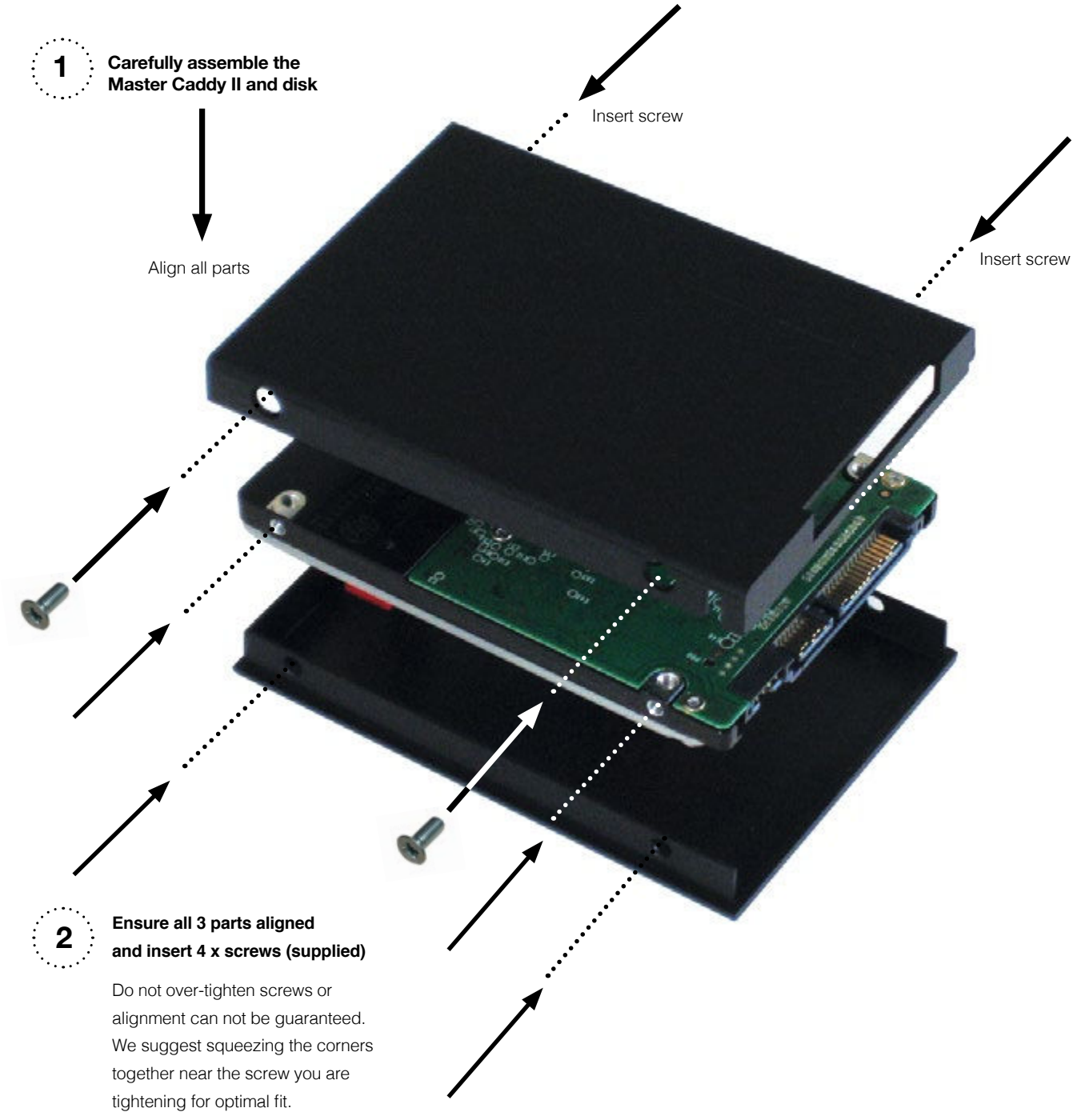
Insert the disk into the caddy, and secure with four screws. The caddy is light and the disk just needs to be held securely. Don't over-tighten the screws. There are no connections to make because sliding the caddy into the Sumo19 or the Docking station makes all the connections for you.

The Master Caddy can't be inserted the wrong way round. Always make sure that the disk connector faces the slot in the Sumo19. You have to be quite firm to push the Master Caddy II into place, but don't push too hard, just in case something isn't set up or aligned properly.

There is very little that can cause problems and the most likely thing is that the Master Caddy isn't properly flush with the drive inside. A quick visual check will confirm this.

Spinning disks and SSDs are very sensitive to damage from static electricity. Please observe all the usual precautions when handling them, especially DO NOT EVER touch the exposed SATA connector as static electricity may be harmful to your disk.

Master Caddy II drives are backwards compatible with previous Atomos recorders, however Master Caddy 1 is not forward compatible with the Sumo19 due to the compact latch design.



4. Connecting the Sumo19 and powering up



Battery Options

The Sumo19 can be powered by V-Lock / Anton Bauer batteries via the XLR terminal (optional mounting plates available). Like all batteries, you will need to take care of them. Make sure that you don't short circuit the connections because this can result in very high currents that can damage the cells and could pose a fire hazard.

Charge new batteries before using them, using the battery charger supplied by the manufacturer.

Before any type of disposal the battery should be discharged completely. Tape the contacts with electrical tape and package so as to prevent contacts accidentally coming together at any time.

Incineration must be performed by an approved and permitted waste treatment facility that handles lithium ion batteries. If you are not sure if your waste facility can handle lithium ion batteries, contact them and verify if they are permitted or not.

DC Power

Once the Sumo19 is switched on, it will operate from your external DC power source if available, if no DC power source is present, then the battery will become the primary power source if it connected by the XLR terminal. The battery will work as redundant power if DC power is disconnected.

Continuous Power

The Sumo19 features an Atomos technology called Continuous Power which uses battery looping technology for uninterrupted switching between power sources during use.

The Sumo19 may be powered from NiMH & Li Ion 14.4V battery systems via the XLR terminal for V-Lock / Anton Bauer batteries.

4. Connecting the Sumo19 and powering up cont.



On
+ forced power down
(located on rear)



Power Button
Flashes red when recording

Turning OFF power via touchscreen



Turning ON power to the Sumo19

The power button is located on the rear panel just above the SDI connectors. Momentarily press the circular button on the top right side of the Sumo19 as you look at the screen to power up the unit. After a couple of seconds you will see the Atomos logo, and then the Sumo19 Home Screen.

Turning OFF power to the Sumo19

To turn the unit off, touch **menu** on the home screen, and then **press the red Power off icon for 3 seconds** the icon will go white when touched to indicate activation of the button. The unit will then power off. You can also do a forced power down by **depressing the on/off button for three seconds**.

Three seconds *can seem like a long time! We've made it this way to make absolutely certain that the Sumo19 can't be turned off accidentally.*

5. Sumo19 Connections



1. Power Button

The power button is used to power on/off the device.

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2. Calibration Port

The calibration 2.5mm jack on the rear panel below the power button, allows for the connection of supported calibration devices with support now available for the retail version of the X-Rite i1Display Pro as well as legacy Atomos Spyder Calibrator. Both units utilize the optional USB to serial adaptor cable. The latest version of the Atomos Calibration software is available at **www.atomos.com/support**

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3. Headphone Ports

A 3.5mm headphone jack is located on the rear panel adjacent to the XLR audio connections. Channel selection and volume for headphone monitoring is via the audio controls section in the lower left hand side of the touchscreen.

5. Sumo19 Connections cont.



1. 4K/HD-SDI

4K/HD-SDI in: The SDI input connections are 12G compliant and backwards compatible meaning that it can be used for 12G, 6G, 3G and 1.5G signals. The SDI inputs support 3G in both level A and B standards. This input is also used to input RAW signals from supported cameras.

4K/HD-SDI out: This is for connection to an external monitor or other device with an SDI input. It carries a loop-through of the incoming SDI or HDMI signal in record and standby mode, and the playback signal when the Sumo19 is in playback mode. This output can carry either a 4K or HD signal (with the option to down scale the 4K input to HD). The SDI <-> HDMI conversion is always live allowing for instant conversion without any setup. The SDI outputs support 3G in only level B standards and is not active whilst receiving a RAW signal input

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2. HDMI

HDMI IN: The video input is a full size HDMI 2.0a connection used to receive the video and when supported by your device embedded audio and Timecode. This is both displayed and recorded to the Atomos recorder/monitor storage media.

HDMI OUT: This is for connection to an external monitor or other device with an HDMI input. It carries a loop-through of the incoming HDMI or SDI signal in record and standby mode, and the playback signal when the Sumo19 is in playback mode. This output is 2.0a and can carry either a 4K or HD signal (with the option to down convert the 4K input to HD). The SDI <-> HDMI conversion is always live allowing for instant conversion without any setup.

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3. Analogue Audio

On the rear panel of the Sumo 19 are the XLR audio input and output terminals. The inputs can be connected. A 2 in 2 out XLR cable is available as an optional additional accessory. The inputs can be configured at Line, Mic and Pro level in the Audio menu. The inputs can also provide 48V Phantom power to compatible microphones.

The XLR outputs are available for monitoring and the audio channel routed to them can be selected via the headphones selection in the Audio menu.

4. Synchronization

Located with the SDI input and output is another BNC connector marked Genlock: Genlock is short for “Generator Lock” in video systems. The Genlock is an input only and will lock the internal timing system in a video device to an external reference signal during play back.

The Genlock BNC can also be used as a LTC Timecode input. This allows for external LTC timecode to be used enabling multiple devices to be sharing the same master timecode signal, which makes it perfect for multi-camera setups. LTC is only available in Record mode and can be accessed via the Time code menu

---

HDMI and SDI

Built in to the Sumo19 are are both SDI and HDMI conversion. This means that either input is able to be routed out of both the HDMI and SDI outputs at the same time. This allows you to use SDI cameras with other HDMI equipment or HDMI cameras in an SDI infrastructure. To toggle between SDI and HDMI inputs access the Input Menu (page 19).

Video Scale Convert

Video out also has the option for a down scale to be applied allowing your 4K input to be converted to a 1080 HD output for use with existing HD equipment.

3D LUT Output

When not using AtomHDR mode 3D LUTs can be applied to the outputs of the Sumo 19 and LUTs can also be selected to be applied to the outputs and routed out to other equipment via the HDMI or SDI connections.

Embedded Audio

The Sumo19 can record 12 channels of digital audio embedded in the SDI signal, and 8 channels of digital audio embedded in the HDMI signal.

6. Master Caddy II, Screw Mounts and Sun Hood

Master Caddy II Slot

On the side of the unit is a 2.5mm HDD slot for Sumo19 Master Disk Caddy II's. To insert a caddy, gently push until it clicks into position.

Formatting disks - see page 20



Master Caddy II - 2 keyway system

The Master Caddy II is hot-swappable, so you can do this at any time – even while the unit is turned on. But don't do it while recording or you will get a corrupted file that may be unplayable.

The Sumo19 does NOT have a release latch - it is friction-fit. Simply pull the Master Caddy out using the top and bottom tabs on the caddy itself.

Master Caddy II is backwards compatible with previous Atomos recorders Master Caddy 1 is not compatible with Sumo19 as the keyways are on one side only.

Screw Mounts

The Sumo 19 features standard tripod ¼" screw mounts and 3/8" screw mounts on the top/bottom/side of the unit along with a standard VESA mount on the rear panel, allowing you to configure your recording setup to suit your needs (camcorder mount accessories not included with Sumo 19).

Ensure you do not over tighten the screw mounts as this may cause damage





6. Master Caddy II, Screw Mounts and Sun Hood cont.



Attaching the Sun Hood

For HDR, the viewing experience can easily be influenced by the environmental conditions and the best experience for viewing HDR requires that you minimise the ambient light between your eyes and the screen to easily resolve the dynamic range of the scene.

For this reason, we have developed an optional sun hood for Sumo 19. It consists of a zippered corner construction that allows the user to collapse and use as screen protection during transportation and securely screws to the front face of Sumo 19 to provide shelter for privacy and premium outdoor monitoring.

To assemble the sun hood please follow the following steps:

Attach the base to the Sumo19 in the orientation shown above.

This is a snug fit in order to minimize external light bleed.

Push the sunhood in, align the top and bottom screw mounting holes and attach the retaining screws.

As the retaining screws provide anchor point for mounting make sure they are firmly connected to provide a solid base.

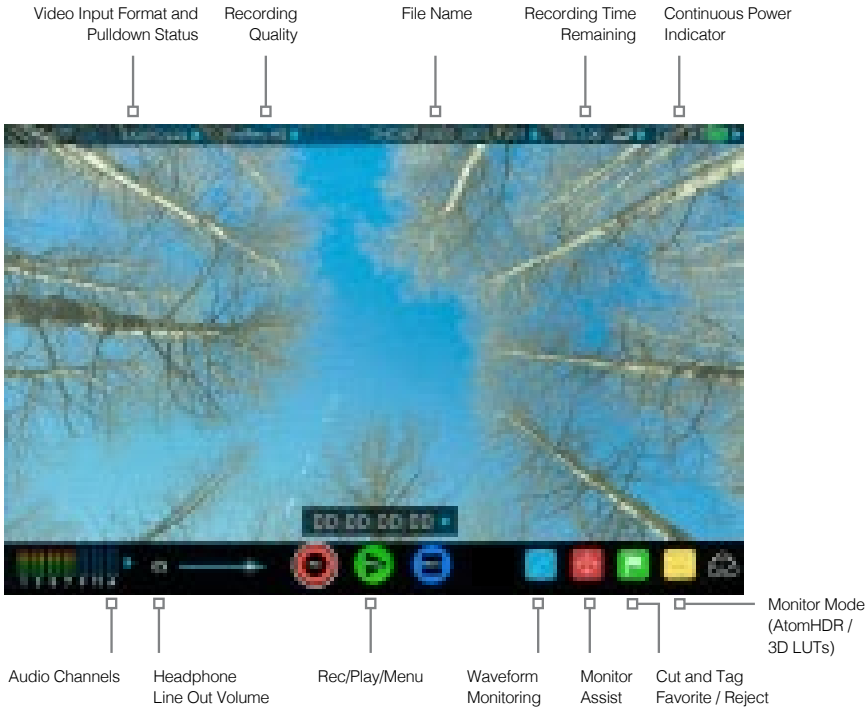
With the Sun hood base in place, take the main section and pop this out to form a rectangular tunnel and zip up the sides to ensure it looks like the image above.

7. Using the Sumo19

The Sumo19 is controlled via an intuitive touchscreen interface. Icons and buttons have been designed and laid out in a specific way to ensure operation is simple and fast.

The high definition 1920x1080 Home Screen displays all necessary technical and functional information.

Everything important for operation and adjustment is no more than one touch away. Here is how it works:



Touching the center of the screen at any time removes the top interface overlay, tapping again clears the bottom controls and a third tap brings all the options back up. Active Shot Setup or Monitor assist functions that are enabled will remain active when the menu system is cleared. This is to allow you to use the Shot Setup and Monitor assist functions at all times while shooting.

Category 1 – Operating Settings

This list of real-time operating settings can be adjusted or toggled when a BLUE ARROW is present. If the Blue arrow is disabled, the setting cannot be adjusted.

Category 2 – Shot Setup & Monitor Assist Tools

This list represents the icons and functions available for Shot Setup and Monitor Assist Tools:



Waveform Monitoring Functions
See page 24



Monitor Assist Functions
See page 26



Smart Log Cut and Tagging
See page 29

Monitor Mode (AtomHDR & 3D LUTs)
See page 31

Touch these icons to reveal more functional options in a sub-category. Touch the sub category icons to toggle the functions on or off. When a Shot Setup or Monitor Assist function is active, detailed settings for each Shot Setup tool are also available from this panel.

Touch the  icon to go back to the Home Screen at any time.

Category 3 – Main Controls REC, PLAY & MENU

The Main Controls of the unit are indicated by large round icons.



To enable recording
See page 16



For instant playback and review
See page 16



To make settings changes
See page 16

Home screen and menu functions

Rec (Record)
This is the icon you touch to begin a recording. Touch it again to stop a recording. While recording the Rec icon changes to a Stop icon and a red frame is present around the screen.

Standby



Recording



No input / No media



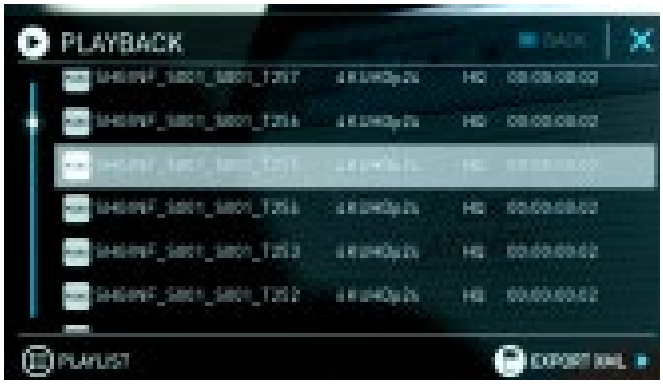
The Rec icon is dimmed and disabled if there is no valid video input OR, the disk is not formatted, or the disk is full. The button is dimmed because you cannot record.

Play
Touch this icon to play previously recorded clips. When you press the green Play button the Sumo19 will switch to playback mode and automatically play the last recorded clip.

Standby



Navigation



Sumo19 uses a unit name, scene, shot and take convention to name the clips. Select the clip you want to play by touching the file name and this will start to playback.

No disk

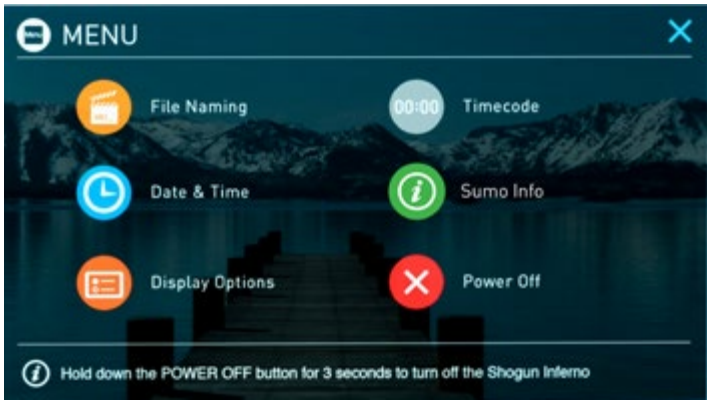


The Play button will be dimmed and disabled if there is no disk or the disk is not formatted.

See page 20 - Formatting disks

Menu
Pressing this takes you into a number of options which will explained next.





Time Lapse



When the icon is shown with small interval lines around the red circle this means that Time lapse recording is activated.

For more information on Time lapse on ***page 39***

Pre Roll



When a white circular arrow is show this means Pre Roll record is active.

For more information on Pre Roll ***see page 39***

File Naming

Allows you to select the scene and shot number that will be recorded as well as change the unit / media name. To change the unit name tap the arrow under UNIT/MEDIA NAME, Use the left and right arrows to select a letter, and the up and down arrows to change its value.

To modify the scene and shot number under CONFIGURE FILE NAME, select plus or minus next to scene or shot (up to 999). The number you choose will then be shown in the file name at the top of the screen during recording, the take number is automatically increased with each take.



Date & Time

Allows you to adjust the date and time shown by the clock in the Sumo19. This will also change the time of day Timecode. Touching the Date & Time takes you into the Date and Time Screen.

Date formats (i.e. dd-mm-yyyy or mm-dd-yyyy) are selectable by tapping the blue arrow on “Select Date Format” Menu. Simply keep tapping until the desired format is shown. The Time, Month, Day and Year are selectable and can be modified by clicking the blue plus and minus icons next to the desired fields.



For both Time of Day Timecode and Scheduling start times for Time Lapse record mode it’s important to ensure that the correct time is set.

Lock the Display Screen

You can lock the display of the Sumo19 so that no changes can be made by mistakenly touching the screen, to lock the Sumo19 simply short tap the power button. Short tap the power button again to unlock the unit.



The lock screen can be combined with the display off function so that when lock is engaged the display is turned off. The Tally light on the front of the unit will still display Rec (Red) or idle (green) status. Locking of the display can be found in the Monitor Mode.

Timecode

Takes you to the dedicated Timecode configuration page.



*Refer to **Page 36** of this manual for more information.*

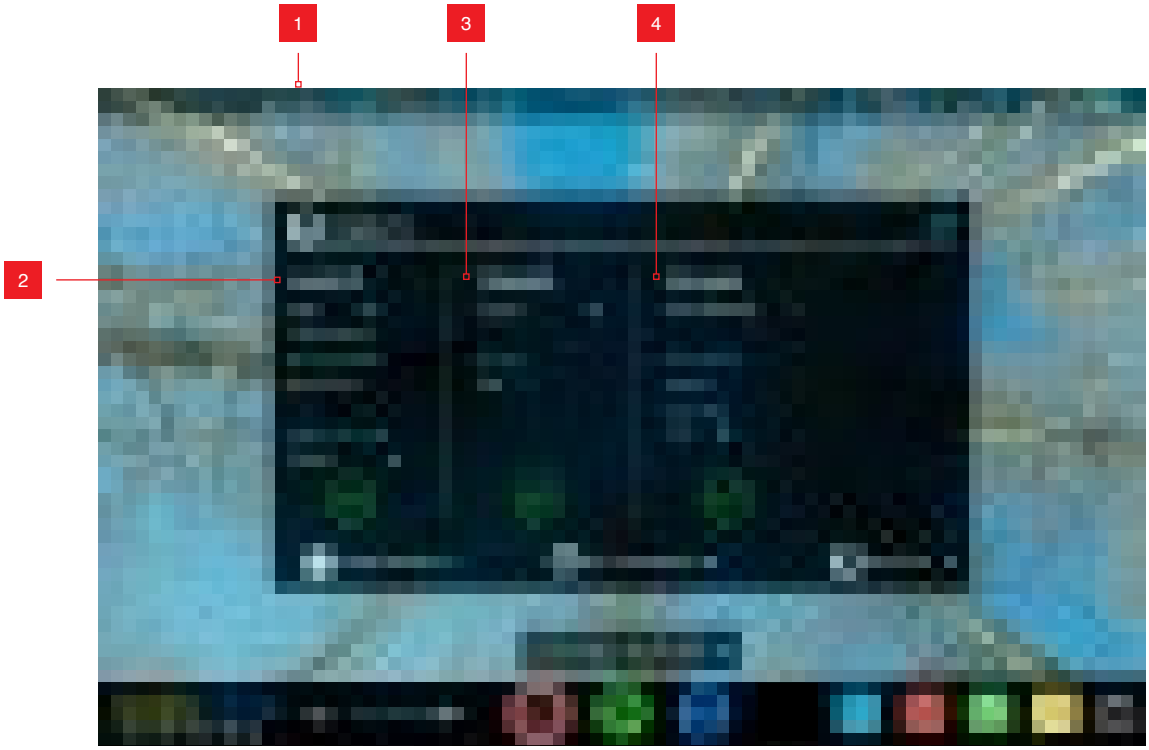
Sumo19 Info

Shows the software (firmware) version and unique device ID (DID) of your Sumo19 device. This will be required to activate the Avid DNxHD / Avid DNxHR codec. You can also check on the Atomos website to ensure you are running the latest firmware:

http://www.atomos.com/support

Remember that pressing on the Back button will always take you back to the previous menu.

7. Using the Sumo19 cont.



1. The Input Menu

Simply tap the source input menu to the top left of the screen to bring up the input control panel. This panel is a command centre for all devices connected to the Sumo19 and will assist you with connectivity by indicating if the signal is active or if attention is required.

---

2. Source

Displays the input source currently connected to the Sumo19, simply tap ❯ to toggle between HDMI & SDI/SDI RAW inputs. You can have both HDMI and SDI inputs connected at the same time and use this menu to toggle between active inputs.

The current input resolution of the selected input source is displayed.

HDMI Devices will display an EDID Device name if the information is available from the HDMI device connected.

A green tick on Source indicates the Sumo19 has locked signal on this input, a red cross indicates a signal or lock issue with the attached device, double check your cable and camera output settings. There is also an option to Correct Color input for use with Canon 5DMKIII that can be applied to the input.

---

3. Trigger

The Sumo19 can be remotely triggered to record from your camera. Select the correct triggering option for your camera and set Enable Trigger to ON. Please refer to **page 23** for more information.

---

4. Record

The record menu allows you to apply pulldown removal if recording from a source that applies pulldown to the output signal. Note for 3:2 Pulldown removal, movement in the frame may required to accurately lock signal, simply wave your hand in front of the camera to achieve lock. See **page 38** for more details on pulldown removal.

The 3D LUT option allows you the option to burn in your selected LUT to the recorded file. Please be aware that this will permanently baked in and is non reversible. When this option is selected a red LUT icon will flash in the top right hand corner of the display. See page 34 for more details on 3D LUTs.

Pre-roll allows for you to cache the last few seconds of footage so if you are late to hit record you won't miss the action. When this option is selected it will show a round arrow on the record button and flash a red Pre Roll icon in the top right hand corner of the display.

As Pre Roll is always cache recording once activated a number of features that are related to record settings will be locked. These include audio record channel select, 3D LUT record, Codec selection and Drive naming.

---

5. Video Out

This menu displays the active video format being output from both HDMI and SDI outputs. A 4K to HD down conversion can be applied to the output. This enables you to send a 4K input signal to a HD device. When working in Rec.709 SDR mode, 3D LUTs can also be applied to the output independently of the Sumo19 screen. This can be useful if you wish to monitor log footage on the Sumo19 and show a graded image on an external display

Any selections in this option apply to both HDMI and SDI outputs.

8. Battery Indicator



Indicates if battery 1/battery2/external power sources are connected. Touching the battery Indicator takes you to the Batteries screen where you can closely monitor the status of the batteries. When a new battery is added the system will switch to that battery and DC will over ride battery power.

When a battery is running low its icon will flash.

Batteries Screen



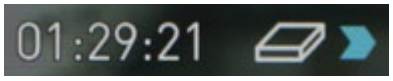
The Batteries screen indicator is made up of three icons, two will display the batteries and the other for the DC input. The active battery is shown in green and the level of the battery is shaded in 1/4 increments with a voltage level shown on top.

Auto Switching/Manual Switching

The Sumo19 will automatically switch between connected power sources when the source in use is depleted. ie: DC > Battery auto switches.

Storage Capacity Indicator

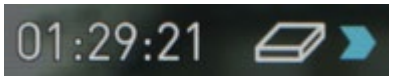
Located in the top right of the screen. When a disk is inserted, the



Storage Capacity Indicator will show the recording capacity of the drive This is calculated based on codec settings and input signal type. If no input is connected it will show as --:--:--.

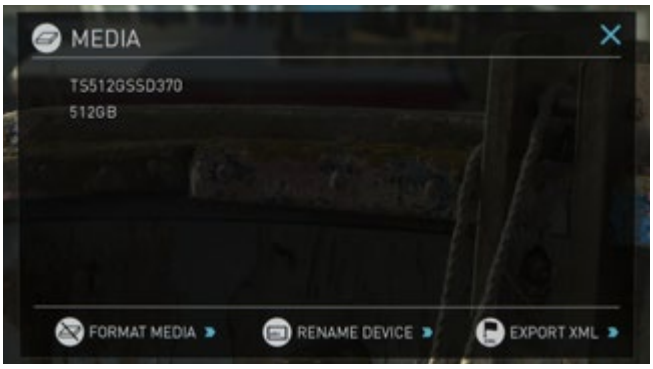
Formatting HDD/SSD

Touching the Storage Capacity Indicator on the home screen will take you



to the Media Menu. This menu provides information on the drive currently inserted.To format the drive touch the Format Media button. A confirmation screen will give you the choice to continue or cancel the process.

If you do not see your hard drive information, there may be a problem with the connection or drive. Try ejecting the drive and re-inserting the drive.



Please check the drive compatibility list prior to purchasing drives: http://www.atomos.com/drives

The Sumo19 file system is exFAT. We recommend that you format each disk with the Sumo19 and not your computer to ensure the correct parameters are set with the file system.

Unit Name



To access the unit name click the file name indicator from the home screen, then Unit Name.
The unit name serves two main purposes:

- **Drive Naming:** Naming the unit names the drive if the drive is formatted after the unit name has been set
- **File Naming:** File name is the current unit name as the start of the recorded clip name; *SUMO19_S001_S002_T003*

To access the unit name screen simply touch the blue arrow to the right of the unit name. Creating your own unit name by pressing the arrow to change and enter the letters in. Pressing OK will allocate the new unit name and return you to the menu screen.

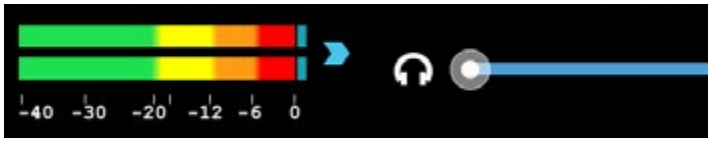
When changing the drive please ensure that you take note of the last scene and take number so you can append this as formatting a drive will reset the scene and take counter to 01,01,01.

Monitoring & Recording Audio Channels

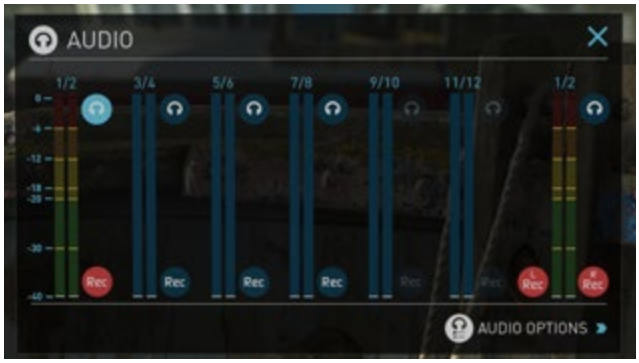
Located on the bottom left corner of the home screen you will see the Audio panel and quick headphone volume adjustment bar.

Tap the audio bars to bring up the audio panel.

From this panel you can manage up to 12 digital channels (via SDI input) and 8 digital channels (via HDMI input) as well as 2 analogue audio channels (via the XLR Mic/Line in).



Recorded digital audio inputs work in correspondence to the video input source selected from the Input Menu, Analogue Line In is available to both selectable inputs. An active video input is required to record audio.



Each channel has a level meter assigned to Left & Right Channels; when there is active audio feed you will see the level indicator moving.

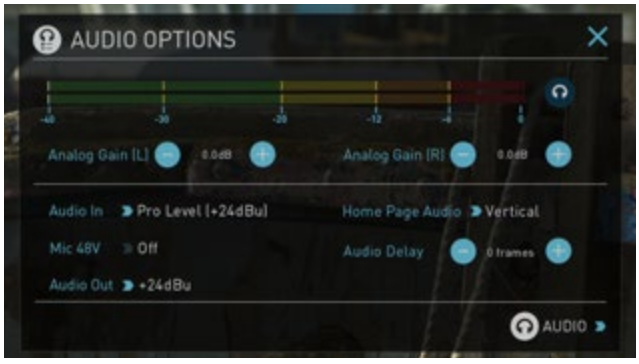
You can choose to record from any or all of the digital (SDI or HDMI) channels from the active source input as well as analogue inputs. Underneath each pair of audio channels you can see the Rec record button, when this is shown in red it is set to record, simply select the channels you want to record.

The Analogue audio input level is located to the far right, tap Rec to record this channel.

Please note that if analogue audio is recorded it will be placed as the first pair of audio tracks in the recorded file.

Audio Options

To adjust the gain on the analogue input you need to bring up the audio options page by pressing in the lower right corner of the audio menu.



To select the input line Level to match your device. Options available are;

Line Level (-10 dBV)

Sets the analogue input channel to Line Level via the XLR connections.

Mic Level (-40 dBu)

Sets the analogue input channel to Mic Level via the XLR connections. With Mic Level selected you also have the option to provide 48V phantom power should your microphone require it. Please only use this when your microphone supports it and if unsure please consult the manual for the mic you are using.

Pro Level (+24 dBu)

Sets the analogue input channel to Pro Level Audio to via the XLR connections.

Analogue gain can then be tuned by incremental increase or decrease of up to +/- 20dB individually for both Left and Right channels.

It is not possible to vary the gain if the signal input is from the SDI or HDMI connection because this is digital and is embedded in the signal. You can usually adjust this from the camera, please see your camera manual for operational details.

To enable phantom power for mic's connected via the XLR connection, turn on the Mic 48V option.

Audio In must be selected as Mic Level.

For monitoring the audio, the Home Page Audio options Toggles the orientation of the audio bars displayed on the Sumo19 home page in the lower left corner. Options available are;

Horizontal

Displays the 2 channels you are actively monitoring.

Vertical

Displays 12 channels + 2 Analogue Channels.

Monitoring Audio

To monitor the audio, tap the headphone icon next to the channel you wish to monitor from the headphone output.

Selecting the Monitor icon does not mean that track is selected to be recorded. You need to select each channel using the Rec record button. Tracks that are selected to be recorded have colored Audio Meters.

Audio Delay

This option allows you to delay the Audio to be in sync with the video by adding in frame delays.

Audio During Playback Mode

When you enter into Playback mode on the Sumo19 it will only output channels 1/2 on the headphones, please bear this in mind when you select the audio channels for recording.

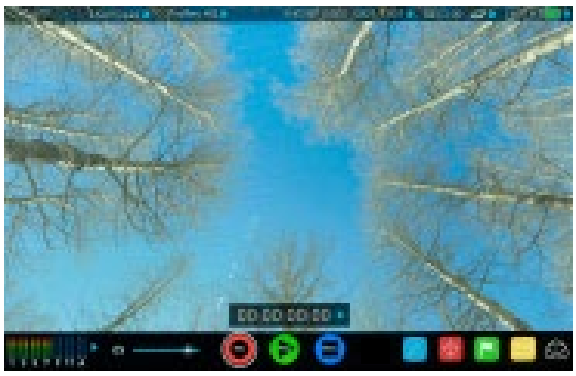
8. Monitoring and Recording

Setting up for recording

As soon as you connect a supported signal to the Sumo19 input and have inserted a formatted drive the following will happen;

- The Rec icons will go solid
- The input source & format will be shown in the top left corner
- Audio inputs will show levels in bottom left corner

Ready to Record



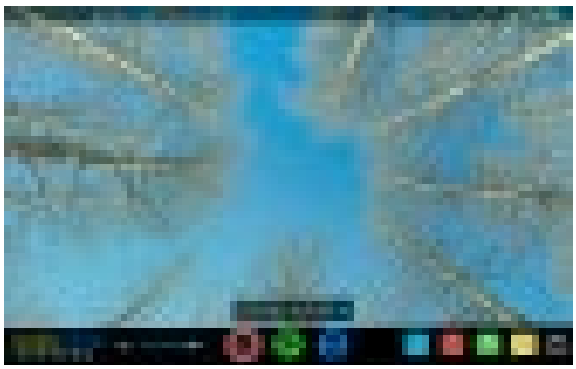
No Input / Disk Present



No Input / No Disk / No Disk Formatted



Input Present / No Disk



Recording Checklist

- Check there is a valid signal by checking the input menu ensuring all fields display a green tick.
- Check the input signal is set to what you would like from the input menu:
  - Progressive
  - Progressive with 2:2 or 3:2 pulldown (1080i inputs only)
  - Interlaced (HD Only)
- If you see No Input for any reason please check your camera settings match a supported format for Sumo19. The formats supported are listed in the technical specifications page at the end of this manual.
- Connect any additional Analogue audio inputs and adjust gain accordingly.
- Check you have the correct audio channels in record, set to you required from the audio panel.
- Connect headphones and monitor the audio channels to make sure the sound is as expected
- Ensure the video is coming in as expected. Make sure the signal is clean and does not have any GUI overlays from the camera.
- Check you have the correct Scene & Shot number selected, this can be adjust by tapping the file name to the top of the screen.
- Check your drive is inserted and has been formatted by the Sumo19
- Check your Timecode and trigger settings are as required
- Choose how you will start/stop your recording

Choosing your recording format (Codec)

Select the codec name on to the top left of the screen to display the codec menu.

From the codec section you can toggle between ProRes® or Avid



DNxHD®*. The Quality menu allows you to toggle codec compression Apple ProRes offers 3 levels of compression (HQ, 422 & LT) DNx offers 4 (220x, 220, 145, 36) and DNxHR is available in HQX, HQ, SQ and LB. The expected record time available from each codec selection is automatically calculated from the available space on the media inserted.

*If Avid DNxHD / DNxHR is required, you must activate it first. This can be done at **www.atomos.com/support** – DNxHD 220x/DNxHR HQX are 10bit, all others are 8 bit, DNxHD36 is a proxy codec.*

More information regarding Apple ProRes data rates can be obtained online from Apple ProRes whitepaper PDF document.

SmartControl

SmartControl is a versatile set of functions used to control the starting and stopping of recording by automatic or external means. This section outlines the different methods to start and stop recording.

Sumo19 Start and Stop record control can be triggered by the following methods:

1. Home Page Touch Screen
2. HDMI/SDI Rolling Timecode trigger
3. HDMI Camera trigger
4. SDI Camera trigger
5. Via LANC for Sony and Canon Cameras
6. Via LANC serial port

1. Home page Touch Screen

By pressing Rec (Record) and STOP to end recording 

2. SDI / HDMI Rolling Timecode Trigger record



If the camera is Record Run mode, recording can be stopped or started by a moving Timecode via HDMI or SDI.

When enabled the camera and the Sumo19 will start and stop recording simultaneously.

Rolling Timecode trigger is for use in older cameras with TC only & no trigger. If your camera is set to FREE RUN this trigger will start recording immediately. Please be that aware not all cameras have Start/Stop flags for triggering record, especially older cameras. In such cases rolling trigger in REC RUN will need to be used to trigger recording automatically at the same time as the camera starts recording.

3. HDMI Camera trigger record

The HDMI Camera trigger is available for supported cameras, There is a flag within the digital signal that lets the Sumo19 know the start/stop record has been pressed on the camera; in turn this will trigger the Sumo19 to start/ stop recording at the same time as the camera.

4. SDI Camera Trigger record

The SDI Camera trigger is manufacturer-specific, you will need to select the appropriate manufacturer for your camera from the input menu. There is a flag within the digital signal that lets the Sumo19 know the start/stop record has been pressed on the camera; in turn this will trigger the Sumo19 to start/ stop recording at the same time as the camera.

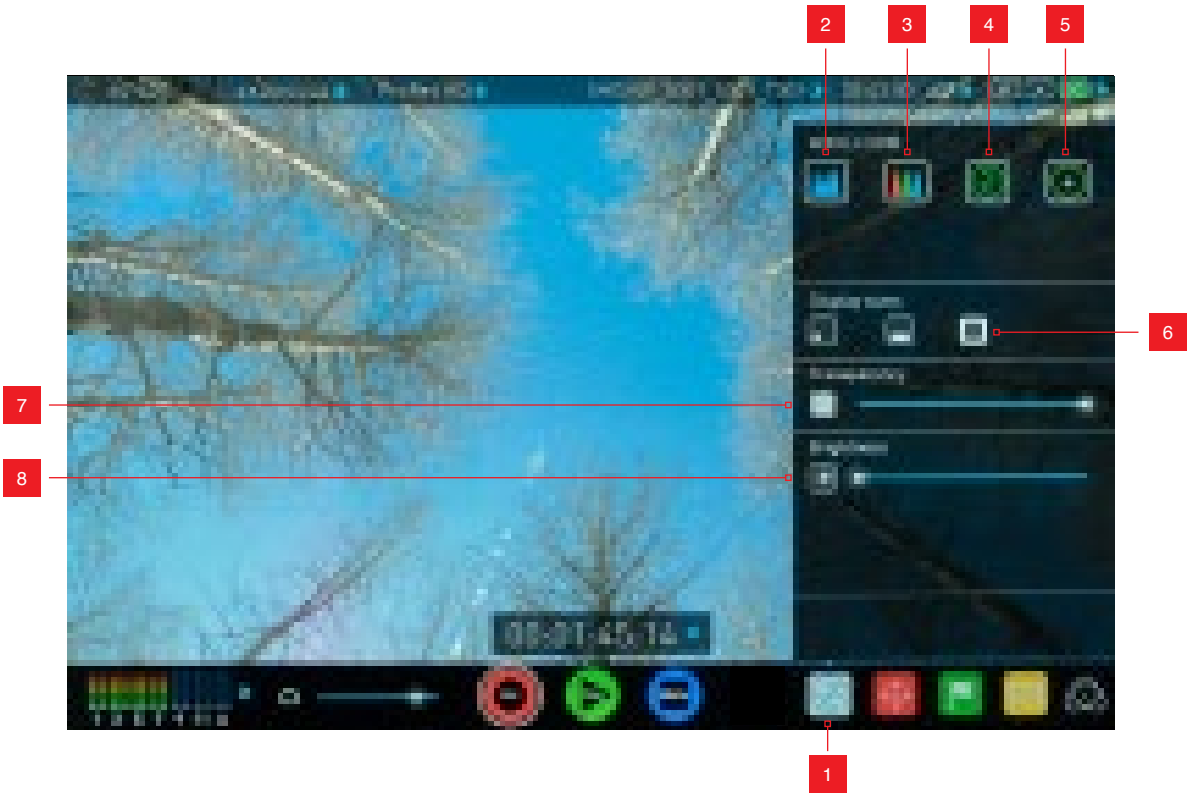


To enable this set TRIGGER to the camera manufacturer in the INPUT Menu.

When the manufacturer is selected in Camera trigger, this will disable the Timecode trigger.

Waveform Monitoring

Sumo 19 has an improved AtomOS with improved Waveform Monitoring control panel which can be enabled with only a few button presses.



1. Waveform Monitoring Menu
2. Luma Waveform
3. RGB Waveform
4. Vectorscope
5. Vectorscope Zoom
6. Waveform Size (1/4, 1/3 and Full Screen view)
7. Transparency
8. Waveform Brightness

What is Waveform Monitoring?

Waveform Monitoring is used for measuring the brightness, luminance or chroma values from a video input signal. This feature has several benefits to the production workflow including:

- Ensuring camera to camera matching accuracy when shooting multicam.
- Returning to locations for additional pick-up shots.
- Assisting with colour correction.
- Camera white and black balance

How to use

To enable the Waveform Monitor, press the Waveform Monitoring icon on the home screen.



Waveform Monitoring icon

The Waveform Monitoring icon will only be visible if there is an input signal detected.

Waveform Monitor Types

Inside the Waveform Monitoring menu, two types of Waveform Monitors are available for use:


Luma Waveform

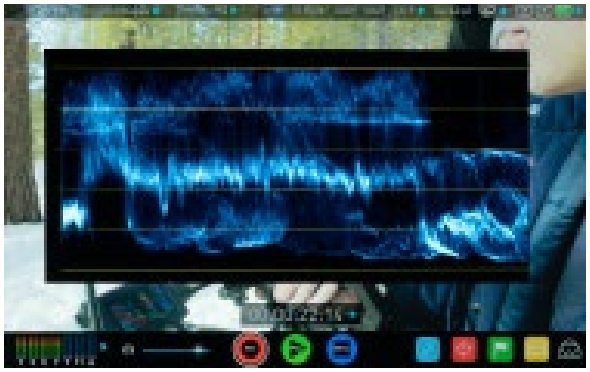

Vectorscope


RGB Waveform


Vectorscope zoom

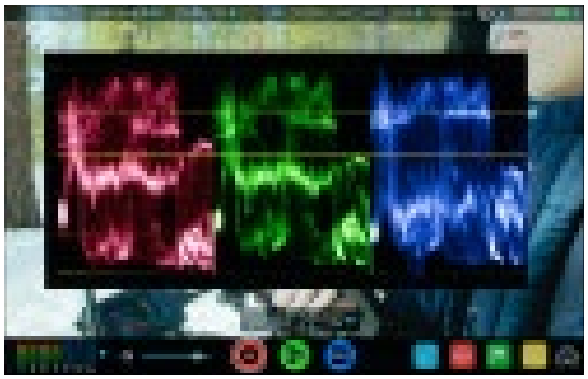
Luma Waveform, RGB Waveform, Vectorscope and Vectorscope Zoom are enabled simply by touching the corresponding icon and will be by default displayed at the bottom right hand corner.

Luma Waveform



The Luma or Luminance Waveform is a great way to visualize the dynamic range of your image, allowing you to protect exposure of both your high lights and shadow detail. It's particularly useful when shooting with a low contrast LOG curve and works in perfect partnership with the AtomHDR engine to illustrate the highlight clipping point to allow you to correctly expose you image.

RGB Waveform



RGB Waveform will monitor the level of Red, Green and Blue from an input source. The RGB channels are displayed side by side. This can be used to check to white balance. Just point the camera at something white and the Red, Green and Blue levels should match if white balance is setup correctly on the camera

The Waveform Monitor will remain on screen when hiding the overlays ensuring the focus remains on calibrating your image.

Vectorscope



The Vectorscope display shows colour information of hue (shown as a phase vector), and saturation (measured by outward distance from the centre). This is useful for checking if an image is under or over saturated and for calibrating multiple cameras to ensure greater consistency between shots.

Vectorscope Zoom



The Vectorscope Zoom shows a scaled up view (x8) of the centre of the vectorscope.

Waveform Monitor Settings

From within the Waveform Monitoring menu you can access the display settings for the waveform monitor.

To change the size of the waveform, press on the 1/4, 1/3 or Full Screen icons and the display will update immediately.


Waveform Size settings

To toggle between Waveform Monitor sizes of 1/4, 1/3 and Full Screen from the Home Screen, tap in the bottom left corner of the screen .

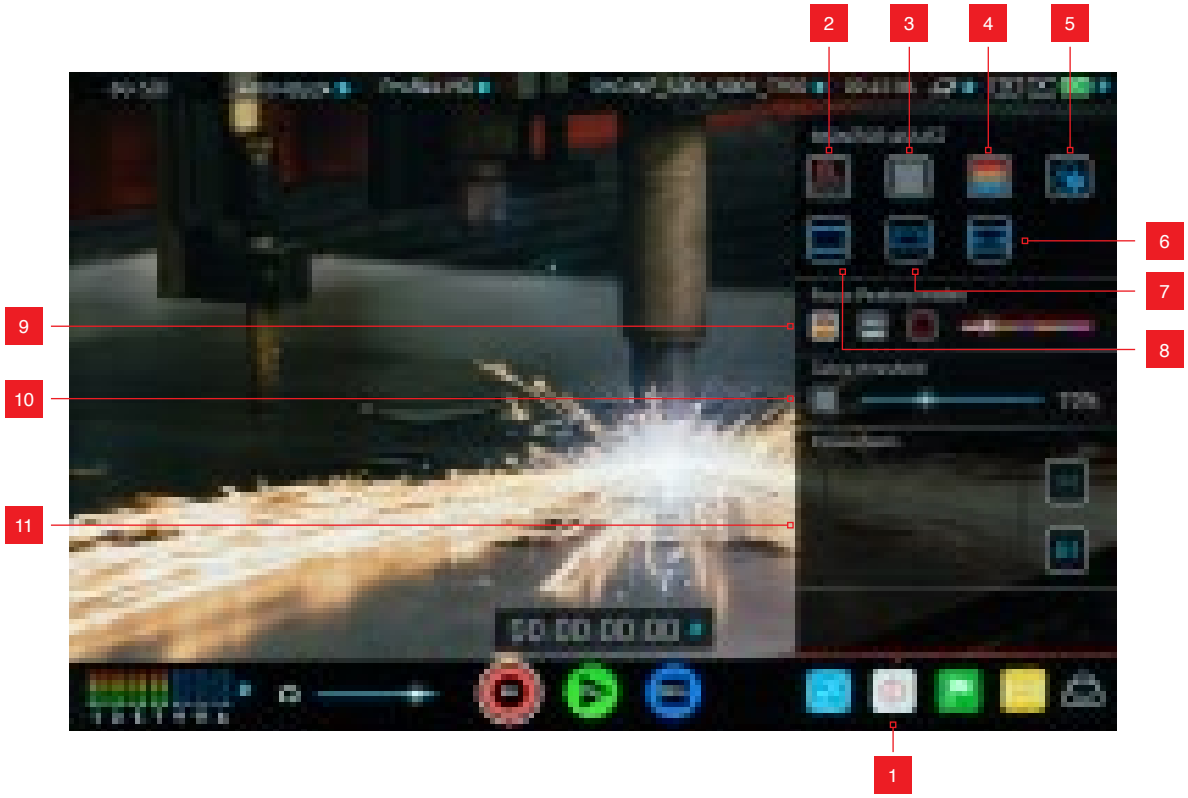

Brightness


Transparency

The Brightness slider directly controls the intensity of the waveform while the Transparency slider adjusts the transparency values of the waveform display on screen.

Monitor Assist

AtomOS features Smart Monitor tools that help with making your shot picture perfect. Easily access Focus Peaking, Zebra, False Colour and Blue Only Exposure to check image is in focus, noise free and correctly exposed. Options for safe area/ title area markers along with aspect ratio markers and anamorphic desqueeze functions are also available.



1. Monitor Assist Menu
2. Focus Peaking
3. Zebra Pattern
4. False Color
5. Blue Only Exposure
6. Anamorphic De-squeeze
7. Safe Area / Title Lines
8. Cinema / TV Guides
9. Focus Peaking Display (Colour / Monochrome / Edges Only)
10. Zebra Threshold
11. Focus Zoom with Pan & Scan

How to use

To enable the Monitor Assist functions, press the Monitor Assist icon on the home screen.

Monitor Assist icon

The Monitor Assist icon will only be visible if there is an input signal detected.

Focus Assist Tools

Inside the Monitor Assist menu, four types of focusing tools are available for use:


Focus Assist


False Colour


Zebra Pattern


Blue Only Exposure

Focus Assist, False Colour, Zebra Pattern and Blue Only Exposure are enabled simply by touching the corresponding icon in the menu.

You can apply multiple filters to your monitor at the same time, however can be set up individually for your needs.

Focus Peaking

Focus peaking allows the user to ensure their recordings are always

in focus. The parts of the image in focus are highlighted by the selected colour (can be adjusted by dragging the slider). There are a number of options for how peaking is displayed, it can overlayed over the colour video image, over a greyscale image or just show the peaking my selecting the corresponding icon.

Focus Assist Colour



Focus Assist Mono



Focus Assist Outline



You can change the focus peaking colors and modes from the Focus Assist Panel.

Zebra



Zebra pattern show the parts of the image that are exposed +-5% of the target level set.
The Zebra threshold value can be adjusted by moving the slider left or right.

False Colour



False Colour assigns different colors to areas of different brightness in the image. This gives a visualization of what is going on with exposure across the image. There is a scale on the left hand side, overexposed elements will display as red, and underexposed elements will display as blue.

False Colour Scale



To help you determine the exposure range with more accuracy, please use the scale on the left hand side of the display.

Blue Only Exposure



Blue only displays a greyscale image based on the blue channel of the input signal. This is useful to observe the noise content of a video image as sensor noise is most visible in this channel.

Cinema Guides / Safe Areas / Anamorphic De-Squeeze

You can cycle through your required cine or TV frame guides by repeatedly pressing the guides icon. Action safe area and title safe areas can then be turned on and are proportional to the frame guides based on SMPTE standards.

How to use

To enable the Frame guides press the frame guide button to cycle through your chosen aspect ratio. The aspect ratio markers are very useful with the 2 x Anamorphic De-Squeeze to preview and crops that could be made in post.

To turn on the safe area markers tap the Safe area button once for the Action area and again for the title safe area.



Cinema Guides



Safe Areas



Anamorphic De-Squeeze

Cinema Guides Shown With Menu Overlays



Cinema Guides Shown Without Menu Overlays



The Safe Area/Grid Lines will still be visible when tapping the center of the screen to hide the overlays.

Focus Assist Settings

From within the Waveform Monitoring menu, press the Settings icon to access the display settings for Focus Peaking, Zebra, False Colour and Blue Only Exposure.



Focus Assist Settings icon

To change the Focus Assist modes, press on the Colour, Mono or Outline icons and the display will update immediately.



Color



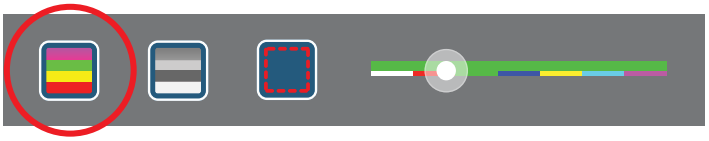
Mono



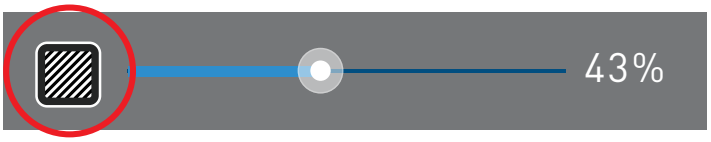
Edges Only

(Depth of field focus tool)

The color of the Focus Assist can be changed by dragging the slider, the color selected will be reflected in the top line.



The Zebra threshold value can be adjusted by moving the slider left or right. The threshold percentage will be shown on the right of the slider.



All of these settings will update without the need to close the settings.

Zoom

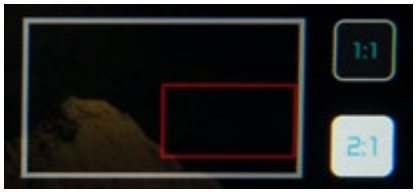
Zoom mode enables you to punch in and check critical focus



Toggle 1:1 to display 1:1 pixel mapping, the indicator box shows the location of the screen you are viewing.
4K 1:1 shows 1/4 of the 4K UHD image.



Toggle 2:1 to magnify the screen, the indicator box shows the location of the screen you are viewing, you can move the zoomed location by dragging across the screen or selecting a portion of the indicator box.
4K 2:1 shows 1/16 of the 4K UHD image.



SmartLog

SmartLog gives you the ability to tag your clips during recording (or playback, more on this later).

By the pressing the Favorite and Reject icons you can assign a “good clip” or “bad clip”. This information can then be imported into a non-linear editing system to speed up the edit process. You can easily see which parts of your recording you have marked to keep or reject. Favorite clips can easily be built into a Playlist in playback mode and these tagged sub clips can then be played out back to back.

Sumo19 has extended tags to allow you to be also make more specific tags that can help facilitate the edit.

SmartLog is compatible with FCPX XML (.fcpxml).

How to use in Record and Monitor mode

To access tagging press the Cut and Tag on the home screen.



Cut and Tag icon

You can now see your video in the background and the Favorite and Reject icons along with other tags for marking clips whilst recording.

To use simply tap the desired tag to mark the in point and tap again to mark the outpoint.

Recording Mode: Cut And Tagging For Easy Clip Selection



Recording Mode: Clip Marked As A Good Take



How to use in Playback mode

To review and use the Cut and Tag feature in playback mode, press on the Play icon on the bottom of the screen.



Playback icon

From the Playback screen, hit the file name at the top centre of the screen to bring up the Playback file lister. Select a clip from the list by directly pressing it and it will become available for marking.



To access tagging press the Cut and Tag on the home screen.



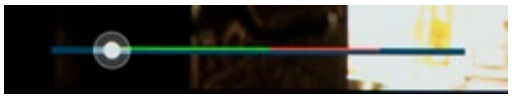
Cut and Tag icon

The Favorite & Reject tags along with the other icons will appear on screen.





Press Play and when you see the section of the footage you would like to mark as good or bad, press Favorite or Reject and then press again to stop marking that section. Multiple other tags can be applied to your clips to provide Timecode accurate meta tags that can be exported to FCX XML.



A green or red line will appear in the timeline scrubbing bar so you can identify the region that has been selected.

Removing tagged clips

To clear all marking point clips, press on the Reset icon.



Clear Tags

Your final stage is to Export the tags to a FCPX XML file:

- Enter either the Playback List or the Media Information page
- On the bottom right hand side there is an icon Export XML
- Press this once
- You will be shown a please wait screen (the length of time will vary depending on your recording time and amount of flags applied)
- Then it will return you to the previous screen



EXPORT XML ICON

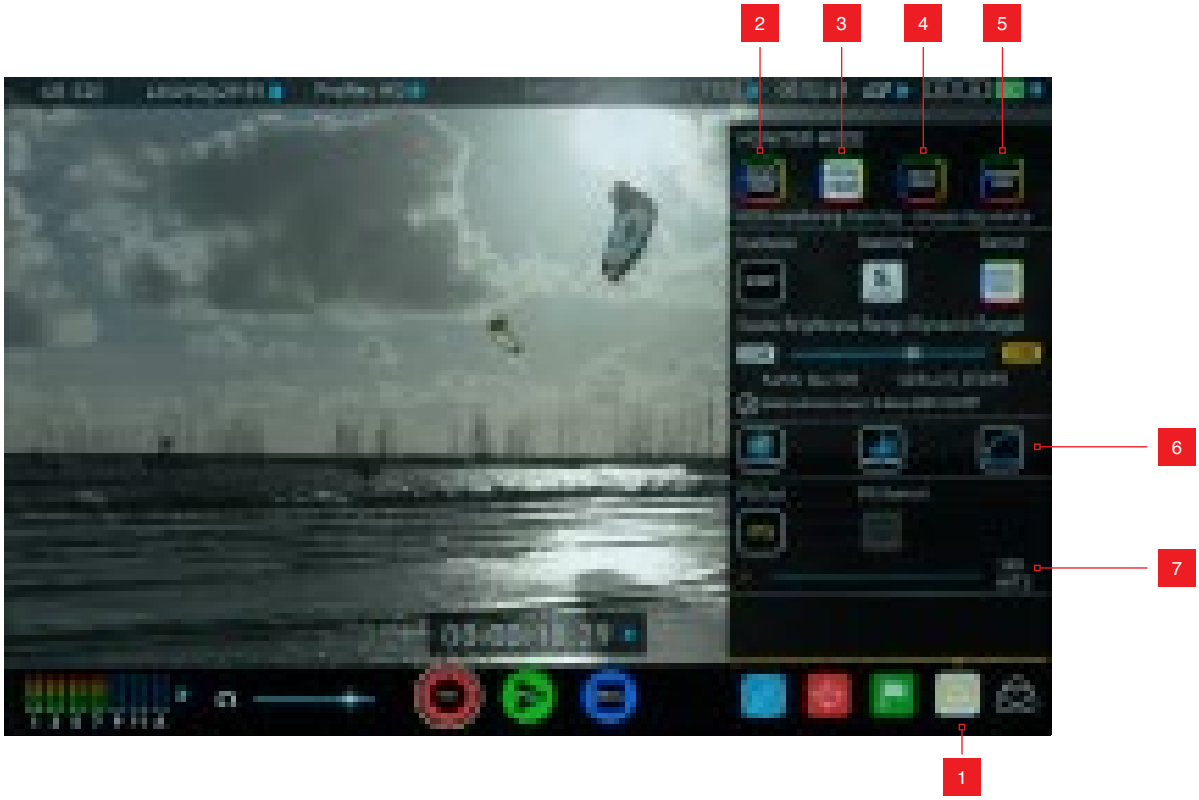
You can carry on recording but please remember if you add any additional tags you will need to export your XML file again.

Favorite Playlist

When in Playback mode you have the option to create a Playlist of your Favorites. You can set this up by clicking on the Playlist option in the Playback file lister. Cycle through the options until favorites is selected. You can then play these out in either order recorded or reverse. See the playpack section for more details on Playlists on **Page 41**.

Monitor Mode

AtomOS features Monitor tools that help with making your shot picture perfect for on set and in post. The new AtomHDR mode provides a way to monitor HDR content on your Atomos recorder.



1. Monitor Mode Menu
2. Native Source Video
3. AtomHDR
4. Log to Video
5. Custom Look
6. Custom Look options
7. Display options

How to use

To enable the Monitor Mode functions, press the Monitor Mode icon on the home screen.

Monitor Mode icon

The Monitor Mode icon will be visible even if there is no input signal detected.

Native Video Source



REC 709 SOURCE ICON

The first option is “Rec 709” which is the Native Source Video. This option will display the video source without any processing. When connected to a camera this means the image you are viewing is the untouched camera output e.g. a standard Rec.709 image, a Rec.709 image with a selected picture profile applied, Log image etc. This may be a standard REC.709 image, a REC.709 image with a selected picture profile applied or an image that is has a LOG curve applied to it.

With this mode selected you have the option to change the screen brightness by adjusting the slider. As you slide to the right the brightness will increase and when at 100% the image will be using the full 1200 NITs of the display. As with any electronic screen device increasing the brightness will increase the power draw and battery life will be affected accordingly.

In this mode adjustments can also be made to the Lift, Gamma and Gain of the display. You can tap the icon on the left of the menu to scroll through the options and adjustments are again made by moving the slider left and right.

The adjustments for Lift, Gamma and Gain are for the display only and will not effect the image being recorded.



The screen adjustments can easily be reset to the default 0 position by tapping the reset icon.

In addition to the screen adjustments you have the option to:



The Display off function allows for the screen to be turned off with out effecting the operation of the unit. This is combined with the screen lock function and will become active by tapping the power on/off button on the side of the unit.

The Tally lights on the front and rear of the unit will still display red for record and and the idle (green) status will be displayed on the front screen LED.



The Flip screen option allows you to invert the screen to meet your needs of operation.

whilst the screen is inverted take note to respect the air flow and not to obstruct the cooling vents of the unit.



Tally provides control of the rear tally light, allow it to be turned on or off.



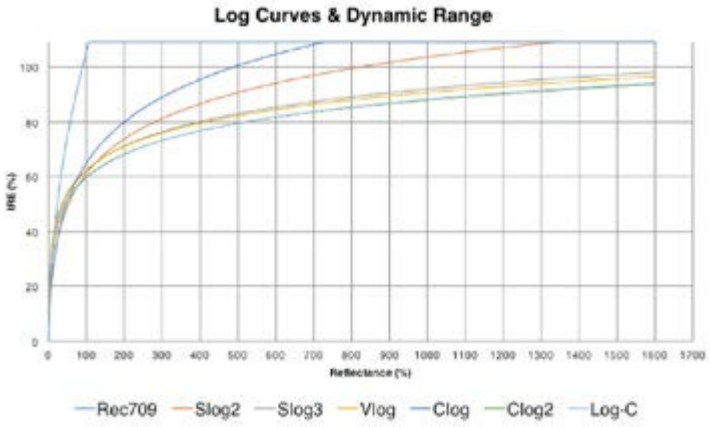
ATOMHDR ICON

AtomHDR

The second mode option allows you to engage the AtomHDR monitoring mode that allows the processing engine of the Sumo 19 to display the High Dynamic Range capabilities of a Log gamma input. AtomHDR is a result of the research and development by Atomos that allows control of all aspects of the monitor through image processing to deliver the unclipped beauty of spectral highlights through natural, vibrant colors with a result that allows you to simply shoot what you see. When the scene in front of you and the picture displayed on the Sumo 19 look the same your exposure will be correct and when used in conjunction with the wave form monitor you will be able to see the levels and easily train you eye to make accurate exposure settings.

Before entering in to the operation of AtomHDR it’s important to understand the back ground of HDR and we advise that you read the Atomos HDR tech guide to familiarise your self with the key terms and differences between the existing Rec.709 standard dynamic range (SDR) and the future the way we view images in High Dynamic Range (HDR).

One of the key elements to understand is that if your camera can shoot in Log then is can already capture the more dynamic range than you can display in SDR. It in fact preserves the highlight information by applying a Logarithmic curve to compress the additional stops of dynamic range to fit in to the Rec.709 standard. This is why the image appears washed out and de-saturated as each pixel contains more brightness information than SDR can display, if it were to do this it would be brighter than 100 NITs and so be clipped. This is illustrated below:



AtomHDR cont.

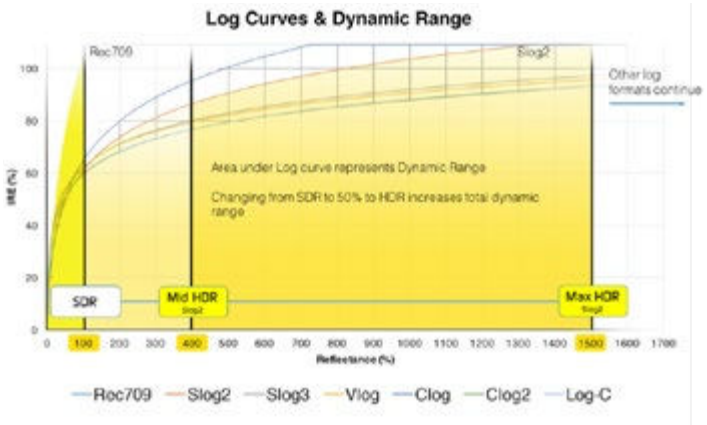
The first step in HDR is to recognize you have a HDR scene. Look for a good range of contrast across the brightest and darkest parts of your image and also across the color and tonal range as each color also contains its own brightness or luminance information.

Secondly ensure you are sending a Log signal into the Sumo19 so that you are recording the HDR Log information. Now you are ready to capture Log but use AtomHDR image processing to resolve the final HDR result in the field rather than dealing with the washed out look of Log for critical exposure decisions

The main impact of HDR is apparent in the spectral highlights and bright areas. Areas that would have previously been blown out will now contain detail and information to enhance your content.

Alongside the physical light in the scene, the faster/brighter your lens the greater the level of brightness you'll have to play with. Choosing a Cine style lens or those with a delicked manual aperture can provide increased flexibility over photo lenses that use an electronic control aperture.

AtomHDR uses an in depth understanding of each Log curve and combines it with the control of the panel processing and back light in order to apply an increased brightness to the highlight areas of the scene. Start using AtomHDR by selecting the icon and step through the selection process to pick the camera, Log gamma signal and color gamut matching your setup



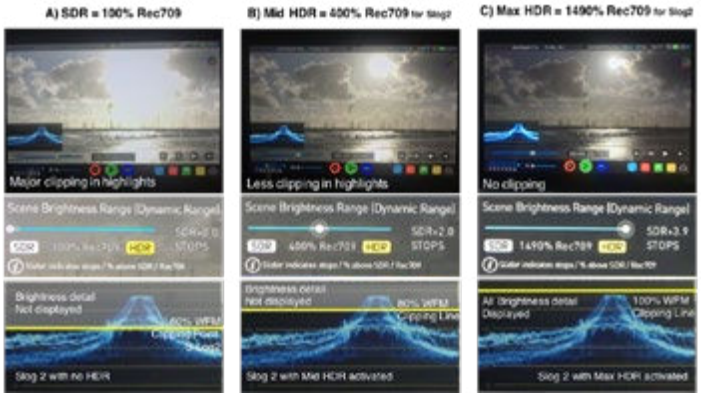
Camera Manufacturer – tap to scroll through to the manufacturer of the camera providing the input. Sony, Canon, Panasonic, Arri, Red and JVC

Log Gamma Format – For each manufacturer there may be a number of different Log curves available and you can scroll through to the correct selection by tapping the Gamma icon. In the case of Arri there is only LOG-C but you need to set the ASA of the the Log Gamma to match the input of the camera.

Gamut – the third selection allows you to select the Color Gamut of the input. This is not applicable to all cameras but again ensure that this matches the input of the camera to ensure accurate monitoring.

All adjustments are completely non destructive and will not effect the recording. The adjustments you make to the exposure and color Gamut on the camera will then be out put to be recorded on the Sumo 19.

The HDR slider below these allows you to adjust the brightness of the screen to match you scene. Sliding it to the right will increase the dynamic range of the scene and allow you to monitor % or Stop increases over REC.709. The screen is capable of displaying up to 10.2 stops of dynamic range. As you slide to the right you increase the dynamic range the panel reproduces up to its maximum of 10.2 stops. In terms of operation you want to adjust the slider so that the image on the monitor matches the dynamic range of the scene. Leaving it too far down the SDR end of the range means critical highlight detail will be clipped, whereas sliding too far down the HDR end may result in the overall brightness appearing too dark. The easiest way to get this right is to either trust your eyes - judging what you see in reality matches what is on screen or use the Waveform clipping tool (available with OS7.1) that lets you pin point the precise dynamic range for your scene. With OS7.1 a moving graticule or line on the waveform is introduced that illustrates the luminance clipping point. This is illustrated below:



Whilst in AtomHDR mode 3D LUTs can not be used for either display or loop out. We are actively looking in to this and it may change in future Firmware releases. Manual adjustments to the Lift, Gamma and Gain of the screen as the AtomHDR engine is dynamically controlling these.

LOG to Video



LOG TO VIDEO ICON

The third monitor mode LOG to Video allows you to apply a 3D Look Up Table or LUT to the Log image. This allows you to view the Log and convert it to a Rec.709 Luminance with a specific LUT applied for each Log Gamma curve. As with AtomHDR mode you can choose the correct setting by first clicking on the camera manufacturer icon and scrolling through to the appropriate setting. Where applicable you can then scroll through the available Log Gamma Curves and the same process can be applied to the Color Gamut.

Custom Look



CUSTOM LOOK ICON

The fourth mode is for users who are either not working in Log or for user looking to use a custom 3D LUT in order to view aspects of colour management of Log footage.

A LUT or Look Up Table is a table that transforms the color response and as such adjusts the 'Look' of the input. 3D LUTs have a combination of three inputs defining the combination of R, G, and B values allowing for adjustment of not only color but also gamma and gamut. LUTs can also be used to monitor the input in a specific color space or more creatively to create a specific 'look' such as film stock emulation or to match cameras.

Its worth nothing that not all LUTs are equal and the majority of LUTs are designed to work with in the boundaries of REC.709. This means that whilst they may apply the colour adjustments you are looking for they may also effect the luminance of the image and in which case these LUTs should only be used for delivery of content designed to be viewed in REC.709 or SDR. If you are working with 3D LUTs you can use color correction applications, as well as applications like Photoshop to create you own custom Looks that can then be imported to your Atomos device. They can provide a great base or primary grade that allow you to apply an instant look to your footage.

Atomos support 3D LUTs in the industry standard .CUBE format and provides 8 LUT memory slots for you load your LUTs in to. These can be loaded in from the Built in LUTs or from files created using 3rd party software.

1D LUTs are not supported and will need to be converted via 3rd party software to be imported.

To import LUTs into your Sumo19 first copy the .CUBE files on to the SSD/HDD in your Master Caddy II using a computer and the supplied USB3 Dock.

To load a LUT select the desired slot and press on the blue file icon and then choose from off DISK. Navigate via touching through the disk file system to the LUT file to be uploaded, press on the name to select the LUT and then again to import. Then wait for the LUT loading progress bar to complete. The name of the currently selected 3D LUT is displayed at the top of the Monitor Mode panel.

This LUT can then be applied to the display by selected the correct LUT memory slot. The LUT will automatically be applied to the Display.

Under the display brightness slider there are 3 options that relate to the processing of the LUT.



REC LOOK – If this option is selected to the recording it will bake the LUT look into the recording and this is a non-reversible process. It cannot be undone in Post so we advise you consider your workflow before the use of this option. When enabled, a CUSTOM LOOK icon will flash in the top corner of the monitor and the REVIEW LOOK cannot be activated during recording to avoid any potential issues with the recorded content.



OUTPUT LOOK – With this option the selected LOOK is also applied to both the SDI and HDMI loop outs of the Sumo 19. This will allow for review on a larger monitor or to be used with a wireless sender. This function can also be combined with the down convert option that can be found in the input menu.



REVIEW LOOK – During color management it's likely that you may want to review a number of LOOKs and even compare them to the Native Video Source. Tapping the REVIEW LOOK option will apply a 50/50 vertical screen split that will show both the Natural Source Video and the selected LOOK of the LUT.

Please note that activating the 50/50 preview will also be applied to the Loop out.

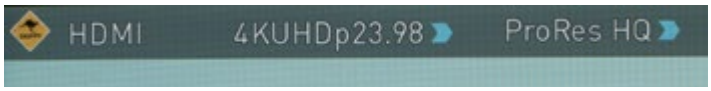
Atomos Anti-Shock Technology

Spinning disks are very reliable in a controlled environment where movement and vibration are minimal and within the capabilities of the devices. They are ideal for low-cost recording, but will suffer reduced performance if they are jolted or receive a sudden impact.

If a large enough shock occurs a break in the recording may occur. In this case the Sumo19 will automatically start a new recording once the drive recovers.

This means that even if you suffer a momentary break in your recording, the video capture will continue without any intervention from you, the user.

It is obviously important for you to know that you have suffered from an interrupted recording and the user interface will display a warning (in the form of a Kangaroo sign) clearly in the top left hand corner of the display.





Skippy Warning

To remove "Skippy" warning, simply touch the icon and it will disappear.

File Recovery

The Sumo19 continuously writes to disk while in recording mode. If the power fails or the drive is removed accidently all but the last few seconds of the clip can be recovered

In the event of an interrupted recording, when you restart the Sumo19, or enter playback mode, you will be presented with a menu that gives you the option to recover immediately, or recover it later.

If you select recover later, every time you put the disk in, or start up the Sumo19, the same menu will appear to prompt you to recover the file that did not close properly.



If the drive is broken, or has become corrupted, then we will not be able to recover the file and we recommend that you try third-party hard disk recovery software

9. Timecode

Using Timecode

Touching the Timecode display on the home screen, just above the three main controls (Rec, Play, Menu), will take you to the Timecode setup screen (this is also accessible by touching Menu and then Timecode)



Occupying the lower-centre part of the screen is the timecode display with controls to set the start-time of the timecode.

The Timecode modes supported are:

- HDMI (Embedded)
- SDI (Embedded)
- Record Run
- Time of Day
- Auto Restart
- LTC input (via GenLock BNC)

Cycle through these modes by touching the Timecode Source Selector.

SDI / HDMI embedded Timecode



With this setting, the SDI or HDMI input will use the Timecode embedded in the input signal. The controls to adjust the Timecode value are disabled in this menu as you will need to adjust these on the camera. Note that not all HDMI sources embed Timecode.

Trigger from SDI or HDMI time code



If SDI or HDMI timecode is selected and the camera is in REC RUN mode, the user has the choice to start and stop recording remotely from the source camera SDI timecode.

To enable rolling Timecode Start/Stop functions, simply press the TC icon shown here. When enabled, pressing the camera Record Stop/Start button will make the Sumo19 start and stop record simultaneously as the timecode starts and stops.

When using the camera in Free Run timecode, the rolling timecode trigger might not work as expected. However, depending on the camera, you can trigger record function by the embedded flag/trigger in the SDI signal. Most higher end cameras have this functionality; if unsure contact us at support@atomos.com

Time of Day



With this setting, each new clip that is created will contain embedded Timecode starting with the time of day when the recording is started. Please check that Sumo19 clock has been set correctly.

This can be set in *Menu > Date & Time*



If recording is stopped and then restarted while in this mode, there will be a time gap between the last clip and the next one, equal to the length of time the Sumo19 has been out of record.

In Time of Day mode, the controls on the Timecode Setup Screen for adjusting the start-point of the Sumo19 Timecode are not available, as the Timecode is set by the Sumo19's internal clock.

9. Timecode cont.

LTC



If LTC is selected then Timecode will be taken in via the LTC input (refer **page 12**). If no LTC signal is present the following icon is displayed  and the unit will revert to SDI/HDMI Timecode

Please note that the LTC generator needs to be set to the same frame rate as the input video signal. If the LTC signal is looped through to the other channel then both recordings will have synchronized Timecode.

Record Run



With this setting you set the starting Timecode for the first clip. The following clips will start at the frame immediately after the out point of the preceding clip. This will continue for all clips that follow. This is also known as continuous Timecode.

Auto Restart

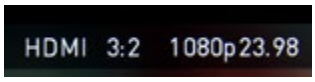


With this setting, the Timecode will be reset to the Timecode you have defined whenever you press record. All your clips will start with this same Timecode.

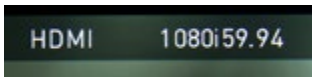
To adjust the Timecode use the "+" and "-" above and below the hour:minute:seconds sections

10. HD Pulldown

What is Pulldown?



Many professional and consumer cameras available today do not send true 1080p24, 1080p23.98, 1080p25, 1080p29.97 or 1080p30 signals down their SDI or HDMI outputs.



Instead they send 1080i59.94 in NTSC regions (eg USA, Japan), and 1080i50 in PAL regions (eg Europe)

In order to convert the signal from the internal recording format to 1080i5994 or 1080i50, they use a process called 3:2 or 2:2 pulldown.

Pulldown is only applicable to interlaced HD signals, not 4K

Camera Setting	Pulldown	Sumo19 Receives
1080p23.98	3:2	1080i59.94
1080p24	3:2	1080i60
1080p25	2:2	1080i50
1080p29.97	2:2	1080i59.94
1080p30	2:2	1080i60

You will, of course, want the Sumo19 to record the actual frame rate such as 1080p23.98, not the1080i59.94 to disk. In many cases, it is not possible for the Sumo19 to detect when pulldown has been applied to the video, so you will have to set the correct mode of removal on the Sumo19 to match the setup of your camera.

With some cameras, the Sumo19 can detect and remove the pulldown automatically, in which case the mode you expect (eg 1080p23.98) will display on the Sumo19 and you will not have to do anything further.

If there is no input detected, then toggle the input by pressing the screen until you see the input you wish to record.

Atomos is adding auto-detection support for more cameras, please check for firmware updates regularly at ***www.atomos.com***

1080p23.98 or 1080p24

If you have set 1080p23.98 or 1080p24 in your camera and your Sumo19 displays 1080i59.94 or 1080i60, then you can easily remove the pulldown by following these steps:



- Select the Input Menu from the top Left and toggle the blue arrow underneath Record repeatedly until you see 1080p23.98 (or 1080p24) displayed. You may not get a green tick in this column immediately.
- Your Sumo19 needs to analyse the video for about 1 second, in order to detect the pulldown sequence and remove it.
- If it is not automatically detected after 1 second, wave your hand from side to side in front of the lens, or wave the camera from side to side for a few seconds. The Sumo19 will detect the pulldown cadence in the movement, and you will see a green tick along with the video displayed on the screen.
- 3:2 pulldown detection is difficult, if not impossible to detect on completely still video. This is why you should wave your hand in front of the lens.

3:2 pulldown detection is difficult, if not impossible to detect on completely still video. This is why you should wave your hand in front of the lens.

If you lose the input detection – for example you unplug the SDI cable or go to Playback mode, you will need to wave your hand or the camera again, when the signal is restored to the Sumo19.

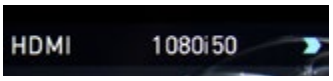
Some cameras use a variant of pulldown removal, for example Panasonic Advanced pulldown. The Sumo19 does NOT support this format, and it will not be detected.

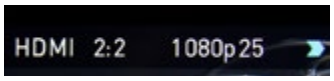
Standard Panasonic pulldown is supported, ensure in the Panasonic camera settings that pulldown is not set to Advanced.

1080p25, 1080p29.97 or 1080p30

For these modes, simply press the blue arrow underneath Record on







the input menu repeatedly until your 1080p desired format is displayed. There is no need to wave your hand or the camera, as 2:2 pulldown removal does not require moving video.

11. Record mode options

Record Modes:

In standard record mode there are a number of features that are implemented with safety in mind. Source Drop – If a connection is lost due to the cable being pulled out from either side of the signal path the recording will stop and close that file. As soon as you plug the cable back in it will start recording a new file with out having to press record again.

If AC power is lost the recorded files are still safe. Once the unit is powered back up it will detect the broken file and ask you to repair the clip now or later. With a power loss there will be some loss of content. Typically the last 5-10 seconds of footage.

Alongside the standard recording functionality additional Record Modes are available in the form of Pre Roll and Time Lapse.

Pre Roll Record



This option is enabled from the input menu under Record section. With this option turned on you will see a white circular arrow around the record button and a red Pre Roll icon will flash in the top left hand corner. Whilst enabled the input is constantly been recorded with approximately the last 8 seconds in HD and 2-3 seconds in 4K being cached into memory. The frame rate and codec selected will affect the number of seconds being cached for pre roll. Using a lower bit rate codec setting and shooting at lower frame rate will increase the length of pre-roll.

When the record button is pressed or trigger is sent, the buffered pre-roll data in memory will be written out to the start of the recording. This means if you are few seconds slow hitting the record button when something interesting happens you will still capture the shot.

With Pre Roll mode activated the Recorder is constantly caching frames internally to the unit and as such any feature that can not be changed whilst recording is disabled. This includes audio channel select, 3D LUT record, codec, disk options etc. Time Lapse record is also disables when Pre Roll is enabled.

Time Lapse

Video Time lapse provides the ability to create seamless time lapses with out capturing individual images that require compiling in post. Utilizing video also takes away the wear on you camera shutter that can be expensive to replace if you are doing lots of time-lapse work.

This function is accessed via the input menu and then selecting the Time Lapse option in the bottom left of this menu.



The Time Lapse Recording menu will then open to provide you with a number of options.



Time Lapse On/off – this allows you to turn on time lapse recoding mode and when an input is present the record button will white have dashed lines around it like a clock face.

When time lapse is enabled Pre-Roll cannot be enabled.

A sequence entry will already be present in the menu and to edit the entry simply touch to highlight it and then tap on the blue arrow at right hand side of the entry. This opens the Edit Sequence menu where you can alter the following settings:



Capture – Specifies the number of sequential frames to be captured
Every – Specifies the frequency of the capture.
For – defines the amount of time to repeat the process for this entry.
Play time – this will display the playback duration for the above settings.

Times can be specified in Frames, Second, minutes and hours

The number of frames specified for 'Capture' will capture in quick succession at the specified time – so for example if it is set to capture 5 frames every 1 minute, The 5 frames will be captured sequentially at the start of every minute. The frames captured will not be evenly spread across the minute.

When setting up a sequence you can also choose to add Motion blur to an entry. With this option enabled the behavior is slightly different. The number of frames specified in 'Capture' are added together with the resulting single summed frame being recorded. You will notice that the Playtime decreases when you have motion blur turned on as multiple frames are been summed to a single frame instead of been recorded sequentially. When motion blur is on the maximum setting for 'Capture' is 64 frames.

The sequence setting for the current entry is saved when you lap the OK button.



The Add icon allows you to add additional entries to your time lapse sequence. Up to 10 sequences can be added will automatically flow in to each other.



Pause sequences can also be set up to allow the recording to be paused for a specified amount of time with no frames captured.



After the required number of sequence entries have been set up an option to apply a smooth transition can be selected. This will apply a ramp between the different sequence entries to improve the blend between differing capture settings. The icon will be white when the option is selected.

11. Record mode options cont.



The Schedule start icon allows you to utilize the internal clock of your Sumo19 to set a specific time for the start of the time-lapse sequence. Pressing the icon will activate the Schedule start mode and the icon will turn white with a default time of 00:00:00 will appear with a blue arrow. Press the blue arrow to adjust the starting time For the Scheduled start to be accurate please check the Date & Time settings are correct. They can be accessed via the blue Menu button at the bottom centre of the GUI and Selecting the Date & Time icon  to adjust them if required.

With Schedule Start activated when you press the record button a red icon will flash in the top corner, along with the red record border and tally light and a count down to the scheduled start will be displayed.

To conserve battery power for longer time lapses you can use the Display Off function. This is accessed in the yellow display options menu and once pressed will be active. The monitor recorder then needs to be placed in to screen lock mode by a quick tap on the power button and the display will then be off. Touching the screen will then briefly turn it back on and to cancel the display off simply unlock the screen using the power button before reversing the above process.

12. Playback & Playout

Playback Mode

One of the key elements of the Sumo19 REC PLAY MONITOR EDIT is the ability to utilize the monitor recorder as a play back and play out device for the content that has been recorded whilst maintaining the same visually lossless high quality images.



Pressing the Play button switches the device into playback mode and the last clip recorded on to the drive will instantly begin to playback.

Once within Play mode the complete Monitoring tool set is available allowing you to analyse the content. This is key for establishing if takes are out of focus, lighting has changed or previewing content with LUTs applied.

Clips can be selected for play back by tapping the clip name at the top of the screen, with the ability to skip to the next or previous clip via the on screen controls.

Once the file name had been pressed a menu displaying the clips available on the drive will be displayed showing clip name (with Scene shot Take numbers) as well as resolution, codec and duration. Tapping to highlight a clip will show a preview of the first frame in the back ground and tapping again will play this clip or by pressing the play button.

When the playback content list menu is open play back will automatically stop.

Whilst a Clip is playing you can play or pause the clip by using the main play button in the center of the menu controls at the bottom of the screen. Above the Monitor tools icons are also a Play and Pause button along with additional play back controls.



By tapping this icon you can put the clip in to loop play back. In and out markers for loop you can be placed and cleared using the following buttons :



Press to turn on and mark loop starting point, press again to remove both in and out loop markers. When loop in is pressed the loop out point will automatically be set to the end of the clip.



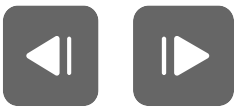
Press to place the loop out marker and replace the marker at the end of the clip, press again to reset it to the end of the clip.



These are accessed via the green flag tagging menu



Whilst a clip is playing these buttons have the ability to play the clip back at 2 x or 4x speeds both forward and in reverse.



Whilst a clip is Paused these buttons have the ability to step the clip by 1 second either forward or reverse to give you chance to analyse the clip in more detail, this is especially useful when combined with the 2:1 zoom function.

Playlist

To increase the functionality and flexibility of the playback mode there is also the ability to create a Playlist.

To start to build a Playlist press on the file name in the top menu and open the content list. Then press the Playlist button, which will turn green and reveal the options available.



It's important to note that all clips in the Playlist must be in the same codec, resolution and frame rate.



The Order Arrow allows you to choose order in which clips playback. The clips are stored based on the order they were recorded with the last clip recorded at the top of the list. You can either play down the list (newest to oldest) or up the list (sequential order).



This icon can be pressed to scroll through the Playlist options. All will play all clips on the disk.



Will play only the clips that are tagged as favorites.



Will allow the clips for the Playlist to be selected using the tick boxes.



Will include the favorites and also allow the ability to selected additional clips to be played back.

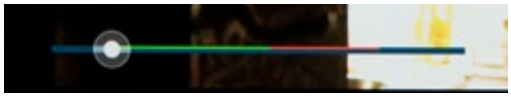
The duration of each clip is combined together and are shown on the scrub bar in play pack controls. A white vertical line indicates the start and end points and clips will seamlessly playback across those selected to be in the play lost.

The Genlock input can accept a standard composite video signal such as a Black Burst bi-level reference signal and Tri-level reference signal. Once connected, playback output is synchronized to this common reference source. This can be done across multiple units and ensures proper deck use with Switchers and Vision Mixers in live events & mobile production studios. Having all the inputs synchronized at the video Switcher allows the Switcher to operate glitch free when making transitions, cuts, and graphic overlays between those synchronized.

Metadata tagging and cut edits

In playback mode the ability to tag clips is extended beyond simply applying a single tag to a clip. With a clip selected and either ready to play or playing you can set in and out points for tags. This allows you to make Timecode accurate clips and even subclips with those tags. The tagscan be applied by tapping the appropriate icon to mark in and out points at the desired play head positions.

This can be done whilst the clip is playing or by simply dragging the scrub bar toto the position wanted. Favorites will be displayed as a green section on the scrub bar, a red section indicates rejected areas and white is used for the other tags.



Creating smart cut tags via this method is non destructive to the clips and the information can be exported to a separate XML file. These markers are ideal for creating an Edit Decision List (EDL) to go with the clips. This allows for edit preparation to take place on set, whilst traveling or with a client to save time in post production.



Creates and saves the metadata tags in to XML in FCPX format.



Tapping reset will remove the all tags from the current clip.

Favorite Playlist

The cut tag edit points can be combined with the favorites Playlist allowing the in and out points that have been created with in the clip using the favorites flag to be used as sub clips with in a Playlist. This means that if in and out points have been marked on a clip only those section of the clip will play when used in a favorites or combined Playlist. Close attention should be place to the order icon as this also relates to the sub clips in that with the run down order  will play the last sub clip first in the Playlist.

Whilst a Playlist is in operation further metadata tags can not longer be applied to these clips.

13. Connecting and Editing

Connect

To access and edit your recorded material, connect the Master Caddy Docking Station to a Mac® or Windows® editing workstation via USB 2.0 or USB 3.0.

Eject the Master Caddy from your Sumo19 and insert it into the Docking Station. After a short wait, the recorded video will be accessible to the target computer via a standard disk (exFAT) file system.

NLE supported

We have chosen the Apple ProRes®, Avid DNxHD® and Avid DNxHR® codecs as they are both not only visually lossless, but also edit-ready formats. All major NLEs support ProRes and DNxHD/DNxHR.

- Final Cut Pro (version 7)
- Final Cut X
- Adobe CS5 (with 5.51 update or later)
- EDIUS 6
- Sony Vegas 10
- Lightworks
- Avid Media Composer 6 (version 8.3 or later for DNxHR)
- Autodesk Smoke

Avid DNxHD® / DNxHR® support requires online activation.

ExFAT compatibility

The Sumo19 formats your disk as exFAT. We have chosen this file system to overcome the 4GB file limitation of FAT32 and keep compatibility on both Windows and MAC OS.

The Operating Systems that support exFAT are:

- Windows XP - install the following update: http://www.microsoft.com/download/en/details.aspx?id=19364
- Windows Vista - install SP1 or higher
- Windows 7 & 8 (32/64bit)
- Snow Leopard 10.6.5 or higher
- Lion 10.7
- Mountain Lion 10.8
- Mavericks 10.9 and above

The Master Caddy Docking Station is a sophisticated device supporting two different data interfaces: USB 2 and USB 3. When using the Master Caddy Docking Station you may need to connect both USB connectors. This is because when it has to power a disk drive and its interface electronics, the Docking Station may consume more power than is available from a single USB port.

Transferring Files

Now your docking station is connected and your disk is recognized by your operating system, you can edit directly from the drive or copy the files to your own storage.

Windows

Open the disk in My Computer > Select all the files or just the ones you wish to transfer, copy and paste them to your desired location. (ctrl+c copy, ctrl+v paste).

Mac OS

Your Sumo19 disk will show in Finder. Select the files you wish to transfer, drag the files to your desired location or use the copy and paste commands. (COMMAND + C copy, COMMAND + V paste).

If you have used a FAT32 formatted disk in the Sumo19 this will have a folder structure Scene, Shot, Take. This will mean you either transfer all the folders or utilize the Windows Search or MACs automate program to transfer just the .mov files. There are instructions on this in our knowledge base; visit www.atomos.com/support for more info.





Importing

Final Cut Pro (version 7), Final Cut X , Adobe CS5 (with 5.51 update), EDIUS 6, Sony Vegas 10, Lightworks and Avid Media Composer 6 support imported files from your Sumo19 disk.

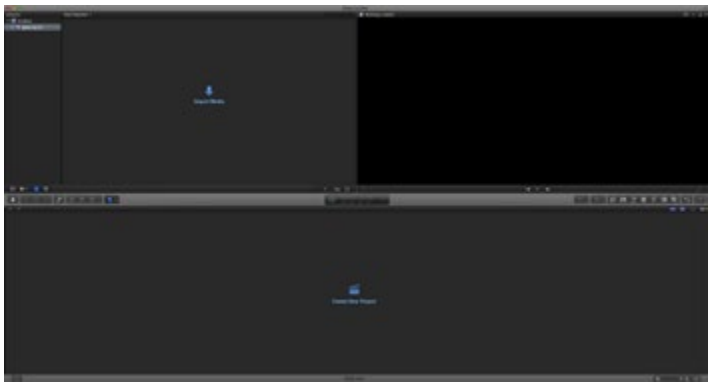
Importing Sumo19 footage into Final Cut Pro

You can import Sumo19 footage into Final Cut Pro (FCP) in just a few simple steps.

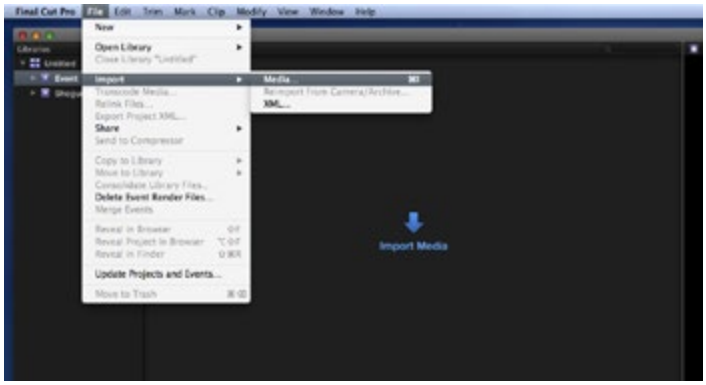
First, connect the Sumo19 Docking Station to your Apple Mac using the USB 2.0 or USB 3.0 port. Insert the Sumo19 Master Caddy containing the disk with your footage into the Docking Station and you will see the drive appear in your Finder window.

Start FCP and open your project (or start a new one).

The screen will look like this:

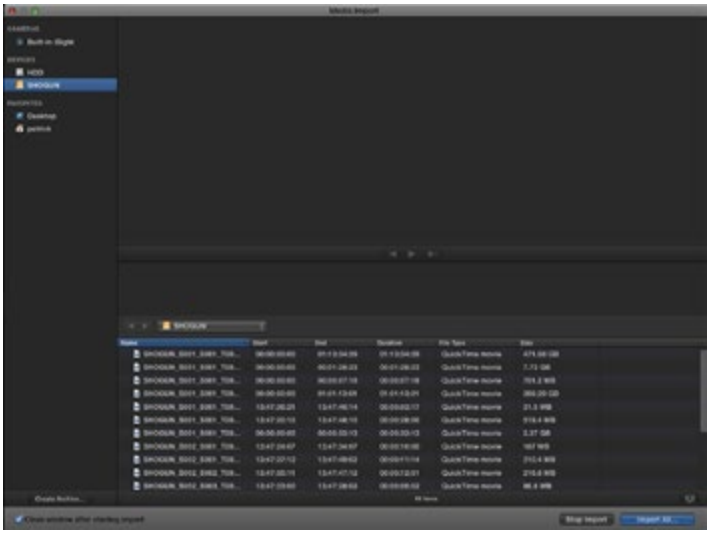


Go to the File menu and select Import > Media



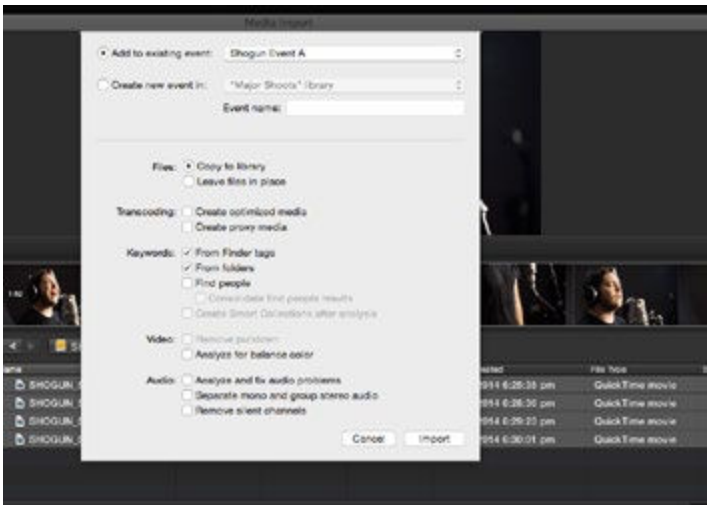
FCP will show you a “browse” window. Look for the Sumo19 drive, and click on it.

You’ll see the folders in the Sumo19 drive. Select the folder containing the footage you want to import:



Click on Import All or Import Selected, individual clips can be selected. Choose the Event you wish to import the footage into, or create a new event.

Select Import:



Your Scene, Shot and Take files now appear in the project window, ready for use in your FCP project.



SmartLog with FCP X

Prior to importing the XML files into FCP X, ensure that:

- You have exported XML whilst the drive is in your Sumo19
- You have connected your Master Caddy Docking Station and inserted your Master Caddy into the Dock
- You are using an operating system that supports ExFAT
- Your QuickTime version is up to date
- FCP X is the latest version

There are 2 ways to import the XML file:

1. Directly from the docked hard drive
2. Manually into FCP X

1. Automatic Import

- Open Finder
- Select the drive (in this example it is EXCVIDEO)
- Double-click the unitname.FCPXML file
- This will open FCP X and import the .xml file

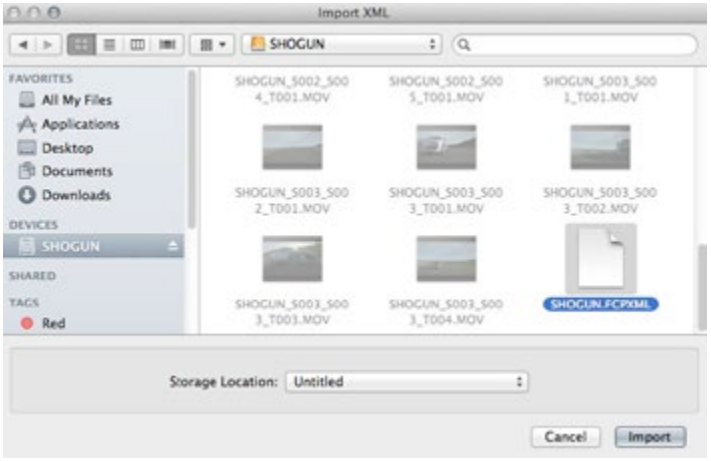
FCP X will make a event of the disk name and reference all the footage in that event.

You will notice that on the clips you have added Smart Tags too, with Green and Red indicating Favorite and Reject.

You can sort these by using the pull-down menu to show favorites. This will show all the individual favorites as separate clips in the Event Viewer.

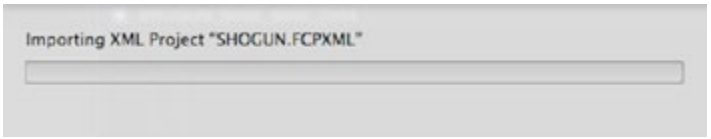
2. Manual

- Open FCP X
- Create a New Project (or you can use an existing project); in this example it is called XML Import
- Select File, Import, XML



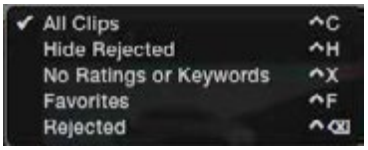
- Select the Sumo19 drive under Devices (in this example it is called EXCVIDEO)
- Choose the unitname.FCPXML, select Import

The XML will import



Once imported you can expand the clip and you will see the Favorite and Reject tags. You can also filter the view to only see favorite, etc.





14. Software Updates

AC Adapter (included)

This connects to the DC input on the rear panel of Sumo 19.

Updating AtomOS (Firmware)

From time to time we will issue software updates for your Sumo19. To update the firmware (that's the software that runs inside your Sumo19), there is a simple procedure you have to follow.

- Go to www.atomos.com/support
- Locate and download the firmware upgrade

1. Extract the file ATOMSUM.FW from the firmware zip file.
2. Copy ATOMSUM.FW onto a drive in a Master Caddy.
    a. Atomos recommends you use a freshly formatted known good disk.
    b. Always format your drives in the Sumo19. The Sumo19 formats the drive for optimal performance for Video.
    c. Ensure that the firmware update file is on the root of the drive, and not in a folder on the drive.
3. Put 2 freshly charged batteries on your Sumo19 or connect to mains power. It is very important that your Sumo19 does not lose power during a firmware upgrade.
4. Power down your Sumo19.
5. Insert the Master Caddy with the ATOMSUM.FW file.
6. Power up your Sumo19 with a short press of the Power Button.
7. Watch the screen. The Atomos logo will appear, and then be replaced with a Please Wait logo and after a few seconds the firmware upgrade will start.
8. The firmware upgrade will take up to a few minutes.
9. When the firmware upgrade is finished, the Sumo19 will:
    a. Delete ATOMSUM.FW from the drive.
    b. Power itself down.
10. Turn on your Sumo19 again with a short press of the Power Button located on the side.
11. When the Sumo19 has booted, Press "MENU" and then "Sumo19 Info" and check that the version number is the version expected.



IMPORTANT: Problems when installing AtomOS

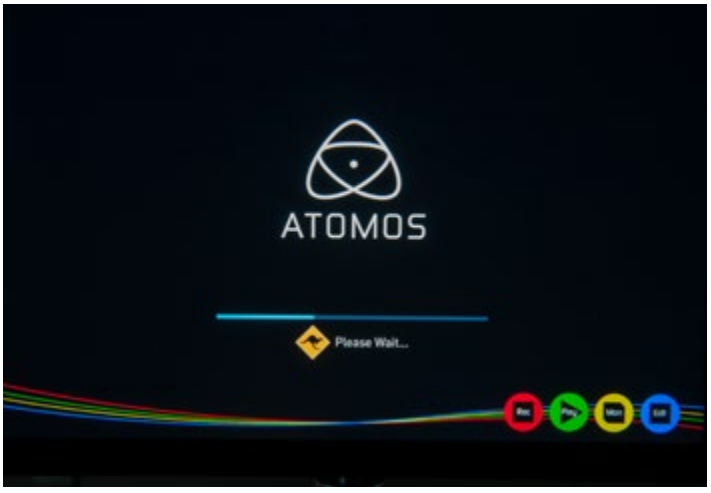
Very occasionally, the firmware update process can go wrong. This might be because of an incomplete or corrupted download.

In the unlikely event of your Sumo19 becoming unresponsive, there is a built-in recovery mechanism.

All you have to do is press and hold the on/off button for 10 seconds. If you do this your Sumo19 will revert to its factory condition, and you will be able to retry the firmware update later (taking due precautions to identify and remove possible reasons for the failure of the previous attempt).

Please ensure your batteries have plenty of charge and that you do not interrupt your Sumo19 while its firmware is upgrading. You will see a progress bar to the lower half of the screen, When it is finished, the Sumo19 will restart and you will be able to use the device as normal. This process can take up to 7 minutes.

Please make sure that the firmware file is not renamed when you computer unpacks the ZIP file. If you have other firmware in the same folder, the file may become renamed to ATOMSUM-2.FW when unzipping and the update will not work.





SUM019

Weight and Dimensions	
Without batteries & media	5.47kg / 12lb
With batteries & media	-
With stand & Battwing adapter	6.28kg / 13.8lb
Dimensions (W x H x D mm)	506 x 310 x 62.5mm, 19.9" x 12.2" x 2.5" (without stand) 506 x 330 x 180mm, 19.9" x 13" x 7.1" (with stand)
Construction	Aluminium alloy chassis with built in armor protection
Mounting points	1/4-20 screw; 4 x top, 4 x bottom, 2 x side 3/8-16 screw; 2 x top, 2 x bottom, 1 x side VESA mount rear
Power	
Operating power	75W
Compatible batteries	V-Lock / Anton Bauer via XLR terminal (optional mounting plates available)
Input voltage (battery)	14.4V nominal
Battery time (based on 7.4V)	Depends on Watt Hours specification of battery used
	-
	-
DC In	1 x XLR (12-16.8V)
Continuous power *** Patent pending**	Primary-secondary battery system. Change batteries without losing power Loop batteries continuously.
Touchscreen	
Size	19"
Resolution / PPI	1920 x 1080 / 120PPI
Aspect ratio	16:9 native
Color Gamut	REC709 HDTV
Look up table (LUT) support	3D LUT (.cube format)
Anamorphic de-squeeze	2x, 1.5x, 1.33x, Panasonic 8:3
Technology	SuperAtom IPS panel (capacitive touch), calibration to Rec.709 with optional calibration unit
HDR	
AtomHDR	Yes
Supported Log formats	Sony SLog2 / SLog3, Canon CLog / CLog 2, Arri Log C, Panasonic Vlog, JVC JLog, Red LogFilm
Supported Gamuts	Sony SGamut / SGamut3 / SGamut3.cine, Canon Cinema / BT2020 / DCI P3 / DCI P3+, Panasonic V Gamut, Arri Alexa Wide Gamut
Bit depth	10-bit (8+2 FRC)
Brightness	1200nit (+/- 10%)
HDR input (PQ/HLG)	Yes / Yes
HDR output (PQ/HLG)	Yes / Yes
Video Input (Loop Out)	
HDMI	1 x HDMI (2.0)
SDI	Quad link 4 x 3G SDI* or up to 12G single link SDI
Signal	Uncompressed true 10-bit or 8-bit 422 (camera dependent)
Video Output (Play Out)	
HDMI	1 x HDMI (2.0)
SDI	1x 4K-SDI 12G/6G or HD-SDI 3G/1.5G
Signal	Uncompressed true 10-bit or 8-bit 422 (playback file dependent)
Supported Loop Out Formats	
HDMI to HDMI	720p 50/60, 1080i 50/60, 1080p 24/25/30/50/60/100/120 2160p 24/25/30/50/60
SDI to SDI	720p 50/60, 1080i 50/60 1080pSF 24/25/30 1080p 24/25/30/50/60/100/120 2160p 24/25/30/50/60
Video Signal Conversion	
HDMI to SDI	720p 50/60, 1080i 50/60, 1080p 24/25/30/50/60/100/120 2160p 24/25/30/50/60
SDI to HDMI	720p 50/60, 1080i 50/60, 1080p 24/25/30/50/60/100/120 2160p 24/25/30/50/60

Specifications correct at time of printing E&OE

Supported Codecs & Frame Rates (Record & Playback)		
Raw Record	**Brand / Model / Codec**	**Resolution / Frame rate**
	Sony^^ FS5/FS7/FS700 CDNG	4K DCI; 24/25/30p 4K UHD; not supported in camera 2K; 24/25/30/50/60/100/120p 1080; not supported in camera
	Canon C300MKII/C500 CDNG	4K DCI; 24/25/30p 4K UHD; 24/25/30p 2K; not supported in camera 1080; not supported in camera
	Panasonic VaricamLT / Varicam35* CDNG	4K DCI; 24/25/30p 4K UHD; 24/25/30p 2K; not supported in camera 1080; not supported in camera
	Arri Alexa Mini .ARI*	2880x1620*; 24/25/30/50/60p 2880x2160*; 24/25/30/50/60p
Raw to ProRes / DNxHR	**Brand / Model / Codec**	**Resolution / Frame rate**
	Sony^^ FS5/FS7/FS700 ProRes (HQ, 422, LT) DNxHR (HQX, HQ, SQ, LB)	4K DCI; 24/25/30/50/60p 4K DCI Burst; 120p* (Sony FS series) 4K UHD; not supported in camera 2K; 24/25/30/50/60/100/120/200/240p 1080; not supported in camera
	Canon C300MKII/C500 ProRes (HQ, 422, LT) DNxHR (HQX, HQ, SQ, LB)	4K DCI; 24/25/30p 4K UHD; 24/25/30p 2K; not supported in camera 1080; not supported in camera
	Panasonic VaricamLT / Varicam35* ProRes (HQ, 422, LT) DNxHR (HQX, HQ, SQ, LB)	4K DCI; 24/25/30/50*/60p* 4K UHD; 24/25/30/50*/60p* 2K; not supported in camera 1080; not supported in camera
Video to ProRes / DNxHR (DNx utilizes a .MOV wrapper)	**Brand / Model / Codec**	**Resolution / Frame rate**
	Codecs **Apple ProRes HQ, 422, LT** **AVID DNxHR HQX. HQ, SQ, LB**	4K DCI; 24/25/30/50/60p 4K UHD; 24/25/30/50/60p 2K; not supported in camera 1080p; 24/25/30/50/60/100^/120^/200^/240p^ 1080i; 50/60i 720p; 50/60p
Onboard Processing		
Pulldown removal		24/25/30pSF > 24/25/30p (2:2 pulldown) 60i > 24p (3:2 pulldown)
4K UHD downscaling		Yes - Loop-out and playback (Not available in RAW)
Audio In/Out (48kHz PCM Audio)		
HDMI		2 or 8ch 24-bit, camera dependent
SDI		12ch 48kHz 24-bit
Audio		2ch balanced XLR analog in/out (direct XLR connection) Dynamic range >90dB Max signal level +24dBu Max analog gain +52dB 48V Phantom Power for Mic
Headphone out		3.5mm
Built-in speakers		Yes
Remote Start/Stop		
HDMI		Auto HDMI Trigger Supported Protocols - Canon, Sony, Atomos Open Standard
SDI		SDI trigger camera selectable
Other		LANC control - Slave
Playback		
Playlist		Yes
Genlock / LTC		Yes
CDNG (recorded content)		No support
ProRes (recorded content)		All recorded files can playback. Playback in slow motion >= 100fps
DNxHR / DNxHD (recorded content)		All recorded files can playback. Playback in slow motion >= 100fps
Live Switch & Recording		
ISO recording *		4 x 1080p60 Inputs
Switching *		Yes

*** Future firmware update**

Construction note:

Your Sumo19 is designed to operate in ambient temperatures up to 45°C/113°F. It features a heat pipe design with a silent fan to circulate air and remove excess heat from the rear vents .

If you wish to extend the temperature of operation in high temperature conditions, you can choose an SSD drive, and set the TFT brightness to a minimum.

Atomos (HQ)

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Victoria 3207 Australia

Tel: 1300 ATOMOS

www.atomos.com

Have you registered your Sumo19 yet?

Register now to receive communication on all future updates

Web: www.atomos.com **Sales:** sales@atomos.com **Support:** www.atomos.com/support