



Installation and Operation Manual

# **Blackmagic URSA Mini and URSA Mini Pro 4.6K**

Blackmagic Viewfinder and Studio Viewfinder

February 2017



## Welcome

Thank you for purchasing Blackmagic URSA Mini!

Since we released our first digital film camera a few years ago we have been privileged to have received some of the best guidance and feedback we have ever had for a new product! We all grew up admiring the work of the world's leading cinematographers and DOPs and it's been an honor to spend hours in conversations with these legendary experts on the features we need to add to our cameras. Of course, everyone we speak to has good ideas also!

With URSA Mini, we've packaged our incredible wide dynamic range sensors into a super small, light and sturdy metal chassis.

URSA Mini's beautiful user interface is designed for single operators who need quick, easy access to all of their camera's functions, while comprehensive ATEM switcher integration makes the amazing image quality of this Super 35mm digital film camera available to live production studios.

Best of all, URSA Mini is available with the impressive 4K URSA sensor or 4.6K sensor with even greater dynamic range! We also listened to single operators when we developed our new URSA Viewfinder which is perfect when you need extra precision and for shooting on the shoulder.

We're also proud to introduce our URSA Mini Pro 4.6K. This camera offers the same amazing image quality with additional features including ergonomic controls, interchangeable lens mounts and internal ND filters. If you are familiar with ENG cameras, we believe you will find these ergonomic controls and the built in ND filters extremely powerful.

We hope you use your URSA Mini or URSA Mini Pro 4.6K to produce some of the world's most exciting films and television programming, music videos and commercials! We are extremely excited to see what creative work you produce and to get your feedback on new features you would like to see us add to URSA!

A handwritten signature of Grant Petty in black ink. The signature is written in a cursive, flowing style with a prominent 'G' and 'P'.

**Grant Petty**

CEO Blackmagic Design

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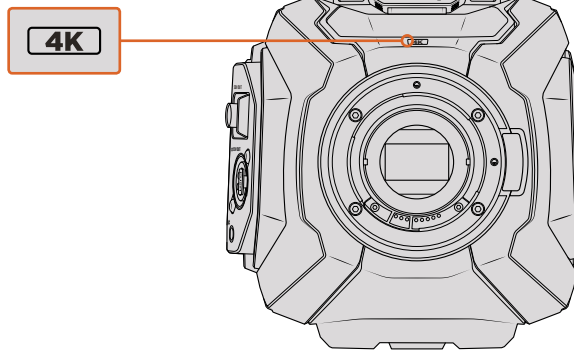
# Which camera are you using?

You'll notice while reading this manual that occasionally a feature will be specific to a particular Blackmagic URSA Mini camera. All URSA Mini cameras produce incredible, wide dynamic range images and share the same basic chassis. There are some differences between different models, though.

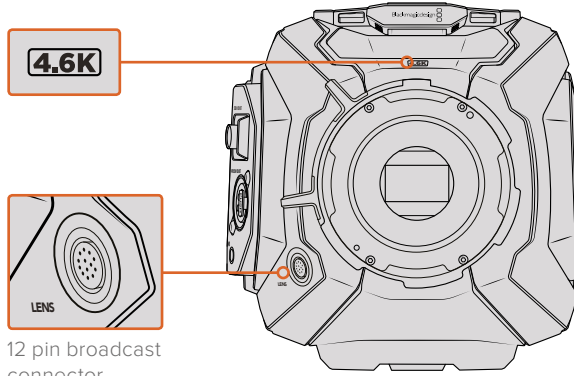
## The available models are

- URSA Mini 4K
- URSA Mini 4.6K
- URSA Mini Pro 4.6K

URSA Mini 4K EF

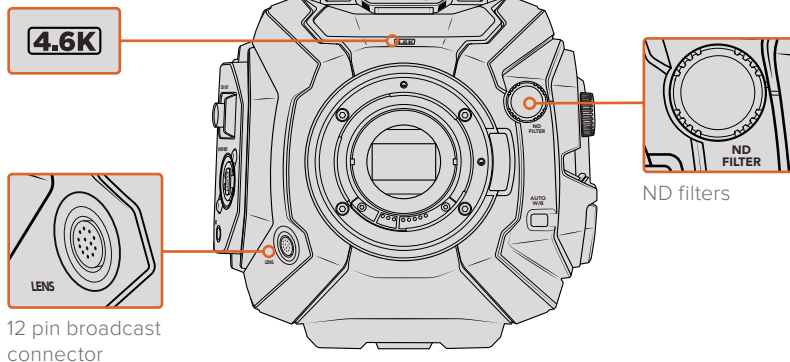


URSA Mini 4.6K PL



12 pin broadcast connector

URSA Mini Pro 4.6K



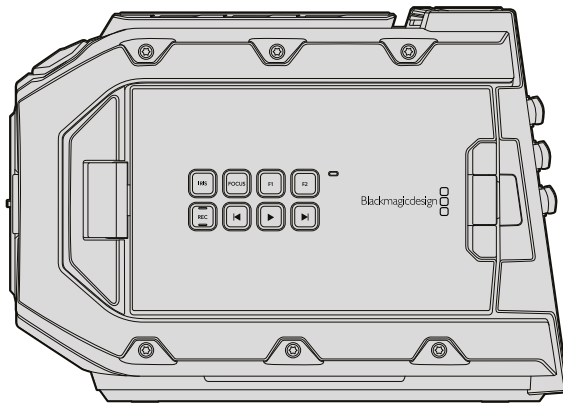
ND filters

12 pin broadcast connector

## URSA Mini

Aside from the sensors used, URSA Mini 4K and 4.6K models are nearly identical. The control buttons and software menus are laid out the same way, and operating the cameras is essentially the same. You'll simply find a few more resolution options on cameras using the 4.6K sensor, together with a greater range of ISO settings. An easy way to tell which sensor your camera has is to look for a '4K' or '4.6K' icon above the lens mount.

It's also worth noting that URSA Mini cameras are available with EF and PL lens mounts. An easy way to tell the difference between these is the presence of a 12 pin broadcast lens connector near the lens mount on PL models, and of course, the mounts themselves if you are familiar with EF and PL mounting systems. See the 'getting started' section for more information on these mounts.

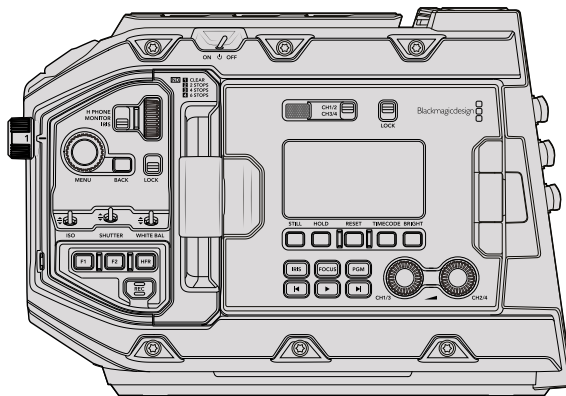


URSA Mini, left side

## URSA Mini Pro 4.6K

Blackmagic URSA Mini Pro 4.6K is a little different. This camera is only available as a 4.6K model with an EF mount, but it can accept other lens types via its interchangeable lens mount. For more information on the interchangeable lens mount, see the 'interchangeable lens mount' section.

URSA Mini Pro 4.6K is easy to recognise by the additional control buttons and LCD status screen on the left side of the chassis, as well as the ND filters near the lens mount. Naturally, the additional control buttons will mean that you have different options for controlling your camera and changing settings.



URSA Mini Pro 4.6K, left side

Now that you know how to identify the different URSA Mini models, you can now get started using your camera!

# Getting Started

Getting started with your Blackmagic URSA Mini is as simple as attaching the side handle, mounting a lens, and powering your camera.

## Attaching a Lens

Attaching a lens to your camera is the same process for URSA Mini 4K, URSA Mini 4.6K and URSA Mini Pro 4.6K, however the EF, PL and B4 mounts have slightly different ways of operating. In all cases, the first step is to remove the protective dust cap.

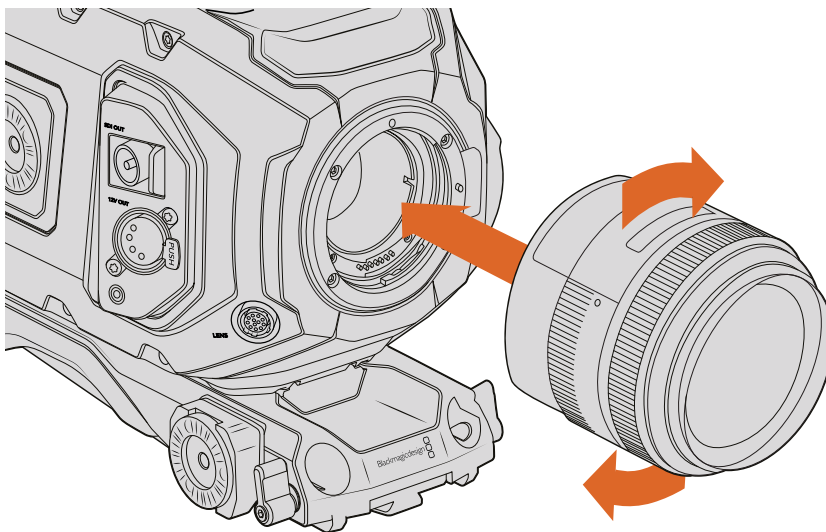
To remove the protective dust cap from the EF lens mount, hold down the locking button and rotate the cap counterclockwise until it is released. For the PL mount, rotate the PL locking ring counterclockwise and pull the protective dust cap away from the mount.

**NOTE** Blackmagic URSA Mini Pro 4.6K features an interchangeable lens mount capable of accepting EF, PL and B4 lenses, as well as additional lens mounts with accessories. For more information on switching between mount types on URSA Mini Pro 4.6K, refer to the 'interchangeable lens mount' section in this manual.

**TIP** URSA Mini Pro 4.6K comes out of the box configured to accept EF lenses. To get shooting right away, simply attach an EF mount lens as detailed below.

### To attach an EF mount lens:

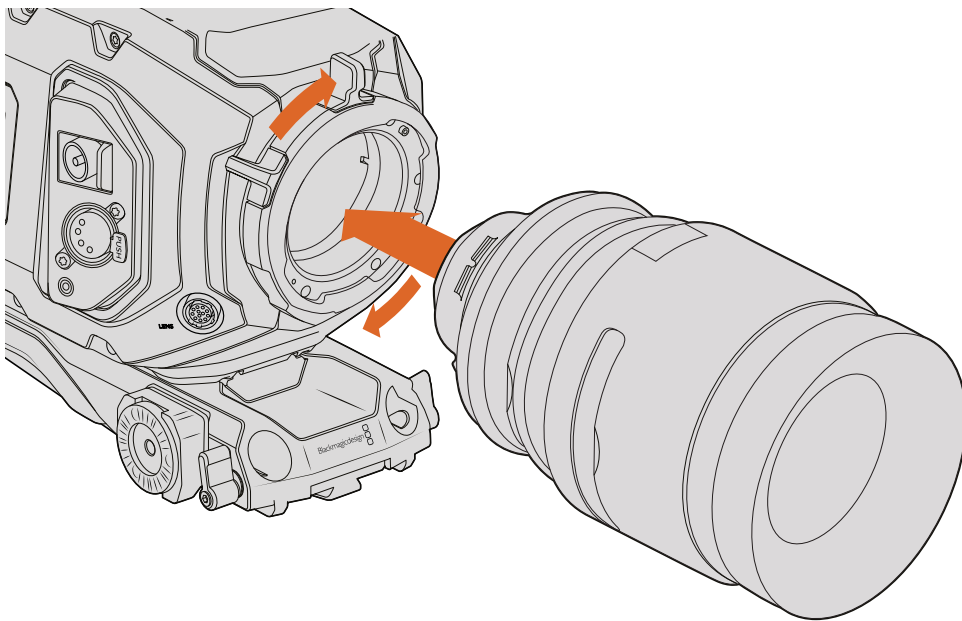
- 1 Align the dot on your lens with the dot on the camera mount. Many lenses have a visual indicator, for example a blue, red or white dot.
- 2 Twist the lens clockwise until it locks into place.
- 3 To remove the lens, hold down the locking button, rotate the lens counterclockwise until its dot or indicator reaches the 12 o'clock position, and gently remove.



Attaching and removing an EF mount lens on Blackmagic URSA Mini EF

### To attach a PL mount lens:

- 1 Open your camera's PL locking ring by rotating it counterclockwise until it stops.
- 2 Align one of the lens' four flange notches with the locating pin on the camera mount. Be sure to align the lens for easy viewing of the lens marks.
- 3 Tighten the PL locking ring by rotating it clockwise. If attaching a PL lens with a servo unit to URSA Mini PL or URSA Mini Pro 4.6K, you can also connect the 12 pin broadcast connector for servo control.
- 4 To remove the lens, rotate the locking ring counterclockwise until it stops, then gently remove the lens by pulling it directly out from the camera body. There is no need to rotate the lens.



Attaching and removing a PL lens on Blackmagic URSA Mini PL

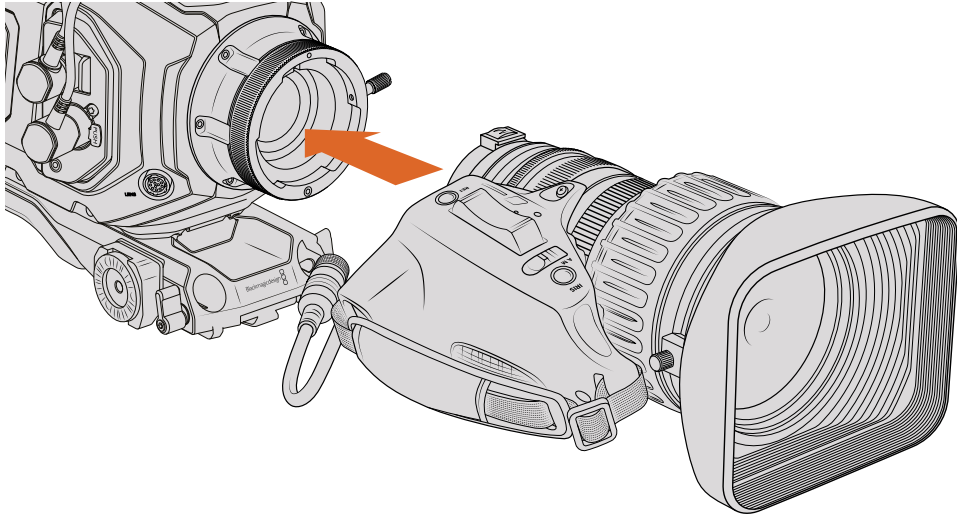
**TIP** URSA Mini Pro 4.6K PL and URSA Mini PL support PL 35mm lenses with servo handgrips, such as Fujinon Cabrio lenses, Canon CN7x17KAS S and Canon CN20x50 CINE-SERVO 50-1000mm T5.0-T8.9 lenses. The 12-pin broadcast connector on the lens must be plugged in to the broadcast lens control connector on the camera to provide power and control signals from your URSA Mini to the lens.

**NOTE** When no lens is attached to the camera, the glass filter covering the sensor is exposed to dust and other debris so you should keep the dust cap on whenever possible.



### To attach a B4 mount lens:

- 1 Turn the B4 lens locking ring counterclockwise to reveal the alignment pin inside the top of the mount. Align the B4 lens to your URSA Mini's B4 mount so the registration slot on the lens mount matches the position of the alignment pin.
- 2 Hold the lens against the B4 mount so the mount plates are against each other. Make sure the alignment pin is secured inside the registration slot.
- 3 Turn the locking ring clockwise to tighten the lens against the mount and lock it into position.

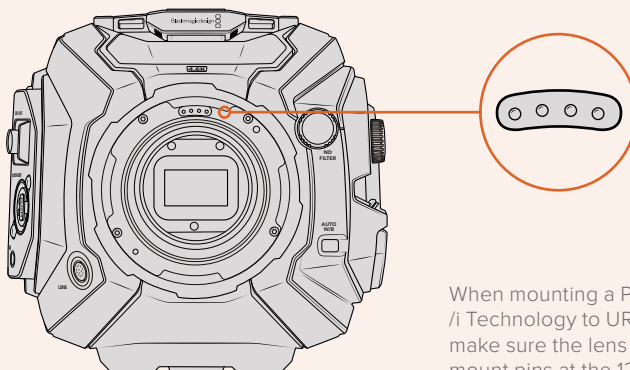


Attaching and removing a B4 lens on Blackmagic URSA Mini PL with B4 mount

To power the lens and provide lens control, simply plug the lens cable into the connector marked 'Lens' on the front of your URSA Mini PL or URSA Mini Pro 4.6K's turret. Most B4 lenses will have the Hirose 12 pin connector and cable built in. This will provide power and control signals from your URSA Mini to the lens. For information on the types of B4 lenses and how to use them with your camera, refer to the 'Using B4 Lenses' section towards the end of the manual.

### URSA Mini Pro 4.6K

URSA Mini Pro 4.6K's PL mount features four pins at the 12 o'clock position that are used to communicate with Cooke lenses featuring Cooke's /i Technology interface. This lets you record lens information in your clips' metadata such as the lens model, focal length, aperture setting, focus distance and other lens specific information.



When mounting a PL lens with /i Technology to URSA Mini Pro 4.6K, make sure the lens pins align with the mount pins at the 12 o'clock position

The information that is recorded as metadata via Cooke's /i Technology interface can be very helpful in post production and VFX. Knowing the lenses used in production and their precise settings can be helpful in the event that the setup needs to be replicated at a later date.

This detailed information can also be utilised by powerful applications such as DaVinci Resolve and Blackmagic Fusion for a wide variety of advanced functions. For example, the recorded metadata can be used to simulate the specific lens in 3D space, or correct lens distortions.

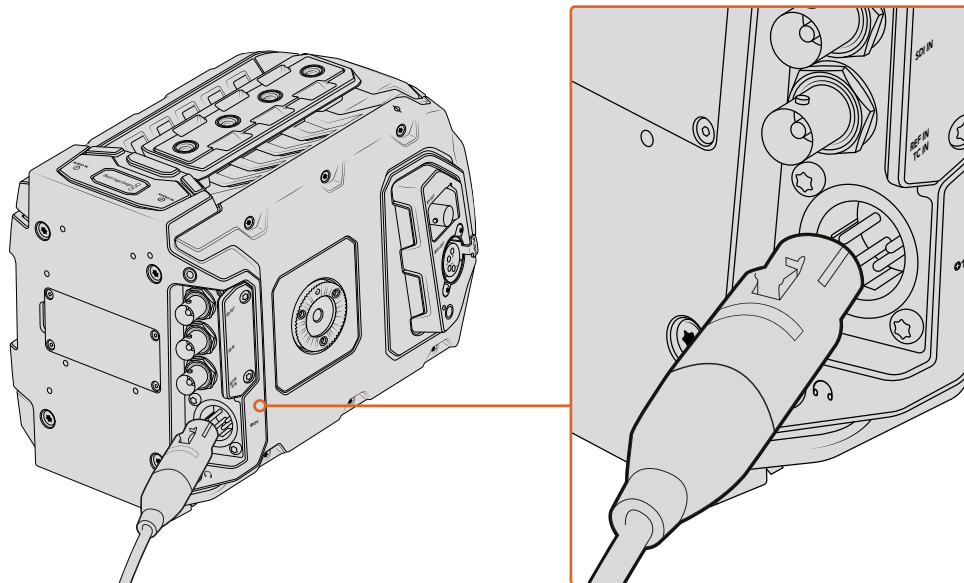
## Powering your Camera

Now that you've attached a lens, you will need to supply power. The quickest way to power your camera is to connect external power using the supplied AC to 12V DC adapter.

### To plug in external power:

- 1 Connect the AC to 12V DC adapter plug to your mains power socket.
- 2 Connect the AC to 12V DC adapter's 4 pin XLR connector to the 12-20V DC power connector on the camera.

If you have both external and battery power connected, only external power will be used. If you remove external power while a charged battery is connected, your camera will switch to battery power without interruption.



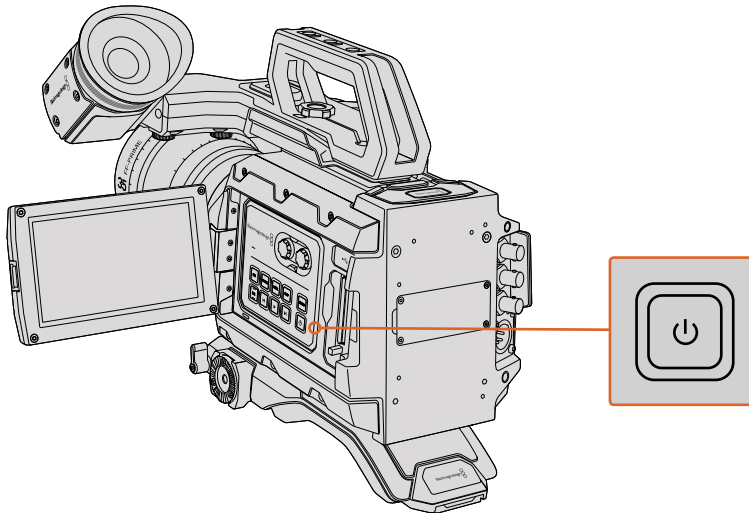
Use the supplied 12V AC adapter to power your Blackmagic URSA Mini

You can use industry standard third party external batteries such as V mount or gold mount batteries with your URSA Mini. Refer to the 'mounting Batteries' section for more information about mounting the different types of battery plates to support different batteries.

## To turn on URSA Mini:

- 1 Press and release the 'power' button. On Blackmagic URSA Mini, the power button is located on the control panel behind the fold out LCD. Simply open the LCD to access the control panel.
- 2 Press and hold the 'power' button to turn your camera off.

You are now ready to insert CFast 2.0 cards and start recording!

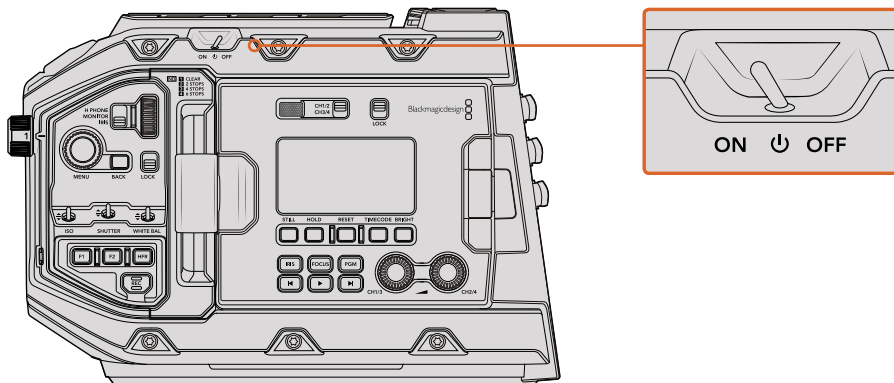


To turn on your URSA Mini, open the fold out LCD touchscreen, then press and release the power button on the control panel. Press and hold to turn off

**TIP** When turning the camera on, make sure you promptly press and release the button. Your camera will take approximately 10 seconds to boot up, but there is no need to press the button again. When turning off, press and hold the button until the camera powers off.

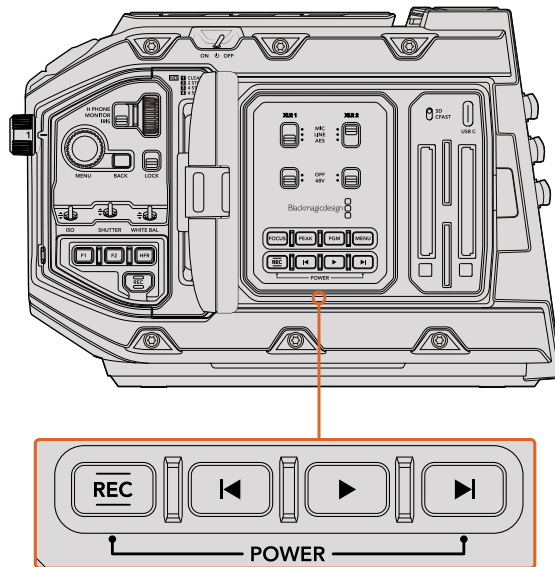
## To turn on URSA Mini Pro 4.6K:

- 1 On Blackmagic URSA Mini Pro 4.6K, a power switch is also located above the fold out LCD. Move the switch to the 'on' position to power your camera.
- 2 To turn the camera off, move the switch to the 'off' position.



Move the power switch to 'on' to power your camera

URSA Mini Pro 4.6K also features a redundant power switch, which allows the camera to be turned on and off by holding down the 'rec' and 'forward step' buttons on the inside control panel. While you wouldn't normally power your camera using this method, it is provided as a helpful alternative if the power switch along the top edge is obscured, for example when mounted on a custom rig.



If you need to, you can also hold down the record and forward step buttons on the control panel behind the LCD to power your camera on or off

**TIP** If your URSA Mini Pro 4.6K's power switch is set to 'on' and your camera is turned off, it may have been powered down by holding the control panel buttons. Simply toggle the power switch 'off' and 'on,' or hold the control panel buttons to power the camera on.

# Storage Media

URSA Mini uses CFast 2.0 cards to record 4.6K, 4K, Ultra HD, 2K or HD video. URSA Mini Pro 4.6K can also record video using fast UHS-II and UHS-I SD cards.

## CFast Cards

CFast 2.0 cards are capable of supporting very high data rates, so are perfect for recording HD and 4K video at high frame rates. Refer to the record duration table in the 'recording' section for details on the maximum frame rates that can be recorded in each format.

**NOTE** While CFast 2.0 cards are generally high speed cards, some cards have slower write speeds compared to read speeds, and maximum data rates can differ between models. To ensure reliable recording in your chosen frame rates, use only the recommended cards listed in this section.

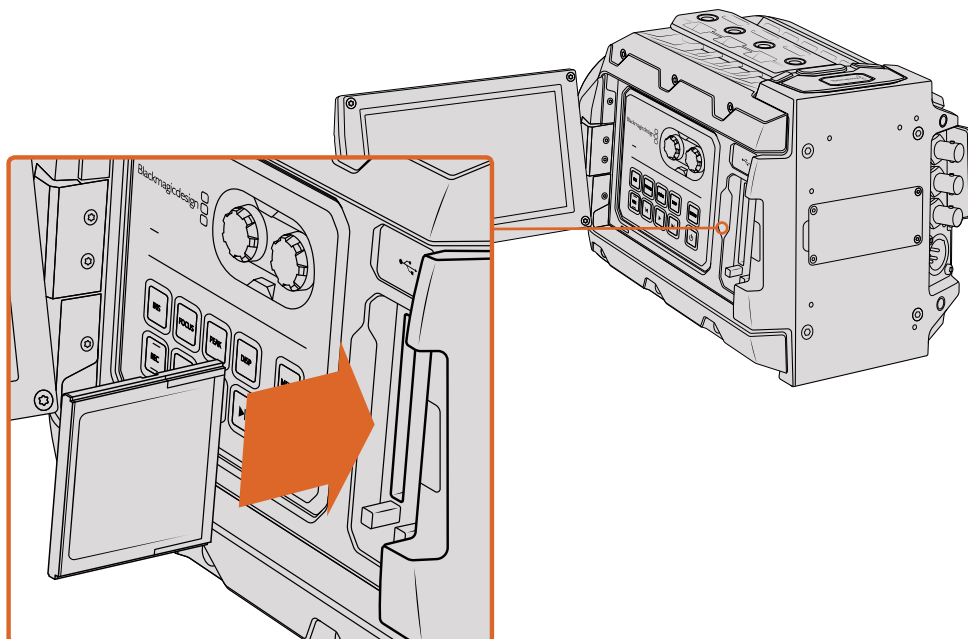
### Inserting a CFast Card

If you're using URSA Mini Pro 4.6K, your camera can also record on SD cards. To record using CFast cards you need to set your camera accordingly. To do this, simply set the storage media switch above the media slots to the 'CFAST' position.

#### To insert a CFast card.

- 1 Open the fold out monitor to access the CFast slots.
- 2 With the label on the CFast card facing the touchscreen, insert the card until you feel it lock into place. Push the CFast card ejector button to eject the card.

The storage information at the bottom of the LCD touchscreen will show the name and record time remaining of the detected CFast cards.



Blackmagic URSA Mini has two CFast slots for continuous recording

## Choosing a CFast 2.0 Card

When working with high data rate video it's important to carefully check the CFast card you would like to use. This is because CFast 2.0 cards have different read/write speeds. Some cards can record sustained RAW video, and some are suited to compressed recording using ProRes and compressed RAW formats.

### The following CFast 2.0 cards are recommended for 4K ProRes 422 HQ up to 60 fps

| Brand        | Card Name                     | Storage |
|--------------|-------------------------------|---------|
| Angelbird    | AVpro CF                      | 160GB   |
| Angelbird    | AVpro CF                      | 240GB   |
| Komputer Bay | 3400x CFast 2.0 Card          | 64GB    |
| Komputer Bay | 3400x CFast 2.0 Card          | 128GB   |
| Komputer Bay | 3600x CFast 2.0 Card          | 64GB    |
| Lexar        | Professional 3500x            | 64GB    |
| Lexar        | Professional 3500x            | 128GB   |
| Lexar        | Professional 3500x            | 256GB   |
| Lexar        | Professional 3600x            | 128GB   |
| Lexar        | Professional 3600x            | 256GB   |
| SanDisk      | Extreme Pro. SDCFSP-128G-x46D | 128GB   |
| SanDisk      | Extreme Pro. SDCFSP-256G-x46D | 256GB   |
| Transcend    | CFX650. TS128GCFX650          | 128GB   |
| Transcend    | CFX650. TS256GCFX650          | 256GB   |
| Transcend    | CFX650. TS128GCFX650BM        | 128GB   |
| Transcend    | CFX650. TS256GCFX650BM        | 256GB   |
| Wise         | CFast 2.0 3400x               | 128GB   |
| Wise         | CFast 2.0 3400x               | 256GB   |
| Wise         | CFast 2.0 3500x               | 512GB   |

The following CFast 2.0 cards are recommended for 4K ProRes 422 HQ up to 60 fps but have been discontinued by the manufacturer.

| Brand | Card Name          | Storage |
|-------|--------------------|---------|
| Lexar | Professional 3400x | 32GB    |
| Lexar | Professional 3400x | 64GB    |
| Lexar | Professional 3400x | 128GB   |
| Lexar | Professional 3400x | 256GB   |

**The following CFast 2.0 cards are recommended for 4K RAW up to 30 fps**

| Brand     | Card Name                     | Storage |
|-----------|-------------------------------|---------|
| Lexar     | Professional 3500x            | 128GB   |
| Lexar     | Professional 3500x            | 256GB   |
| Lexar     | Professional 3600x            | 128GB   |
| Lexar     | Professional 3600x            | 256GB   |
| SanDisk   | Extreme Pro. SDCFSP-128G-x46D | 128GB   |
| SanDisk   | Extreme Pro. SDCFSP-256G-x46D | 256GB   |
| Transcend | CFX650. TS128GCFX650          | 128GB   |
| Transcend | CFX650. TS256GCFX650          | 256GB   |
| Transcend | CFX650. TS128GCFX650BM        | 128GB   |
| Transcend | CFX650. TS256GCFX650BM        | 256GB   |
| Wise      | CFast 2.0 3400x               | 128GB   |
| Wise      | CFast 2.0 3400x               | 256GB   |

The following CFast 2.0 cards are recommended for 4K RAW up to 30 fps but have been discontinued by the manufacturer.

| Brand | Card Name          | Storage |
|-------|--------------------|---------|
| Lexar | Professional 3400x | 128GB   |
| Lexar | Professional 3400x | 256GB   |

For the most up to date information on supported CFast cards for URSA and URSA Mini please refer to the Blackmagic Design support center at [www.blackmagicdesign.com/support](http://www.blackmagicdesign.com/support).

**NOTE** Only the 'D-series' of Sandisk CFast 2.0 cards have been certified for use with Blackmagic URSA Mini. These cards can be identified by a large 'D' printed on the back of the card in the lower left corner, and we have also listed the model numbers to make them easier to identify. This model number varies slightly from region to region, with the 'x' in the model number changing in different markets. For example, an 'A' in the US and a 'G' in the Asia Pacific and Europe region.

## SD Cards

In addition to CFast 2.0 cards, Blackmagic URSA Mini Pro 4.6K can record on high speed UHS-I and UHS-II type SD cards. Using high end SDXC UHS-II cards, you can even record ProRes HQ footage in 2160p for Ultra HD content!

With SD cards, you can use more affordable storage media when shooting compressed video formats in HD. SDXC and SDHC are a very common media storage format for consumer still and video cameras.

If you've ever shot video using a DSLR, or use a Blackmagic Micro Cinema Camera, Pocket Cinema Camera or Blackmagic Video Assist, you probably already have compatible SD cards to use.

For projects that don't require the highest resolution RAW files, or for when long recording durations are needed, using SD cards can be very economical. Lower capacity and lower speed SD cards can also be used for storing and loading LUT's and Presets.

We have included a list that shows the latest compatible SD cards for recording Ultra HD and HD video. It's worth regularly checking the latest version of this manual for more up to date information, which is available for download from the Blackmagic Design website at [www.blackmagicdesign.com/support](http://www.blackmagicdesign.com/support)

**NOTE** For high resolution, high frame rate and RAW recording, we recommend using CFast 2.0 media, which is typically faster and is available in higher capacities.

**The following SD cards are recommended for recording up to 2160p ProRes HQ**

| Brand               | Card Name                 | Storage |
|---------------------|---------------------------|---------|
| Delkin Devices      | SDHC UHS-II 250MB/s       | 32GB    |
| Lexar               | SDXC UHS-II 2000x 300Mb/s | 64GB    |
| SanDisk Extreme PRO | SDXC UHS-II 300MB/s       | 64GB    |
| Transcend           | SDXC UHS-II 180MB/s       | 64GB    |

**The following SD cards are recommended for recording up to 1080p ProRes HQ**

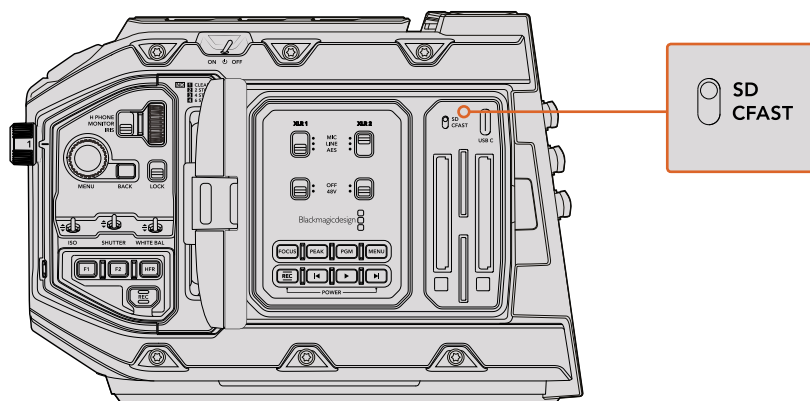
| Brand                | Card Name         | Storage |
|----------------------|-------------------|---------|
| SanDisk Extreme PRO  | SDXC UHS-I 95MB/s | 32GB    |
| SanDisk Extreme PRO  | SDXC UHS-I 95MB/s | 64GB    |
| SanDisk Extreme Plus | SDXC UHS-I 90MB/s | 64GB    |
| SanDisk Extreme      | SDXC UHS-I 90MB/s | 64GB    |

For the most up to date information on supported SD cards for URSA Mini Pro please refer to the Blackmagic Design support center at [www.blackmagicdesign.com/support](http://www.blackmagicdesign.com/support).

### Inserting an SD Card

**To insert an SD Card.**

- 1 Open the fold out monitor to access the SD card slots. These are the smaller slots located between the CFast slots.
- 2 Set the storage media toggle switch above the slots to 'SD'.
- 3 With the label on the SD card card facing away from the touchscreen, insert the card until you feel it lock into place. To remove an SD card, push the SD card in to eject it.
- 4 The storage indicator at the bottom of the LCD touchscreen will show the name and record time remaining of detected cards.



When recording to SD cards on URSA Mini Pro 4.6K make sure the storage media selection switch is set to 'SD'



## Choosing a fast SD Card

If you are recording Ultra HD on Blackmagic URSA Mini Pro 4.6K, then we recommend using the fastest high speed UHS-II type SD cards available. It's important to use high speed UHS-II SD cards for Ultra HD and HD recording, or UHS-1 cards for HD recording. These cards are rated for fast data speeds and support larger storage sizes. Generally the faster the cards, the better. Refer to the recommended SD cards table earlier in this section for more information.

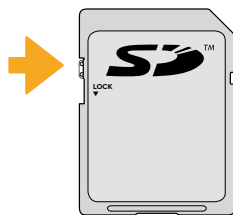
Before using your cards, you will need to format them to either HFS+ or exFAT formats. It's easy to format your media via the 'storage' settings. Refer to the 'settings' section for more information on storage settings.

If you want to, you can format your cards using a Mac or Windows computer. When using your media on Mac OS then you can use HFS+ which is the Mac disk format. If you are using Windows then you should use exFAT format, which is the Windows disk format and Mac computers can also read exFAT format.

## Locking and Unlocking SD Cards

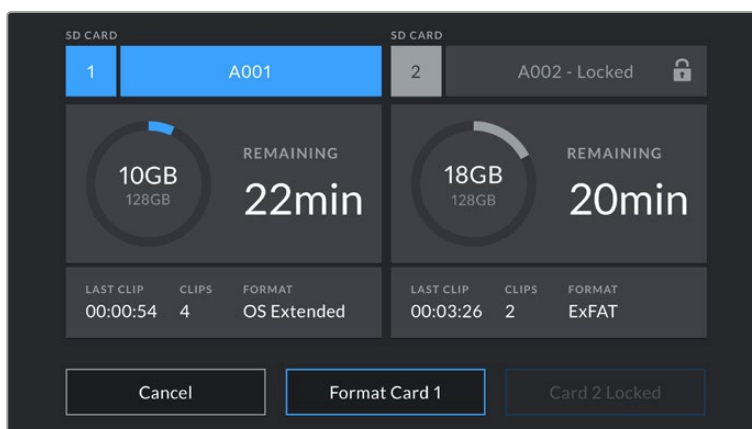
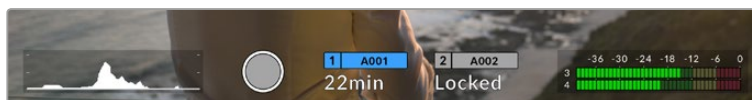
SD cards can be write protected, or 'locked', to prevent data from being overwritten.

When inserting an SD card, make sure the card is not write protected. Write protection is disabled by moving the plastic switch on the left side of the card to the position closest to the connectors. After recording, you can then write protect the card by sliding the switch back down to the bottom position.



Move the lock tab up or down to lock or unlock an SD card

Your URSA Mini Pro 4.6K will let you know if you've inserted a locked SD card by displaying a 'locked' icon on the LCD touchscreen and storage menu. If the card is locked, you won't be able to export LUTs and presets until it is unlocked.



Your URSA Mini Pro 4.6K will indicate when locked SD storage media is inserted

## Preparing Media for Recording

You can format your CFast or SD cards using the 'format card' feature on URSA Mini's storage and formatting screen, or via a Mac or Windows computer. We recommend formatting storage media using URSA Mini for best performance.

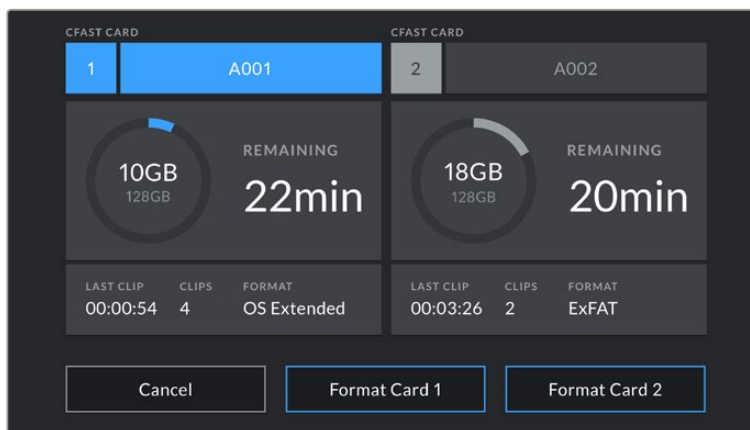
HFS+ is also known as Mac OS extended and is the recommended format as it supports 'journaling'. Data on journaled media is more likely to be recovered in the rare event that your CFast card becomes corrupted. HFS+ is natively supported by Mac OS.

ExFAT is supported natively by Mac OS and Windows without needing to purchase any additional software. However, exFAT does not support journaling.

**NOTE** Before formatting your media, it's important to make sure the media storage switch has been set correctly to either SD card or CFast card. Always carefully check the settings before formatting.

## Preparing Media on Blackmagic URSA Mini

- 1 Tap either storage indicator at the bottom of the LCD touchscreen to enter the storage manager.
- 2 Tap 'Format Card 1' or 'Format Card 2' to format the CFast card in slot 1 or 2, respectively.
- 3 Choose OS X Extended or exFAT format and tap the 'format card' button.
- 4 You will be asked to confirm your selection. Tap 'format card' again to continue or 'cancel' to cancel the format.



Use your URSA Mini's storage manager to format your camera's CFast cards

- 5 A progress bar will show you the status of the format. You will be notified when the format is complete.
- 6 Tap 'ok' to return to the storage manager.
- 7 Tap 'exit' to leave the storage manager.

When formatting CFast cards or SD cards using the storage manager, your URSA Mini will use the Camera ID and reel number in the slate to name the card. See the 'entering metadata' section of this manual for more information.

**TIP** If your URSA Mini Pro 4.6K is set to record to SD cards and you have inserted a locked card, you will be unable to format that card. A padlock icon and 'locked' will appear next to the card's name in the storage manager. Simply unlock the card to format and record. For more information on locking SD cards, see the 'SD cards' section of this manual.

### Preparing Media on Blackmagic URSA Mini Pro 4.6K

The process for preparing storage media on your URSA Mini Pro 4.6K is exactly the same as the URSA Mini process outlined above. The only difference is the added option to format SD cards as well as CFast cards. It's worth mentioning that if your camera's media storage switch is set to SD or CFast, only the selected card type will be formatted when you tap 'format card'.

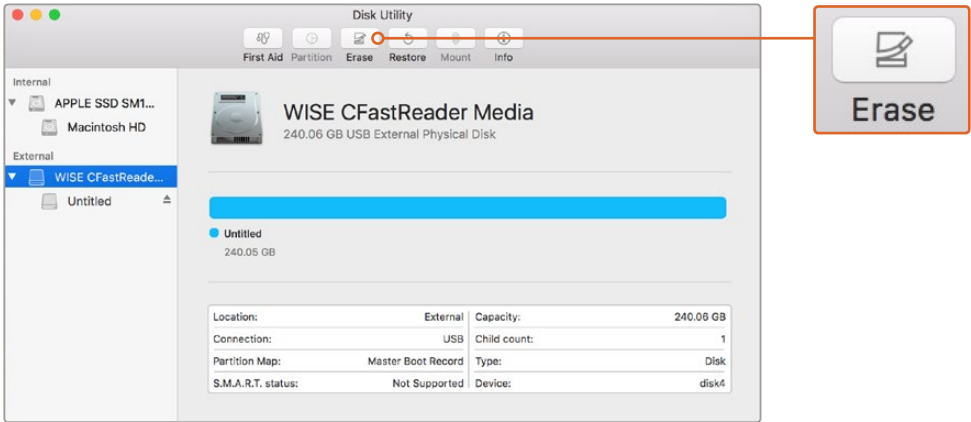


The storage manager on your URSA Mini Pro 4.6K will indicate whether you are currently managing CFast or SD media

For information on switching between CFast and SD storage see the 'SD Cards' section earlier in this manual.

### Preparing Media on Mac

Use the Disk Utility application included with Mac OS to format your card in the HFS+ or exFAT formats. Remember to back up anything important from your CFast or SD card as all data will be lost when it is formatted.

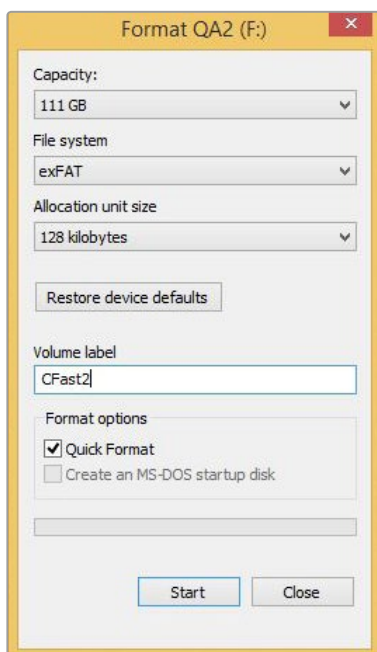


Use Disk Utility on Mac OS to erase your CFast card in the Mac OS extended (journaled) or exFAT format

- 1 Connect the CFast or SD card to your computer using a CFast 2.0 or SD reader/writer or CFast drive, and dismiss any message offering to use your card for Time Machine backups.
- 2 Go to applications/utilities and launch Disk Utility.
- 3 Click on the disk icon of your CFast or SD card and then click the 'erase' tab.
- 4 Set the 'format' to 'Mac OS extended (journaled)' or 'exFAT'.
- 5 Type a 'name' for the new volume and then click 'erase'. Your CFast or SD card will quickly be formatted and made ready for use.

## Preparing Media on Windows

The 'format' dialog box can format a drive in the exFAT format on a Windows PC. Remember to back up anything important from your card as all data will be lost when it is formatted.



Use the 'format' dialog box feature in Windows to format your CFast or SD card in the exFAT format

- 1 Connect the CFast or SD card to your computer using an external reader/writer or CFast drive.
- 2 Open the 'start' menu or 'start' screen and choose 'computer'. Right click on your CFast or SD card.
- 3 From the contextual menu, choose 'format'.
- 4 Set the file system to 'exFAT' and the allocation unit size to 128 kilobytes.
- 5 Type a volume label, select 'quick format' and click 'start'.
- 6 Your storage media will quickly be formatted and made ready for use.

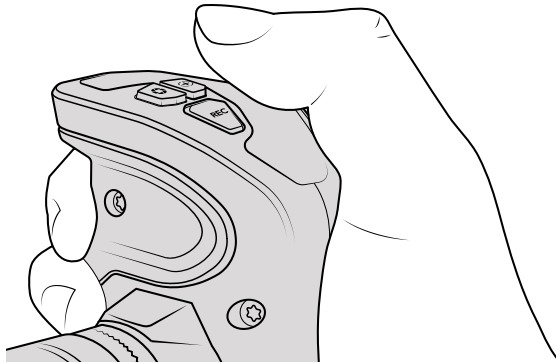
**NOTE** If you are dropping frames, check that your card is on our list of recommended media for the codec and frame size you are using. For lower data rates try lowering your frame rate, resolution, or try a compressed codec such as ProRes. Check the Blackmagic Design website for the latest information at [www.blackmagicdesign.com](http://www.blackmagicdesign.com)

# Recording

## Recording Clips

On Blackmagic URSA Mini you can start recording by pressing the red 'record' button on the inside control panel, the touchscreen, or the side handle. A 'record' button is also on the outside of the fold out monitor. Press the 'record' button again to stop recording.

On Blackmagic URSA Mini Pro 4.6K, the record button on the fold out monitor is located closer to the front of the camera for convenient access when shooting from the shoulder.



You can also record clips by pressing the 'record' button marked REC on URSA Mini's side handle

**TIP** Blackmagic URSA Mini cameras have a LANC input so you can easily attach an external LANC controller and trigger the record externally. For example, you may want to attach a LANC controller to your tripod so you can trigger the recording without taking your hands off the focus ring and tripod handle.

**NOTE** If you toggle the 'storage media selection' switch mid-recording, the camera will complete the current recording before switching to the other type of media. This ensures that you can not damage your recording if the switch is adjusted during a take.

## Choosing the Codec, Resolution and Sensor Area

Your Blackmagic URSA Mini records using CinemaDNG RAW codecs with a choice of lossless RAW or compressed RAW, as well as Apple ProRes compressed codecs. Sensor frame rate options will vary depending on the codec and resolution you choose.

It's worth noting that clips recorded using RAW 4:1 and RAW 3:1 compression are compatible with DaVinci Resolve, but may be incompatible with other software applications. If you plan on using other editing software, you should check its compatibility with compressed RAW formats before filming.

**TIP** When shooting with URSA Mini Pro 4.6K and recording to SD cards, its best to choose a lower resolution and quality such as Ultra HD ProRes HQ or lower.

## Maximum Sensor Frame Rates

The tables below contain available codecs, resolutions and their maximum sensor frame rates for URSA Mini 4K.

| URSA Mini 4K |            |              |             |                |
|--------------|------------|--------------|-------------|----------------|
|              | Resolution | Codec        | Sensor scan | Max Frame Rate |
| 4K           | 4000x2160  | Lossless RAW | Full        | 60 (dual card) |
|              | 4000x2160  | RAW 3:1      | Full        | 60             |
|              | 4000x2160  | RAW 4:1      | Full        | 60             |
| Ultra HD     | 3840x2160  | ProRes 444XQ | Full        | 40             |
|              | 3840x2160  | ProRes 444   | Full        | 40             |
|              | 3840x2160  | ProRes HQ    | Full        | 60             |
|              | 3840x2160  | ProRes 422   | Full        | 60             |
|              | 3840x2160  | ProRes LT    | Full        | 60             |
|              | 3840x2160  | ProRes Proxy | Full        | 60             |
| HD           | 1920x1080  | ProRes 444XQ | Full        | 60             |
|              | 1920x1080  | ProRes 444   | Full        | 60             |
|              | 1920x1080  | ProRes HQ    | Full        | 60             |
|              | 1920x1080  | ProRes 422   | Full        | 60             |
|              | 1920x1080  | ProRes LT    | Full        | 60             |
|              | 1920x1080  | ProRes Proxy | Full        | 60             |
|              | 1920x1080  | ProRes 444XQ | Window      | 80             |
|              | 1920x1080  | ProRes 444   | Window      | 80             |
|              | 1920x1080  | ProRes HQ    | Window      | 120            |
|              | 1920x1080  | ProRes 422   | Window      | 120            |
|              | 1920x1080  | ProRes LT    | Window      | 120            |
|              | 1920x1080  | ProRes Proxy | Window      | 120            |

The tables below contain available codecs, resolutions and their maximum sensor frame rates for URSA Mini 4.6K and URSA Mini Pro 4.6K models.

| <b>URSA Mini 4.6K and URSA Mini Pro 4.6K</b> |                   |              |                    |                       |
|--|-------------------|--------------|--------------------|-----------------------|
|  | <b>Resolution</b> | <b>Codec</b> | <b>Sensor scan</b> | <b>Max Frame Rate</b> |
| 4.6K   | 4608x2592         | Lossless RAW | Full               | 60 (dual card)        |
|  | 4608x2592         | RAW 3:1      | Full               | 60                    |
|  | 4608x2592         | RAW 4:1      | Full               | 60                    |
|  | 4608x2592         | ProRes 444XQ | Full               | 30                    |
|  | 4608x2592         | ProRes 444   | Full               | 30                    |
|  | 4608x2592         | ProRes HQ    | Full               | 40                    |
|  | 4608x2592         | ProRes 422   | Full               | 40                    |
|  | 4608x2592         | ProRes LT    | Full               | 40                    |
|  | 4608x2592         | ProRes Proxy | Full               | 40                    |
| 4.6K 2.4:1                                   | 4608x1920         | Lossless RAW | Window             | 60 (dual card)        |
|  | 4608x1920         | RAW 3:1      | Window             | 60                    |
|  | 4608x1920         | RAW 4:1      | Window             | 60                    |
|  | 4608x1920         | ProRes 444XQ | Window             | 40                    |
|  | 4608x1920         | ProRes 444   | Window             | 40                    |
|  | 4608x1920         | ProRes HQ    | Window             | 50                    |
|  | 4608x1920         | ProRes 422   | Window             | 50                    |
|  | 4608x1920         | ProRes LT    | Window             | 50                    |
|  | 4608x1920         | ProRes Proxy | Window             | 50                    |
| 4K 16:9                                      | 4096x2304         | Lossless RAW | Window             | 60 (dual card)        |
|  | 4096x2304         | RAW 3:1      | Window             | 60                    |
|  | 4096x2304         | RAW 4:1      | Window             | 60                    |
|  | 4096x2304         | ProRes 444XQ | Full or Window     | 30                    |
|  | 4096x2304         | ProRes 444   | Full or Window     | 30                    |
|  | 4096x2304         | ProRes HQ    | Full or Window     | 50                    |
|  | 4096x2304         | ProRes 422   | Full or Window     | 50                    |
|  | 4096x2304         | ProRes LT    | Full or Window     | 50                    |
|  | 4096x2304         | ProRes Proxy | Full or Window     | 50                    |

| URSA Mini 4.6K and URSA Mini Pro 4.6K |            |              |                |                |
|---------------------------------------|------------|--------------|----------------|----------------|
|                                       | Resolution | Codec        | Sensor scan    | Max Frame Rate |
| 4K DCI                                | 4096x2160  | Lossless RAW | Window         | 60 (dual card) |
|                                       | 4096x2160  | RAW 3:1      | Window         | 60             |
|                                       | 4096x2160  | RAW 4:1      | Window         | 60             |
|                                       | 4096x2160  | ProRes 444XQ | Full or Window | 40             |
|                                       | 4096x2160  | ProRes 444   | Full or Window | 40             |
|                                       | 4096x2160  | ProRes HQ    | Full or Window | 50             |
|                                       | 4096x2160  | ProRes 422   | Full or Window | 50             |
|                                       | 4096x2160  | ProRes LT    | Full or Window | 50             |
|                                       | 4096x2160  | ProRes Proxy | Full or Window | 50             |
| Ultra HD                              | 3840x2160  | Lossless RAW | Window         | 60 (dual card) |
|                                       | 3840x2160  | RAW 3:1      | Window         | 60             |
|                                       | 3840x2160  | RAW 4:1      | Window         | 60             |
|                                       | 3840x2160  | ProRes 444XQ | Full or Window | 40             |
|                                       | 3840x2160  | ProRes 444   | Full or Window | 40             |
|                                       | 3840x2160  | ProRes HQ    | Full or Window | 60             |
|                                       | 3840x2160  | ProRes 422   | Full or Window | 60             |
|                                       | 3840x2160  | ProRes LT    | Full or Window | 60             |
|                                       | 3840x2160  | ProRes Proxy | Full or Window | 60             |
| 3K Anamorphic                         | 3072x2560  | Lossless RAW | Window         | 60 (dual card) |
|                                       | 3072x2560  | RAW 3:1      | Window         | 60             |
|                                       | 3072x2560  | RAW 4:1      | Window         | 60             |
|                                       | 3072x2560  | ProRes 444XQ | Window         | 40             |
|                                       | 3072x2560  | ProRes 444   | Window         | 40             |
|                                       | 3072x2560  | ProRes HQ    | Window         | 60             |
|                                       | 3072x2560  | ProRes 422   | Window         | 60             |
|                                       | 3072x2560  | ProRes LT    | Window         | 60             |
|                                       | 3072x2560  | ProRes Proxy | Window         | 60             |



### URSA Mini 4.6K and URSA Mini Pro 4.6K

|         | Resolution | Codec        | Sensor scan | Max Frame Rate |
|---------|------------|--------------|-------------|----------------|
| 2K 16:9 | 2048x1152  | Lossless RAW | Window      | 120            |
|         | 2048x1152  | RAW 3:1      | Window      | 120            |
|         | 2048x1152  | RAW 4:1      | Window      | 120            |
|         | 2048x1152  | ProRes 444XQ | Window      | 120            |
|         | 2048x1152  | ProRes 444   | Window      | 120            |
|         | 2048x1152  | ProRes HQ    | Window      | 120            |
|         | 2048x1152  | ProRes 422   | Window      | 120            |
|         | 2048x1152  | ProRes LT    | Window      | 120            |
|         | 2048x1152  | ProRes Proxy | Window      | 120            |
|         | 2048x1152  | ProRes 444XQ | Full        | 60             |
|         | 2048x1152  | ProRes 444   | Full        | 60             |
|         | 2048x1152  | ProRes HQ    | Full        | 60             |
|         | 2048x1152  | ProRes 422   | Full        | 60             |
|         | 2048x1152  | ProRes LT    | Full        | 60             |
|         | 2048x1152  | ProRes Proxy | Full        | 60             |
| 2K DCI  | 2048x1080  | Lossless RAW | Window      | 120            |
|         | 2048x1080  | RAW 3:1      | Window      | 120            |
|         | 2048x1080  | RAW 4:1      | Window      | 120            |
|         | 2048x1080  | ProRes 444XQ | Window      | 120            |
|         | 2048x1080  | ProRes 444   | Window      | 120            |
|         | 2048x1080  | ProRes HQ    | Window      | 120            |
|         | 2048x1080  | ProRes 422   | Window      | 120            |
|         | 2048x1080  | ProRes LT    | Window      | 120            |
|         | 2048x1080  | ProRes Proxy | Window      | 120            |
|         | 2048x1080  | ProRes 444XQ | Full        | 60             |
|         | 2048x1080  | ProRes 444   | Full        | 60             |
|         | 2048x1080  | ProRes HQ    | Full        | 60             |
|         | 2048x1080  | ProRes 422   | Full        | 60             |
|         | 2048x1080  | ProRes LT    | Full        | 60             |
|         | 2048x1080  | ProRes Proxy | Full        | 60             |

| URSA Mini 4.6K and URSA Mini Pro 4.6K |            |              |             |                |
|---------------------------------------|------------|--------------|-------------|----------------|
|                                       | Resolution | Codec        | Sensor scan | Max Frame Rate |
| HD                                    | 1920x1080  | Lossless RAW | Window      | 120            |
|                                       | 1920x1080  | RAW 3:1      | Window      | 120            |
|                                       | 1920x1080  | RAW 4:1      | Window      | 120            |
|                                       | 1920x1080  | ProRes 444XQ | Window      | 120            |
|                                       | 1920x1080  | ProRes 444   | Window      | 120            |
|                                       | 1920x1080  | ProRes HQ    | Window      | 120            |
|                                       | 1920x1080  | ProRes 422   | Window      | 120            |
|                                       | 1920x1080  | ProRes LT    | Window      | 120            |
|                                       | 1920x1080  | ProRes Proxy | Window      | 120            |
|                                       | 1920x1080  | ProRes 444XQ | Full        | 60             |
|                                       | 1920x1080  | ProRes 444   | Full        | 60             |
|                                       | 1920x1080  | ProRes HQ    | Full        | 60             |
|                                       | 1920x1080  | ProRes 422   | Full        | 60             |
|                                       | 1920x1080  | ProRes LT    | Full        | 60             |
|                                       | 1920x1080  | ProRes Proxy | Full        | 60             |

#### To select your desired codec and resolution on Blackmagic URSA Mini.

- 1 Press the 'menu' button on the control panel.
- 2 Navigate to the first page of the 'record' tab.
- 3 Tap your desired combination of codec, quality, and resolution.
- 4 If you want to record using a windowed sensor area, navigate to page 2 of the 'record' menu and enable 'window sensor.' To record with the full sensor, set this to 'off'.
- 5 Press 'menu' to exit.

#### Recording Formats and Project Frame Rates

After setting your codec and resolution, you should set your 'project' and 'sensor' frame rates. Refer to the 'recording settings' section in this manual for more information about frame rates.

The project frame rates available for all URSA Mini cameras are as follows:

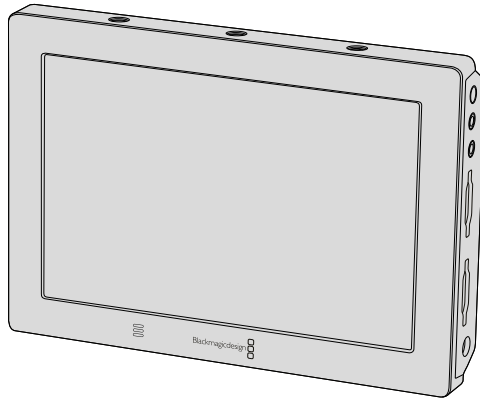
23.98, 24, 25, 29.97, 30, 50, 59.94, and 60 frames per second.

The only exception is ProRes 444XQ or ProRes 444, which offers project frame rates of 23.98, 24, 25, 29.97 and 30 when shooting higher than 2K 16:9 resolution. For lossless 4.6K and 4K RAW, frame rates above 30 fps use dual card mode on all URSA Mini cameras.

## Trigger Record

Your URSA Mini automatically sends a signal via the SDI outputs that will trigger recording when connected to equipment that supports the SDI trigger record feature, such as Blackmagic Video Assist. This means when you press record on your camera, your external SDI equipment will also start recording, then will stop recording when you press record again.

You will also need to set your equipment to enable SDI trigger recording to make sure it responds to the trigger signal from your URSA Mini. If your SDI equipment supports SDI trigger recording, it can usually be enabled using your SDI equipment's settings menu.



You can trigger recording on other SDI video equipment, for example Blackmagic Video Assist 4K, using the trigger record feature on your camera

**TIP** Sometimes in extremely cold weather conditions, for example 0-5° Celsius and 32-41° Fahrenheit, your URSA Mini 4K may take up to thirty seconds to reach optimal running temperature. During this time you can record if you need to, but we recommend waiting for your camera to warm up and stabilize. When optimal running temperature is achieved, your camera will recalibrate to compensate for the sensor's temperature change and you may notice a single white flash frame. This will only occur while not recording and will improve your results when shooting in cold climates.

## Record Duration Table

Tables are provided showing approximate record duration in minutes and seconds compared to format, project frame rate and media size. The maximum recording time for your storage media will vary depending on the data size of the CFast or SD card and the recording format and frame rate you choose. For example, the storage rate for Apple ProRes 422 HQ at 3840 x 2160 is approximately 880 Mbps. At 24 frames per second, you can record approximately 47 minutes of video on a 256GB CFast 2.0 or SD card. At the same settings you can record approximately 23 minutes of video on a 128GB CFast 2.0 or SD card, which is approximately half the record duration of the 256GB card.

It should be noted that record duration on CFast 2.0 and SD cards can also vary slightly between cards from different manufacturers. It can also vary depending on whether the storage media is formatted as ExFat or Mac OS Extended.

Simple scenes containing less detail tend to require less data than more dense compositions. The values in these tables assume shots with a high complexity, which means you may get slightly longer record times depending on the nature of your shoot.

| HD         |            |               |                   |                   |               |            |               |            |               |                  |
|------------|------------|---------------|-------------------|-------------------|---------------|------------|---------------|------------|---------------|------------------|
| CFast Card | Frame Rate | CinemaDNG RAW | CinemaDNG RAW 3:1 | CinemaDNG RAW 4:1 | ProRes 444 XQ | ProRes 444 | ProRes 422 HQ | ProRes 422 | ProRes 422 LT | ProRes 422 Proxy |
| 256GB      |            | Duration      | Duration          | Duration          | Duration      | Duration   | Duration      | Duration   | Duration      | Duration         |
|            | 23.98      | 75 mins       | 142 mins          | 175 mins          | 84 mins       | 127 mins   | 189 mins      | 283 mins   | 403 mins      | 877 mins         |
|            | 24         | 75 mins       | 142 mins          | 175 mins          | 84 mins       | 127 mins   | 189 mins      | 283 mins   | 403 mins      | 877 mins         |
|            | 25         | 72 mins       | 137 mins          | 168 mins          | 81 mins       | 122 mins   | 182 mins      | 271 mins   | 387 mins      | 843 mins         |
|            | 30         | 60 mins       | 114 mins          | 140 mins          | 67 mins       | 101 mins   | 152 mins      | 227 mins   | 324 mins      | 710 mins         |
|            | 50         | 36 mins       | 68 mins           | 84 mins           | 40 mins       | 61 mins    | 91 mins       | 137 mins   | 196 mins      | 434 mins         |
|            | 60         | 30 mins       | 57 mins           | 70 mins           | 33 mins       | 50 mins    | 76 mins       | 114 mins   | 163 mins      | 363 mins         |

| 2K DCI*    |            |               |                   |                   |               |            |               |            |               |                  |
|------------|------------|---------------|-------------------|-------------------|---------------|------------|---------------|------------|---------------|------------------|
| CFast Card | Frame Rate | CinemaDNG RAW | CinemaDNG RAW 3:1 | CinemaDNG RAW 4:1 | ProRes 444 XQ | ProRes 444 | ProRes 422 HQ | ProRes 422 | ProRes 422 LT | ProRes 422 Proxy |
| 256GB      |            | Duration      | Duration          | Duration          | Duration      | Duration   | Duration      | Duration   | Duration      | Duration         |
|            | 23.98      | 70 mins       | 133 mins          | 163 mins          | 74 mins       | 111 mins   | 166 mins      | 248 mins   | 353 mins      | 778 mins         |
|            | 24         | 70 mins       | 133 mins          | 163 mins          | 74 mins       | 111 mins   | 166 mins      | 248 mins   | 353 mins      | 778 mins         |
|            | 25         | 67 mins       | 127 mins          | 157 mins          | 71 mins       | 106 mins   | 159 mins      | 238 mins   | 339 mins      | 748 mins         |
|            | 30         | 56 mins       | 106 mins          | 131 mins          | 59 mins       | 89 mins    | 133 mins      | 199 mins   | 283 mins      | 629 mins         |
|            | 50         | 33 mins       | 64 mins           | 79 mins           | 35 mins       | 53 mins    | 80 mins       | 120 mins   | 171 mins      | 384 mins         |
|            | 60         | 28 mins       | 53 mins           | 65 mins           | 29 mins       | 44 mins    | 66 mins       | 100 mins   | 143 mins      | 321 mins         |

| 2K 16:9*   |            |               |                   |                   |               |            |               |            |               |                  |
|------------|------------|---------------|-------------------|-------------------|---------------|------------|---------------|------------|---------------|------------------|
| CFast Card | Frame Rate | CinemaDNG RAW | CinemaDNG RAW 3:1 | CinemaDNG RAW 4:1 | ProRes 444 XQ | ProRes 444 | ProRes 422 HQ | ProRes 422 | ProRes 422 LT | ProRes 422 Proxy |
| 256GB      |            | Duration      | Duration          | Duration          | Duration      | Duration   | Duration      | Duration   | Duration      | Duration         |
|            | 23.98      | 66 mins       | 125 mins          | 155 mins          | 74 mins       | 111 mins   | 166 mins      | 248 mins   | 353 mins      | 778 mins         |
|            | 24         | 66 mins       | 125 mins          | 155 mins          | 74 mins       | 111 mins   | 166 mins      | 248 mins   | 353 mins      | 778 mins         |
|            | 25         | 64 mins       | 120 mins          | 148 mins          | 71 mins       | 106 mins   | 159 mins      | 238 mins   | 339 mins      | 748 mins         |
|            | 30         | 53 mins       | 100 mins          | 124 mins          | 59 mins       | 89 mins    | 133 mins      | 199 mins   | 283 mins      | 629 mins         |
|            | 50         | 32 mins       | 60 mins           | 74 mins           | 35 mins       | 53 mins    | 80 mins       | 120 mins   | 171 mins      | 384 mins         |
|            | 60         | 26 mins       | 50 mins           | 62 mins           | 29 mins       | 44 mins    | 66 mins       | 100 mins   | 143 mins      | 321 mins         |

\* These resolutions are available on URSA Mini 4.6K and URSA Mini Pro 4.6K models only

### 3K Anamorphic\*

| CFast Card | Frame Rate | CinemaDNG RAW | CinemaDNG RAW 3:1 | CinemaDNG RAW 4:1 | ProRes 444 XQ | ProRes 444 | ProRes 422 HQ | ProRes 422 | ProRes 422 LT | ProRes 422 Proxy |
|------------|------------|---------------|-------------------|-------------------|---------------|------------|---------------|------------|---------------|------------------|
| 256GB      |            | Duration      | Duration          | Duration          | Duration      | Duration   | Duration      | Duration   | Duration      | Duration         |
|            | 23.98      | 20 mins       | 39 mins           | 48 mins           | 22 mins       | 33 mins    | 50 mins       | 75 mins    | 107 mins      | 242 mins         |
|            | 24         | 20 mins       | 39 mins           | 48 mins           | 22 mins       | 33 mins    | 50 mins       | 75 mins    | 107 mins      | 242 mins         |
|            | 25         | 19 mins       | 37 mins           | 46 mins           | 21 mins       | 32 mins    | 48 mins       | 72 mins    | 103 mins      | 232 mins         |
|            | 30         | 16 mins       | 31 mins           | 38 mins           | 17 mins       | 26 mins    | 40 mins       | 60 mins    | 85 mins       | 194 mins         |
|            | 50         | 9 mins        | 18 mins           | 23 mins           | –             | –          | 24 mins       | 36 mins    | 51 mins       | 117 mins         |
|            | 60         | 8 mins        | 15 mins           | 19 mins           | –             | –          | 20 mins       | 30 mins    | 43 mins       | 97 mins          |

### ULTRA HD

| CFast Card | Frame Rate | CinemaDNG RAW | CinemaDNG RAW 3:1 | CinemaDNG RAW 4:1 | ProRes 444 XQ | ProRes 444 | ProRes 422 HQ | ProRes 422 | ProRes 422 LT | ProRes 422 Proxy |
|------------|------------|---------------|-------------------|-------------------|---------------|------------|---------------|------------|---------------|------------------|
| 256GB      |            | Duration      | Duration          | Duration          | Duration      | Duration   | Duration      | Duration   | Duration      | Duration         |
|            | 23.98      | 19 mins       | 37 mins           | 45 mins           | 21 mins       | 31 mins    | 47 mins       | 71 mins    | 101 mins      | 230 mins         |
|            | 24         | 19 mins       | 37 mins           | 45 mins           | 21 mins       | 31 mins    | 47 mins       | 71 mins    | 101 mins      | 230 mins         |
|            | 25         | 18 mins       | 35 mins           | 43 mins           | 20 mins       | 30 mins    | 45 mins       | 68 mins    | 97 mins       | 221 mins         |
|            | 30         | 15 mins       | 29 mins           | 36 mins           | 16 mins       | 25 mins    | 38 mins       | 57 mins    | 81 mins       | 184 mins         |
|            | 50         | 9 mins        | 17 mins           | 21 mins           | –             | –          | 22 mins       | 34 mins    | 48 mins       | 111 mins         |
|            | 60         | 7 mins        | 14 mins           | 18 mins           | –             | –          | 18 mins       | 28 mins    | 40 mins       | 92 mins          |

### 4K DCI\*

| CFast Card | Frame Rate | CinemaDNG RAW | CinemaDNG RAW 3:1 | CinemaDNG RAW 4:1 | ProRes 444 XQ | ProRes 444 | ProRes 422 HQ | ProRes 422 | ProRes 422 LT | ProRes 422 Proxy |
|------------|------------|---------------|-------------------|-------------------|---------------|------------|---------------|------------|---------------|------------------|
| 256GB      |            | Duration      | Duration          | Duration          | Duration      | Duration   | Duration      | Duration   | Duration      | Duration         |
|            | 23.98      | 18 mins       | 34 mins           | 43 mins           | 19 mins       | 29 mins    | 44 mins       | 66 mins    | 95 mins       | 216 mins         |
|            | 24         | 18 mins       | 34 mins           | 43 mins           | 19 mins       | 29 mins    | 44 mins       | 66 mins    | 95 mins       | 216 mins         |
|            | 25         | 17 mins       | 33 mins           | 41 mins           | 18 mins       | 28 mins    | 42 mins       | 64 mins    | 91 mins       | 207 mins         |
|            | 30         | 14 mins       | 27 mins           | 34 mins           | 15 mins       | 23 mins    | 35 mins       | 53 mins    | 76 mins       | 173 mins         |
|            | 50         | 8 mins        | 16 mins           | 20 mins           | –             | –          | 21 mins       | 32 mins    | 45 mins       | 104 mins         |
|            | 60         | 7 mins        | 13 mins           | 17 mins           | –             | –          | –             | –          | –             | –                |

\* These resolutions are available on URSA Mini 4.6K and URSA Mini Pro 4.6K models only

### 4K 16:9\*

| CFast Card | Frame Rate | CinemaDNG RAW | CinemaDNG RAW 3:1 | CinemaDNG RAW 4:1 | ProRes 444 XQ | ProRes 444 | ProRes 422 HQ | ProRes 422 | ProRes 422 LT | ProRes 422 Proxy |
|------------|------------|---------------|-------------------|-------------------|---------------|------------|---------------|------------|---------------|------------------|
| 256GB      |            | Duration      | Duration          | Duration          | Duration      | Duration   | Duration      | Duration   | Duration      | Duration         |
|            | 23.98      | 17 mins       | 32 mins           | 40 mins           | 18 mins       | 27 mins    | 41 mins       | 62 mins    | 89 mins       | 202 mins         |
|            | 24         | 17 mins       | 32 mins           | 40 mins           | 18 mins       | 27 mins    | 41 mins       | 62 mins    | 89 mins       | 202 mins         |
|            | 25         | 16 mins       | 31 mins           | 38 mins           | 17 mins       | 26 mins    | 40 mins       | 60 mins    | 85 mins       | 194 mins         |
|            | 30         | 13 mins       | 26 mins           | 32 mins           | 14 mins       | 22 mins    | 33 mins       | 50 mins    | 71 mins       | 162 mins         |
|            | 50         | 8 mins        | 15 mins           | 19 mins           | –             | –          | 20 mins       | 30 mins    | 42 mins       | 97 mins          |
|            | 60         | 6 mins        | 13 mins           | 16 mins           | –             | –          | –             | –          | –             | –                |

### 4.6K 2.4:1\*

| CFast Card | Frame Rate | CinemaDNG RAW | CinemaDNG RAW 3:1 | CinemaDNG RAW 4:1 | ProRes 444 XQ | ProRes 444 | ProRes 422 HQ | ProRes 422 | ProRes 422 LT | ProRes 422 Proxy |
|------------|------------|---------------|-------------------|-------------------|---------------|------------|---------------|------------|---------------|------------------|
| 256GB      |            | Duration      | Duration          | Duration          | Duration      | Duration   | Duration      | Duration   | Duration      | Duration         |
|            | 23.98      | 18 mins       | 34 mins           | 42 mins           | 19 mins       | 29 mins    | 44 mins       | 66 mins    | 95 mins       | 216 mins         |
|            | 24         | 18 mins       | 34 mins           | 42 mins           | 19 mins       | 29 mins    | 44 mins       | 66 mins    | 95 mins       | 216 mins         |
|            | 25         | 17 mins       | 33 mins           | 41 mins           | 18 mins       | 28 mins    | 42 mins       | 64 mins    | 91 mins       | 207 mins         |
|            | 30         | 14 mins       | 27 mins           | 34 mins           | 15 mins       | 23 mins    | 35 mins       | 53 mins    | 76 mins       | 173 mins         |
|            | 50         | 8 mins        | 16 mins           | 20 mins           | –             | –          | 21 mins       | 32 mins    | 45 mins       | 104 mins         |
|            | 60         | 7 mins        | 13 mins           | 17 mins           | –             | –          | –             | –          | –             | –                |

### 4.6K\*

| CFast Card | Frame Rate | CinemaDNG RAW | CinemaDNG RAW 3:1 | CinemaDNG RAW 4:1 | ProRes 444 XQ | ProRes 444 | ProRes 422 HQ | ProRes 422 | ProRes 422 LT | ProRes 422 Proxy |
|------------|------------|---------------|-------------------|-------------------|---------------|------------|---------------|------------|---------------|------------------|
| 256GB      |            | Duration      | Duration          | Duration          | Duration      | Duration   | Duration      | Duration   | Duration      | Duration         |
|            | 23.98      | 13 mins       | 25 mins           | 31 mins           | 14 mins       | 21 mins    | 33 mins       | 49 mins    | 70 mins       | 160 mins         |
|            | 24         | 13 mins       | 25 mins           | 31 mins           | 14 mins       | 21 mins    | 33 mins       | 49 mins    | 70 mins       | 160 mins         |
|            | 25         | 13 mins       | 24 mins           | 30 mins           | 14 mins       | 21 mins    | 31 mins       | 47 mins    | 66 mins       | 154 mins         |
|            | 30         | 10 mins       | 20 mins           | 25 mins           | –             | 17 mins    | 26 mins       | 39 mins    | 56 mins       | 128 mins         |
|            | 50         | 6 mins        | 12 mins           | 15 mins           | –             | –          | –             | –          | –             | –                |
|            | 60         | 5 mins        | 10 mins           | 12 mins           | –             | –          | –             | –          | –             | –                |

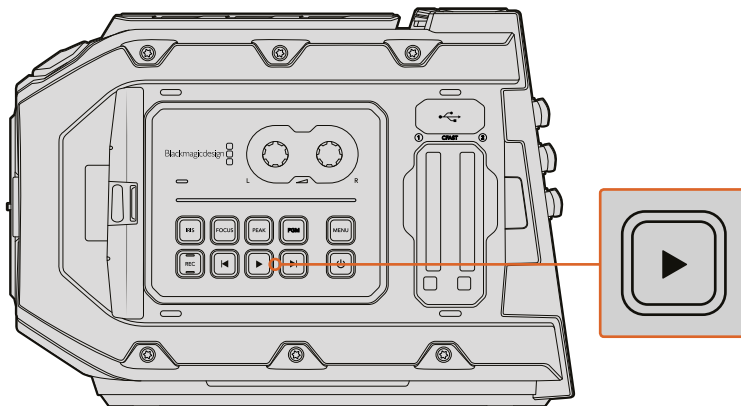
\* These resolutions are available on URSA Mini 4.6K and URSA Mini Pro 4.6K models only

# Playback

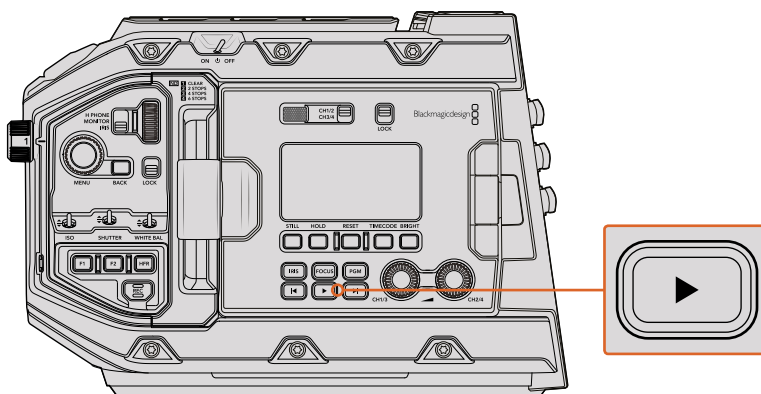
## Playing Back Clips

Once you have recorded your video, you can use the transport control buttons to play back your video.

Press the 'play' button once for instant playback and you'll see your recorded video on URSA Mini's LCD touchscreen. Your clips can also be viewed on any display connected to your URSA Mini's SDI outputs.



URSA Mini Camera



URSA Mini Pro 4.6K Camera

**TIP** Blackmagic URSA Mini has playback and transport controls buttons on both the internal and ergonomic control panels.

**NOTE** Blackmagic URSA Mini will play back clips of different quality settings as long as they are in the same codec, frame rate and resolution.

The controls of your camera work just like a CD player, so pressing the 'forward skip' button will skip to the start of the next clip. Press the 'reverse skip' button once to go to the start of the current clip or press twice to skip back to the start of the previous clip. Hold the 'forward' or 'reverse skip' button to play or reverse at 2x speed. Once shuttling forward or backwards, press the 'fast forward' or 'reverse skip' buttons twice for 4x, three times for x8 and four times for x16. You can also use the forward and reverse skip buttons to open or close the iris on compatible lenses while recording clips.

When recording a clip using a sensor frame rate that differs from your project frame rate, your clip's playback speed will also differ. For example, imagine you have set your camera's project frame rate to match your post production timeline of 24 frames per second. If you record a clip with your sensor frame rate set to 60 frames per second, your clips will play back in slow motion on both the camera and on your post production timeline.

**TIP** Refer to the 'recording settings' section of this manual for more information about frame rate.



# Introduction to URSA Mini

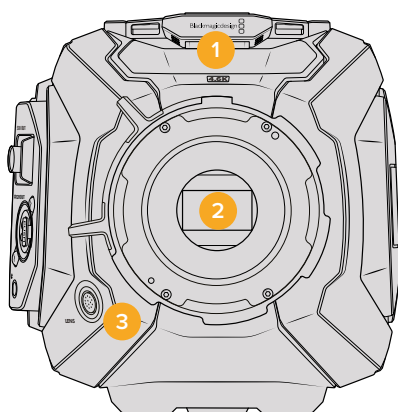
Industry standard BNC connectors are located on the right and rear panel of your URSA Mini for SDI connections. There are also two separate LANC inputs, one for the side handle and one for an external LANC controller.

XLR inputs are on the top panel behind the mounting points for professional balanced analog audio on URSA Mini and URSA Mini Pro 4.6K, and AES digital audio input on URSA Mini Pro 4.6K. A 4 pin XLR connector is provided on the rear panel for external power input, and an output is available on the right side for powering accessories such as Blackmagic URSA Viewfinder.

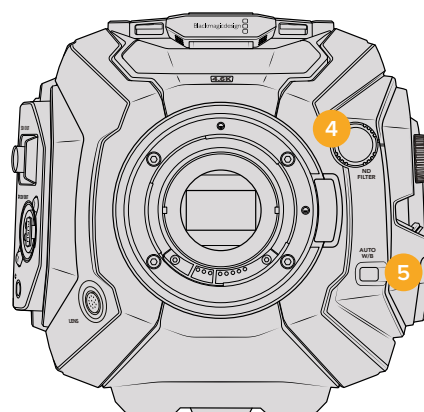
The USB port above the storage media slots on your URSA Mini is for connecting to a computer when updating your camera's internal software.

**NOTE** URSA Mini Pro 4.6K features additional ergonomic controls that make it easy to quickly access the camera's essential settings and functions without opening the foldout touchscreen.

## Camera Front



URSA Mini PL model



URSA Mini Pro 4.6K model

- 1 Stereo Microphone**

Built in high quality stereo microphone. Refer to the 'settings' section for information on microphone audio settings.
- 2 Lens Mount**

URSA Mini cameras feature either an EF or PL lens mount. URSA Mini Pro 4.6K features an interchangeable lens mount that allows switching between EF, PL and B4 mounts. Refer to the 'getting started' section for more information.
- 3 Broadcast Lens Connector**

This connector provides power and control to compatible PL and B4 mount lenses with 12 pin connections. This connector is only available on URSA Mini PL and URSA Mini Pro 4.6K models. Refer to the 'URSA Mini B4 lens' section in this manual for a list of compatible lenses, including PL and B4 models.
- 4 ND Filters**

Use this wheel to cycle through three built in neutral density filters, as well as a clear setting. See the section 'URSA Mini Pro 4.6K Control Buttons' for more information.

## 5 Auto White Balance

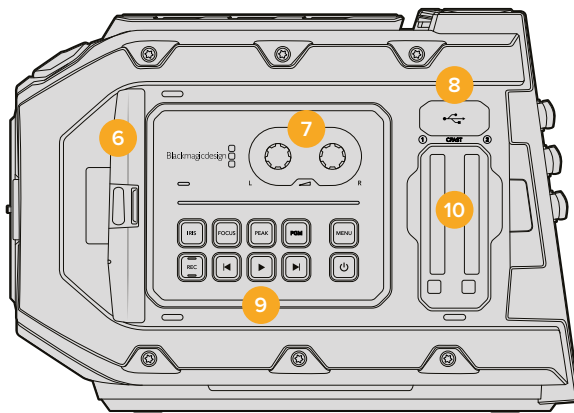
The auto white balance button is marked 'Auto W/B' and is used when you want to set the white balance based on the what is currently in the center of the screen. For example, setting auto white balance on a gray card placed in front of the lens. See the section 'URSA Mini Pro 4.6K Control Buttons' for more information.

## Left Side – URSA Mini

URSA Mini's left side panel lets you insert CFast cards, access the control panel and change settings. The USB port is located just above the CFast slots so you can easily plug into a computer when updating your URSA Mini's internal software.

## 6 Fold Out Touchscreen

5 inch fold out touchscreen monitor, pivots for viewing at different camera heights. Refer to the 'Blackmagic URSA Mini Features' section.



## 7 Audio Level Adjustment Knobs

Adjustment knobs to set the recording levels for audio channels 1 and 2. Refer to the 'Blackmagic URSA Mini Features' section.

## 8 Mini USB Port

Mini USB Port for updating internal software. Refer to the 'Blackmagic Camera Setup Utility' section on for more information.

## 9 Control Panel Buttons

Buttons for powering the camera, record and playback control, focus peaking, accessing the settings menu, plus iris and auto focus control on compatible EF lenses. Refer to the 'Blackmagic URSA Mini Features' section for more information.

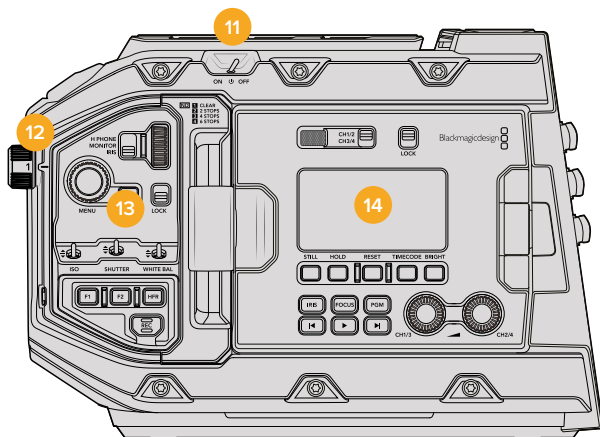
## 10 Memory Card Slots

Insert CFast 2.0 cards into the slots for record and playback. Refer to the 'storage media' section.

## Left Side – URSA Mini Pro 4.6K

URSA Mini Pro 4.6K's left side panel features additional controls for easy access to all of your camera's essential functions. These controls are split between the front control panel, the outside of the foldout touchscreen monitor, and a control panel on the inside of the foldout monitor.

CFast and SD card slots are located behind the foldout monitor. The USB C port is above these memory card slots, and is used to connect to a computer to update your URSA Mini Pro 4.6K's internal software.



URSA Mini Pro 4.6K model, foldout touchscreen closed

### 11 Power Switch

Power switch for turning on the camera. There is also a backup power switch inside the fold out monitor that allows the camera to be powered on by pressing both the record and forward clip buttons at the same time.

### 12 ND Filters

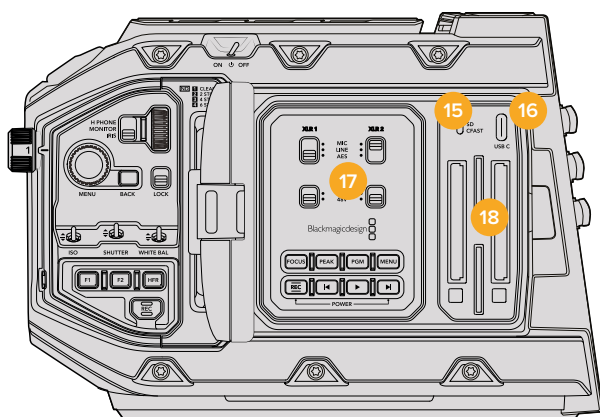
Your URSA Mini has three internal neutral density filters to adjust the amount of light reaching the sensor. Four settings are available, ranging from clear to six stops of light reduction. Simply turn this wheel to move through the available settings. You'll notice the filter click into place for each setting. For more information see the section 'URSA Mini Pro 4.6K control buttons' in this manual.

### 13 Forward Control Panel

The forward control panel provides quick access to all of your URSA Mini Pro 4.6K's essential functions. These controls are located for easy access when shooting on a tripod or on the shoulder, and you can use them to adjust settings such as ISO, shutter speed, iris, white balance, frame rate, and more. See the section 'URSA Mini Pro 4.6K control buttons' for more information.

### 14 Ergonomic Control Panel

On the outside of your URSA Mini Pro 4.6K's foldout touchscreen monitor, you'll find an LCD status monitor and a variety of controls for fast, powerful monitoring control. Here you can see all of your camera's status information at a glance, as well as controlling a variety of powerful monitoring functions. See the section 'URSA Mini Pro 4.6K control buttons' for more information.



URSA Mini Pro 4.6K model, foldout touchscreen open

#### 15 Storage Media Selection Switch

Use this switch to choose between CFast and SD storage media.

#### 16 USB Port

USB C port for updating internal software. See the section 'Blackmagic Camera Utility' for more information.

#### 17 Internal Control Panel

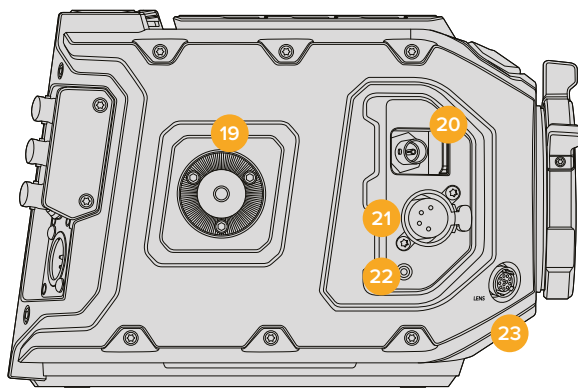
When your URSA Mini Pro 4.6K's foldout monitor is open, you have access to the internal control panel. Use the controls here to set your audio inputs as well as phantom power settings. You can also access iris, focus, menu and playback controls and more. See the section 'URSA Mini Pro 4.6K control buttons' for more information.

#### 18 Memory Card Slots

Insert CFast 2.0 cards, SDXC or SDHC cards for record and playback. Please note that you should check the list of certified cards in this manual or on our website. See the section 'storage media' for more information.

## Right Side

URSA Mini's right side panel gives you access to all the video, audio and power connectors plus the side handle rosette mount.



URSA Mini PL model

#### 19 Side Rosette Mount

Standard rosette mount for the side handle. Refer to the 'Getting Started' and 'Blackmagic URSA Mini Shoulder Mount Kit' sections.

#### 20 HD Monitoring Output

3G-SDI connector for down converted 1080HD output. Use with Blackmagic URSA Viewfinder or external monitors. Refer to the 'camera video output' and 'Blackmagic URSA Viewfinder' sections for more information.

#### 21 +12V Power Output

4 pin XLR connector for powering Blackmagic URSA Viewfinder, Blackmagic URSA Studio Viewfinder or external monitors and accessories. Refer to the 'Blackmagic URSA Viewfinder' and 'Blackmagic URSA Studio Viewfinder' sections for more information.

#### 22 LANC Input

Dedicated 2.5mm TRS LANC connector for Blackmagic URSA Mini side handle. Refer to the 'getting started' section for more information on connecting the side handle.

#### 23 Broadcast Lens Control Connector

Provides power and control to compatible PL and B4 mount lenses with 12 pin connections. This connection is available on URSA Mini PL and URSA Mini Pro 4.6K models.

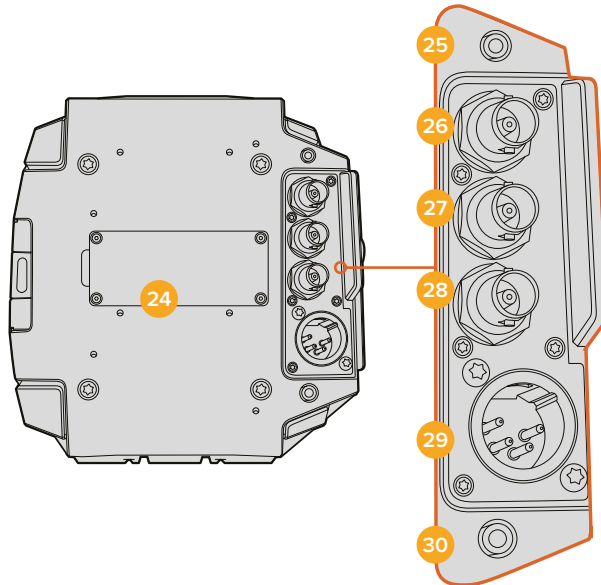
## Rear Panel

### 24 Battery Mount Plate

Your Blackmagic URSA Mini has 4 mounting points and a molex connector behind a small cover for attaching the optional V mount or gold mount battery plate. Refer to the 'mounting batteries' section for more information.

### 25 LANC

This 2.5mm jack is used for external LANC remote control, such as an external record start stop control mounted to a tripod arm. LANC supports record start and stop, plus iris and focus control using compatible EF lenses.



### 26 12G-SDI Out

Blackmagic URSA Mini's 12G-SDI output is used to send HD and Ultra HD video to SDI equipment such as routers, monitors, SDI capture devices, and broadcast switchers. You can also connect the 12G-SDI output to an external recorder such as the Blackmagic Video Assist for backup recording.

### 27 12G-SDI In

The 12G-SDI input is used for connecting to a switcher or external recorder. This means if you're using URSA Mini in a live broadcast, you can plug in the switcher's program output and monitor it during the shoot, or check playback from an external recorder. Press and hold the program button to see your program feed. For more information, refer to the 'Ergonomic Control Panel' section in this manual.

You can also use an ATEM switcher's 'camera control' feature to remotely adjust many URSA Mini functions. See the section 'Understanding Studio Camera Control' for more information. The Blackmagic 3G-SDI Arduino Shield can also be used to provide custom control of the camera over SDI.

### 28 Reference and Timecode In

This input automatically recognizes and switches between timecode and reference input signals. Synchronize Blackmagic URSA Mini to a common reference signal, such as tri-level sync, by connecting to the 'reference' BNC input marked 'REF In'. This lets you sync URSA Mini to other SDI video equipment, for example, when using multiple cameras connected to a switcher. You can also use this connector to match an external timecode source to sync up multiple cameras, or audio and picture when shooting dual-system. This ensures audio and picture, or video from multiple cameras, can be easily synchronized during post production. It's worth noting that to use a reference signal through this input, you must set your reference source to 'external' in your URSA Mini's setup menu.

You can also set your camera to use the reference signal from an ATEM switcher via the Program SDI Input. This is helpful when working with ATEM switchers because all cameras can receive program return, camera control and be referenced together using a single SDI signal. See the 'setup settings' section in this manual for more information.

### 29 12V+ Power Input

Use the 4 pin 12-20 Volt DC XLR connector to plug in power from external sources such as the supplied power adapter, or portable batteries.

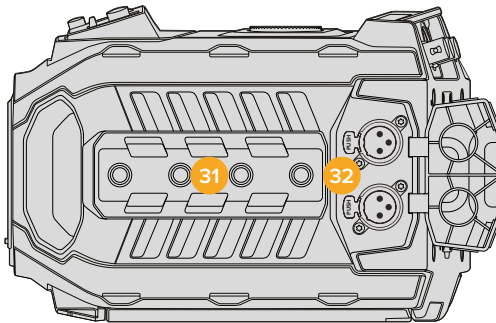
### 30 Headphone/Headset

The 3.5mm jack output is used for headphone monitoring and talkback. You can plug in iPhone and Android compatible headsets that have a built in microphone for quick and easy talkback. Talkback audio is embedded in channels 15 and 16 of the SDI output.

## Top Panel

### 31 1/4 Inch Mounting Points

Your camera's top panel contains 4 strong mounting points for attaching the top handle and accessories.

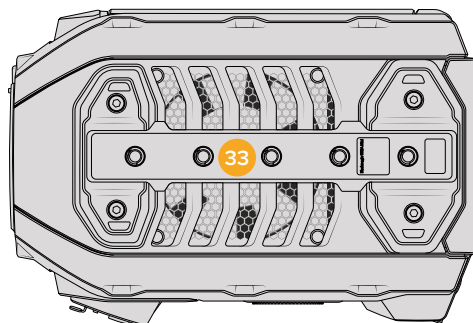


External analog audio can be plugged into the balanced XLR connectors on the top panel

### 32 XLR Audio In

Use the balanced XLR inputs to plug in external analog audio from professional equipment such as audio mixers, PA systems or external microphones. The XLR connectors supply 48V phantom power so you can use microphones that aren't self powered. To enable phantom power select 'inputs' on the 'audio input' setting, plus 'mic low' or 'mic high' on the audio 'input levels' settings. Scroll the menu to reveal the 'phantom power' setting and select 'on'. To disable phantom power, select 'off'. Phantom power is active only when external audio inputs are selected in the audio settings.

## Underside

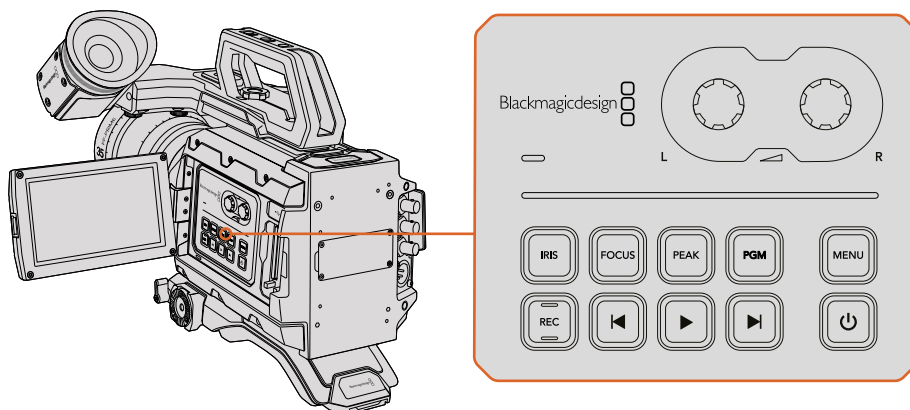


### 33 1/4 Inch Mounting Points

The 5 mounting points on the underside are used for attaching tripod heads, the optional URSA Mini shoulder mount kit and other accessories.

# URSA Mini Controls

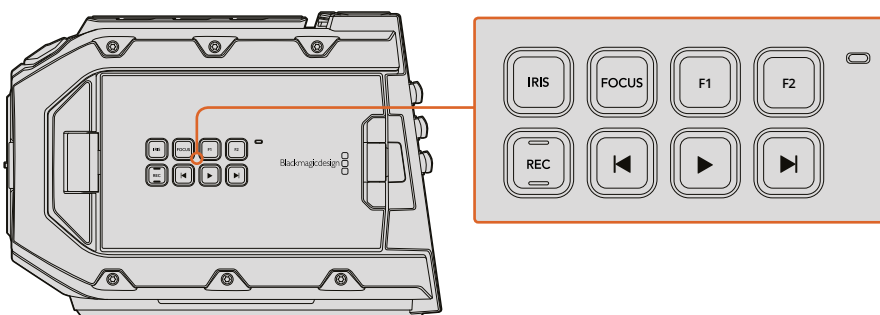
Your Blackmagic URSA Mini has a control panel on the left side, behind the fold out monitor and contains all the buttons and adjustment knobs you need to change settings and control audio levels. You can monitor your audio levels using the audio meters on the LCD touchscreen.



Adjust camera settings using the inside control panel buttons and touchscreen

## Control Buttons

In addition to the inside control panel, your Blackmagic URSA Mini has control buttons on the outside of the LCD and on the side handle. The iris, focus, record and playback buttons all perform the same function.



The outside panel buttons let you record and play back clips, turn focus peaking on or off, switch between the program and camera view on the LCD, plus adjust the iris and auto focus when using compatible EF lenses

### Iris

The 'Iris' button activates the automatic aperture setting on compatible lenses. When using video dynamic range settings, a single press of the iris button will set an average exposure based on the highlights or shadows in your shot. When using film dynamic range settings, pressing the iris button sets your exposure to the brightest highlight in your shot.

On URSA Mini EF models, this button works with compatible EF lenses. On URSA Mini PL models, this button works with compatible lenses connected to the broadcast lens controller.

To set your aperture manually, press the forward and reverse skip transport buttons.

### **Focus**

When using an EF mount with an EF lens that supports electronic focus adjustments, press the 'focus' button to activate auto focus. A white focus square will appear on the fold out monitor. Anything within the square will be correctly focused. When the lens is focused, the square will disappear.

**NOTE** It's important to know that while most EF lenses support electronic focus, some lenses can be set to manual or auto focus modes, and so you need to ensure your lens is set to auto focus mode.

### **Peak**

Press the 'Peak' button to activate focus peaking. The focus peaking feature creates a green edge around the sharpest parts of the image so you can easily confirm your focus. Focus peaking is not recorded to the CFast 2.0 cards, but can be displayed via the HD monitoring output and on the fold out monitor by activating overlays using the touchscreen menu.

### **Program**

The program button is marked PGM and lets you switch the LCD between the camera view and any signal plugged into the 12G-SDI input on the rear panel. This means if you're using URSA Mini in a live broadcast, you can plug in the switcher's program output and monitor it during the shoot. Press and hold the program button to see your program feed. The program feed will continue to display whilst the program button is being held. Double pressing the program button will switch to the program feed, and pressing the program button again will exit the program feed. It's worth mentioning that to display a switcher's program output, your camera and switcher must be set to the same frame rate.

**NOTE** When you are setting your reference source for URSA Mini, or URSA Mini Pro 4.6K, you may experience a small dropout on your camera's outputs when switching between your reference sources. This is because the camera is adjusting its referencing timing to match that of the external source. For this reason it is important not to change this setting during a production, only whilst setting up.

### **Menu**

Press the 'menu' button to open the dashboard. Refer to the 'settings' section for more information about the dashboard feature and how to adjust settings.

### **Record**

The 'record' button is marked REC on your Blackmagic URSA Mini's control panel, fold out LCD and side handle. Press any of the record buttons to start and stop recording. Refer to the 'recording' section for more information.

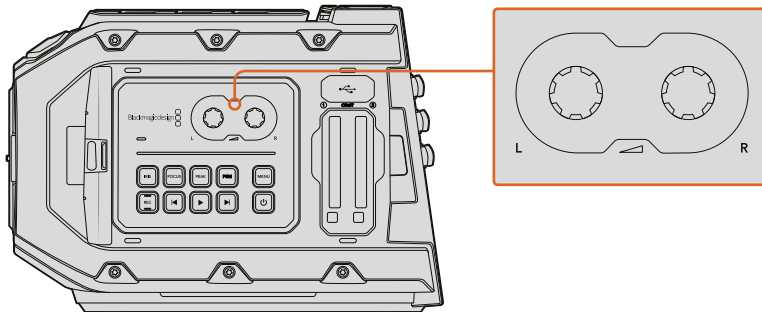
### **Playback Control Buttons**

The playback buttons let you start and stop playback, plus skip to the next or previous clip. On Blackmagic URSA Mini EF, the forward and reverse skip buttons can also be used to open or close the iris when using compatible lenses. Refer to the 'playback' section for more information on how to use the playback buttons.



### Audio Level Adjustment Knobs

Use the built in adjustment knobs to set the recording levels for audio channels 1 and 2. Turn each knob clockwise or counterclockwise to increase or decrease the recording level for each channel of audio. Monitor the corresponding on screen audio meters as you adjust each knob so you can see the best level to set it to.



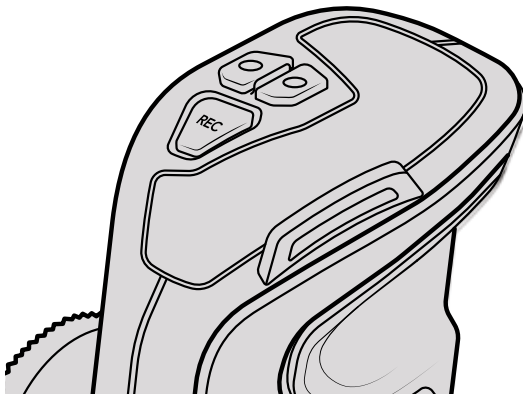
Turn the audio level adjustment knobs clockwise or counter clockwise to increase or decrease your audio recording levels

### Function Buttons

On the outside of Blackmagic URSA Mini's LCD there are two 'function' buttons marked F1 and F2. You can map these to your choice of a variety of commonly used functions using your URSA Mini's 'setup' menu. For more information, see the 'Blackmagic URSA Mini settings' section of this manual.

## Side Handle

Your Blackmagic URSA Mini ships with a side handle that provides a comfortable, secure grip for the camera. The side handle also lets you trigger auto iris and focus on compatible EF lenses, plus start or stop recording with the simple press of a button. To enable these functions, you must connect the included LANC cable and connector between the camera and the side handle.

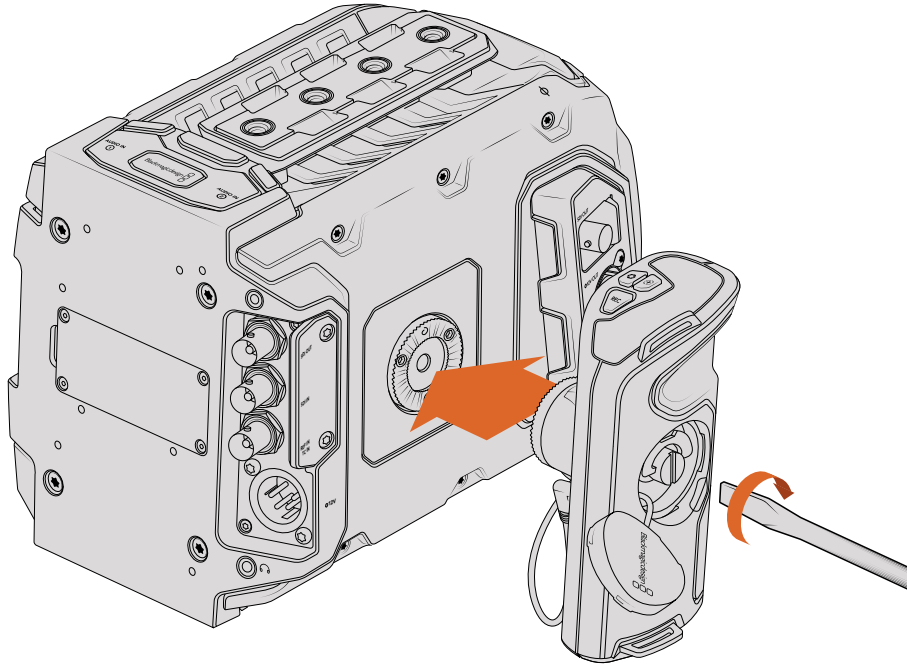


Control buttons on the side handle let you control your Blackmagic URSA Mini via the dedicated LANC port on the side of your camera

## Attaching the Handle

Attaching URSA Mini's side handle is easy.

- 1 Open the plastic cap on the right side of the handle to access the tightening screw.
- 2 Align the handle with URSA Mini's side rosette mount. Fasten the handle to suit your desired position and tighten the side handle screw with a large flat head screw driver, or by twisting the D ring. Close the plastic cap.



Attaching the side handle to Blackmagic URSA Mini

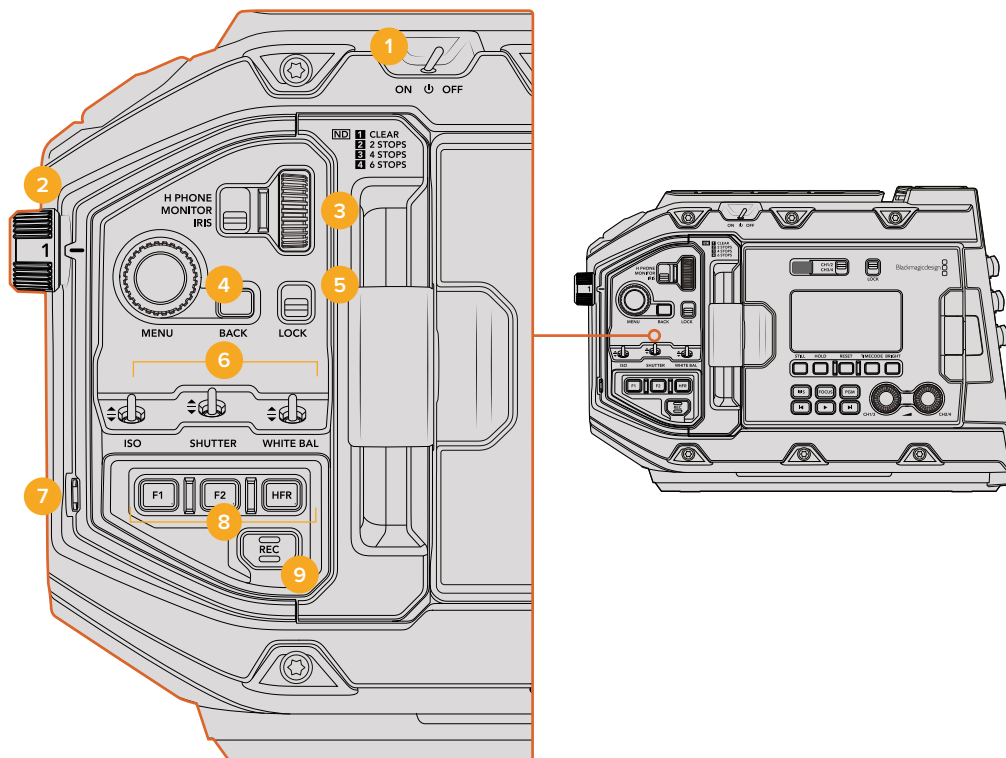
- 3 URSA Mini is shipped with a short LANC cable so you can control your camera using the side handle buttons. Connect the LANC cable from the side handle LANC output port to the camera's LANC input.

# URSA Mini Pro 4.6K Control Buttons

Blackmagic URSA Mini Pro 4.6K has control panels on the chassis, outside and inside of the foldout touchscreen monitor to give you quick, easy access to all of its essential functions as well as powerful monitoring tools. These panels are designed to be close to hand whether shooting from a tripod, handheld or with the shoulder mount kit.

## Forward Control Panel

Your URSA Mini Pro 4.6K's forward control panel groups together all of the controls you might need to adjust when setting up a shot and recording. These are all designed for easy access while shooting with the foldout monitor closed, such as when using the shoulder mount kit.



URSA Mini Pro 4.6K forward control panel

### 1 Power Switch

Power your URSA Mini Pro 4.6K by moving this switch to the 'on' position. Power off by moving the switch to the 'off' position.

**TIP** You can also power your URSA Mini Pro 4.6K on or off via a combination of control panel switches. Holding the 'rec' and 'forward step' buttons will power up the camera if it is turned off, or power it off if it is turned on. If your camera's power switch is set to 'on' but your camera is powered down, it may have been powered down via the control panel. Toggle the power switch to return it to normal operation.

## 2 ND Filters

Your URSA Mini has three internal neutral density filters. The available settings are 'clear,' '2,' '4' and '6' stops. These filters allow you to reduce the amount of light reaching your URSA Mini's sensor by a preset number of exposure 'stops'. By reducing the exposure, you can continue shooting at wide apertures in bright conditions such as outdoors on sunny days.

To adjust your neutral density setting, rotate the wheel upwards or downwards. The 'clear' setting means there is no ND filter being used. From settings 2 to 4, the ND filters gradually increase in density so you can decrease light if you need to.

Because different users prefer to use different terms for each ND filter, the measurement of your ND settings can be customized in the LCD menu so you can identify the ND filter number, amount of stops in light reduction, or the fraction representing the amount of light reduced for the filters, matching what you prefer.

### Neutral Density Filter Settings

| Wheel position | ND number | Stops | Fraction |
|----------------|-----------|-------|----------|
| 1              | clear     | 0     | all      |
| 2              | 0.6       | 2     | 1/4      |
| 3              | 1.2       | 4     | 1/16     |
| 4              | 1.8       | 6     | 1/64     |

## 3 Settings Wheel

Set this wheel's function by adjusting the adjacent three position switch next to the wheel. The options are 'headphone,' 'monitor' and 'iris'.

### ▪ Headphone

When set to 'headphone', the settings wheel will adjust headphone audio levels. Rotate the wheel upwards to increase volume, and downwards to decrease.

### ▪ Monitor

When set to 'monitor', the settings wheel adjusts audio levels on your URSA Mini Pro 4.6K's built in monitor speaker. The speaker is located on the outside of the LCD monitor door and can be used to monitor audio without headphones. The monitor is positioned at ear height, making it easy to listen to the audio while shooting with the camera on your shoulder. Rotate the wheel upwards to increase volume, and downwards to decrease. This function is disabled while recording from the camera's internal microphone to prevent unwanted feedback.

### ▪ Iris

When set to 'iris', the settings wheel is used to adjust the aperture of compatible lenses mounted to your URSA Mini Pro 4.6K. Rotating the wheel downwards opens the iris, and turning the wheel upwards closes the iris. These directions mimic the operation of aperture on adjustable still and cinema lenses.

**TIP** To change aperture settings via the settings wheel, URSA Mini Pro 4.6K must be fitted with a lens that supports changing aperture via the camera. If you are using a B4 or PL lens connected via the broadcast 12 pin connector, make sure that the lens iris switch on the handgrip is set to 'A' or 'auto'.

#### 4 Menu Wheel

When 'status text' is turned on for your URSA Mini's front SDI output, you can use the menu wheel to navigate many of the head up display features usually accessed via the LCD touchscreen.

Simply press the menu wheel as you would a button to access your URSA Mini Pro 4.6K's head up display on an external monitor such as Blackmagic SmartView, Video Assist or URSA Viewfinder. While the menu wheel is active, turn the wheel to select features such as LCD monitor options, frame rate, ISO, white balance and tint. Press the wheel to confirm selections and make additional changes, and use the 'back' button next to the wheel to cancel. You can also use the back button to move up a menu level, or exit the menu completely if you're at the top level. The menu will automatically close after one minute of inactivity.

For more information on setting status text and the controls available, see the 'LCD touchscreen' and 'monitor settings' sections of this manual.

#### 5 Lock

Toggle this switch to lock all of the controls on the front panel to prevent them from being accidentally adjusted while shooting. Move this switch to the lower position to lock, and the upper position to unlock.

**TIP** When shooting in busy or uncontrolled environments, you can lock your URSA Mini Pro 4.6K's front panel when you leave your camera unattended. This ensures that your settings are not changed unintentionally by others.

#### 6 ISO, Shutter and White Balance Switches

These small switches are used to adjust your ISO, white balance, and shutter settings. They are helpful when you want to make fast adjustments without taking your eyes off the shot. Gently push the switches up or down to make setting adjustments. The switches are spring loaded so they always return to a neutral position.

##### • ISO

Push this switch up or down switch to adjust your camera's ISO setting. Pushing up will increase the setting one interval, and pushing down will decrease one interval. The available settings are 200, 400, 800 and 1600.

##### • Shutter

Use this switch to adjust the camera's shutter angle. Pushing up will increase the shutter angle to the next available preset, and pushing down will decrease the shutter angle to the next available preset. Holding the switch up or down will move more quickly through available values. There are twenty shutter angle presets between 11.2 and 360 degrees.

**TIP** Your URSA Mini Pro 4.6K can also suggest flicker free shutter angles based on the power frequency in your region. These must be selected through the LCD touchscreen menu. For more information see the 'touchscreen controls' section in this manual.

##### • White Balance

This switch is used to adjust the camera's white balance. Pushing up will increase the color temperature by 50K, and pushing down will decrease it by 50K. Holding the switch up or down will move more quickly through available values.

## 7 Auto White Balance

Pressing this button will reveal the white 'auto white balance' box in the center of the LCD for five seconds. This box will also appear on any SDI output that has 'status text' enabled in the menu settings. The white box indicates the specific area of your image where the white balance will be calculated from, so your gray card should be positioned within this box. Pressing and holding the 'Auto W/B' button for three seconds will perform an 'auto white balance', and the square will change from white to green to confirm that this has been performed successfully.

For more information on enabling status text for your URSA Mini's front or main SDI outputs, see the 'monitor settings' section in this manual.

## 8 F1 and F2

The F1 and F2 keys are 'function' keys that can be programmed to a variety of commonly used functions using your URSA Mini Pro 4.6K's 'setup' menu. By default, F1 is set to 'false color' while F2 is set to 'display LUT'. For more information, see the 'Blackmagic URSA Mini settings' section of this manual.

## HFR

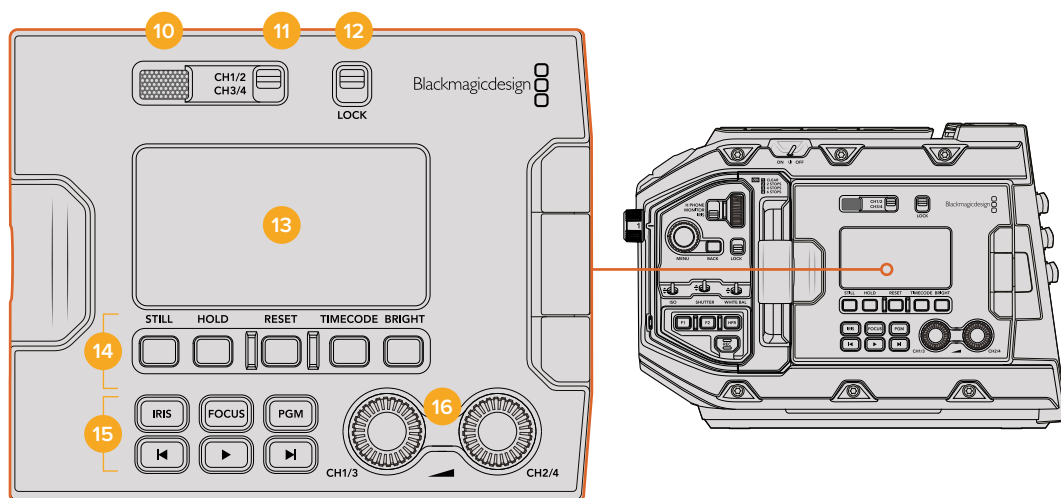
Use the HFR or 'high frame rate' button to toggle off speed frame rates. To use this button, simply set the off speed frame rate you'd like to use in your URSA Mini Pro 4.6K's 'frame rate' menu. Pressing this button will toggle between your chosen off speed frame rate and project frame rate. It's worth mentioning that this setting can only be adjusted when the recording is stopped. For more information on project and off speed frame rates, see the 'touchscreen controls' section in this manual.

## 9 Record

The 'record' button is marked REC on your Blackmagic URSA Mini Pro 4.6K's left side. Press the record button to start and stop recording. Refer to the 'recording' section for more information.

## Ergonomic Control Panel

On the outside of your URSA Mini Pro 4.6K's touchscreen monitor, you'll find an LCD status monitor and a variety of monitoring controls. This panel lets you see all of your camera's status information at a glance, as well as monitoring and adjusting audio levels. Automatic focus can be set using compatible lenses and the transport controls let you playback clips.



URSA Mini Pro 4.6K ergonomic control panel

## 10 Monitor Speaker

The small speaker built into the outside control panel lets you listen the audio while shooting. It is located where your ear would normally be when shooting with the camera on your shoulder.

To adjust the volume of the speaker, simply rotate the settings wheel as described in the 'URSA Mini Pro 4.6K Control Buttons' section.

## 11 Monitor Channel Select

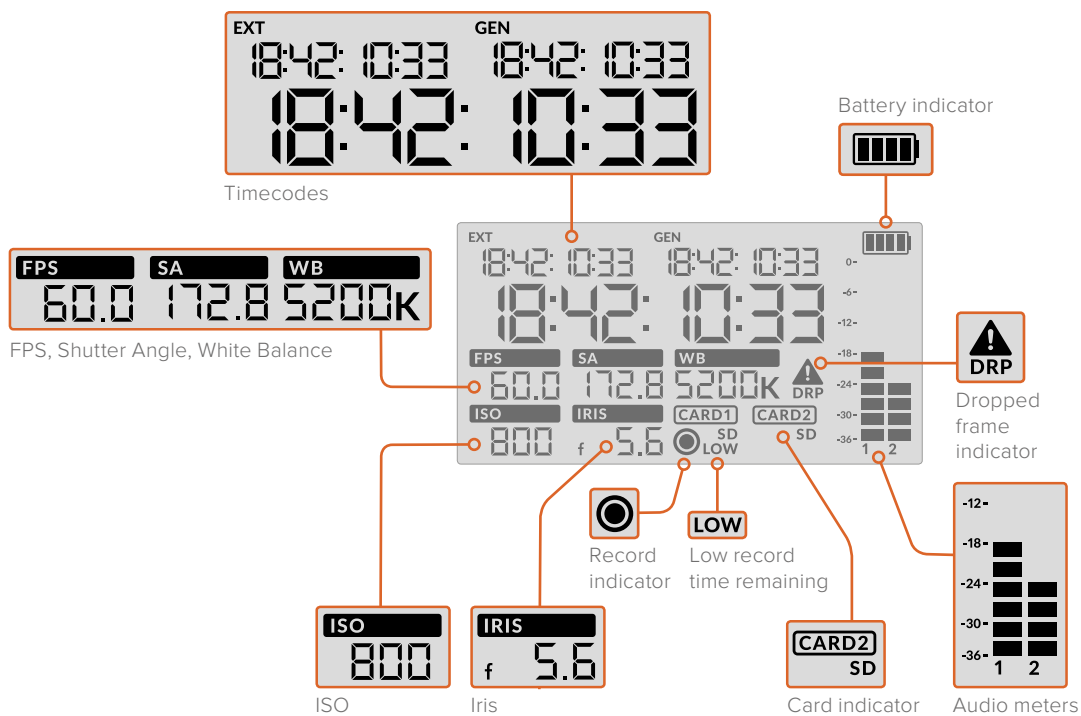
Your URSA Mini Pro 4.6K currently supports two channels of audio. In a future software update, up to four channels will be available, divided into pairs. You will be able to choose the pair monitored by your LCD status display and monitor speaker by using this switch.

## 12 Lock

Use this switch to lock all of the settings on your URSA Mini Pro 4.6K's ergonomic control panel. The only controls that will remain active while the lock switch is 'on' are the monitor channel select switches.

## 13 Status LCD

This display shows you your URSA Mini Pro 4.6K's essential settings at a glance, without needing to open the internal touchscreen. This screen is designed to be visible even in bright daylight. The following information is available:



### • Timecodes

Your URSA Mini Pro 4.6K displays three timecodes. If you have an external timecode connected, this will be shown under the 'ext' indicator in the top left of the status LCD. Your URSA Mini's internally generated timecode is shown next to this under the 'gen' indicator. Both the external and generated timecodes are shown in time of day timecode format.

The larger, main, timecode indicator displays your current timecode as either clip duration or time of day timecode. You can switch between these two display modes by pressing the 'timecode' button underneath the status LCD.

For more information, see the 'clip duration' section in this manual's LCD Touchscreen chapter.

- **Battery indicator**

If your URSA Mini Pro 4.6K is running off a battery, this indicator displays remaining battery life in 25% increments. Each of the battery indicator's four bars corresponds to 25% battery life remaining. When your battery drops below 20% charge, the colour of the status LED, near the record button begins to flash.

This indicator is not shown when your camera is running off mains power.

- **FPS, Shutter Angle, White Balance**

The 'FPS,' 'SA,' and 'WB' indicators display your camera's current frame rate, shutter angle and white balance. The 'fps' indicator shows the current sensor frame rate.

For more information on sensor and project frame rates, see the 'LCD touchscreen' section in this manual.

- **ISO**

Displays your camera's currently set ISO.

- **Iris**

Displays your current lens aperture. Depending on your lens type, this will be displayed as an 'f' or 'T' stop.

- **Card Information**

The 'card 1' and 'card 2' indicators will appear on your URSA Mini Pro 4.6K's status LCD when these slots are occupied.

The 'SD' indicator appears if you are recording on SD cards, and disappears if you are recording on CFast cards.

- **Record Indicator**

While recording, a circular indicator will appear under the card or cards being currently written to.

- **Low Time Remaining**

A 'low' indicator will appear under the relevant card when you have approximately 5 minutes of record time remaining.

- **Audio Meters**

The peak audio meters display audio levels when using the internal microphone, or via external audio when connected. The display is calibrated to dBFS units and features peak hold indicators which stay visible for a short time so you can clearly see the maximum levels reached.

To achieve optimum audio quality, ensure your audio levels do not reach 0 dBFS. This is the maximum level that your camera can record, meaning that any audio that exceeds this level will be clipped, resulting in distortion.

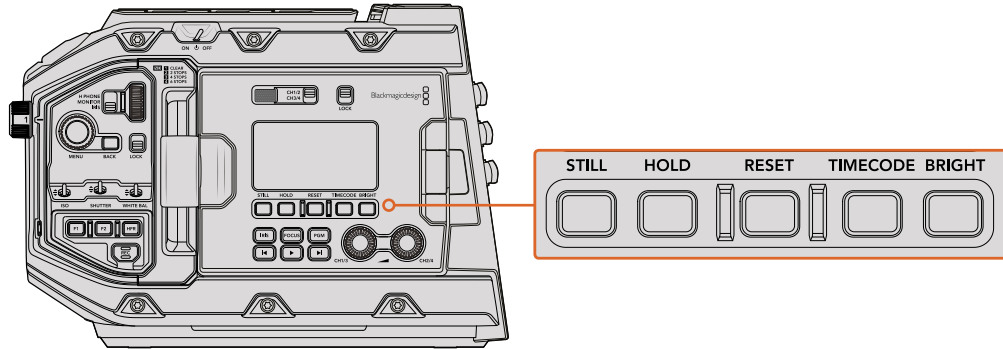
- **Dropped Frame Indicator**

This indicator will flash when your camera detects dropped frames. Once you stop recording, the indicator will remain on the screen to let you know that the previous clip detected dropped frames. This warning disappears the next time you start recording, or if you power cycle the camera. For more information on avoiding dropped frames, see the 'choosing storage media' section in this manual.

**NOTE** You can set your URSA Mini Pro 4.6K to stop recording if dropped frames are detected. See the 'record settings' section in this manual for more information. This feature is user selectable as you may be able to get away with brief periods of 'burst' recording at higher frame rates or resolutions when shooting to slower media.



## 14 Status LCD Controls



URSA Mini Pro 4.6K status LCD controls

### Still

Press this button to capture a still image as a single lossless DNG frame. This feature will be enabled in a future software update.

### Hold

Use this button to temporarily hold the main status LCD timecode. The timecode will continue to run in the background and return to its actual position when you release the 'hold' button. While holding you can take note of the timecode for a particular event. This can be useful in electronic news gathering for jotting down key points in interviews.

### Reset

The 'reset' button is not currently functional and will be enabled in a forthcoming software update.

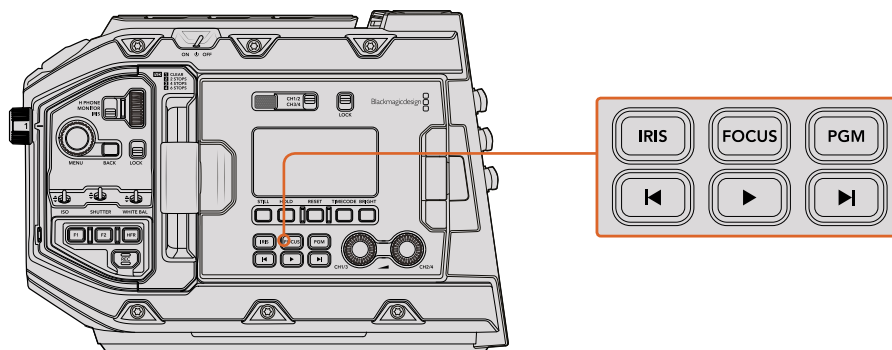
### Timecode

Press the 'timecode' button to toggle the main timecode display's format between clip duration and time of day timecode.

### Bright

Press the 'bright' button to cycle through four brightness settings for your URSA Mini Pro 4.6K's LCD status display. The settings are 'off,' 'low,' 'medium' and 'high.'

## 15 Control and Playback Buttons



URSA Mini Pro 4.6K control and playback buttons

### Iris

The 'iris' button activates the automatic aperture setting on compatible lenses. When using video dynamic range settings, a single press of the iris button will set an average exposure based on the highlights or shadows in your shot. When using film dynamic

range settings, pressing the iris button sets your exposure to the brightest highlight in your shot. This button works with compatible EF lenses and PL lenses connected with a compatible broadcast lens controller.

To set your aperture manually, press the forward and reverse skip transport buttons.

### Focus

When using an EF lens that supports electronic focus adjustments, press the 'focus' button to activate auto focus. A white focus square will appear on any viewfinder or monitor connected to your URSA Mini Pro 4.6K. Anything within the square will be correctly focused. When the lens is focused, the square will disappear.

**NOTE** Some lenses have both manual and auto focus modes. In order for URSA Mini to be able to auto focus with your lens, you need to ensure that your lens is set to auto focus mode.

### Program

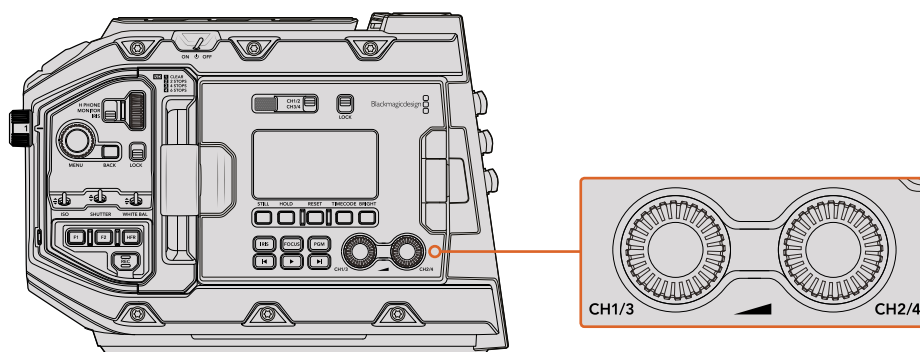
The program button is marked PGM and lets you switch the LCD between the camera view and any signal plugged into the 12G-SDI input on the rear panel. This means if you're using URSA Mini Pro 4.6K in a live broadcast, you can plug in the switcher's program output and monitor it during the shoot. Press and hold the program button to see your program feed. The program feed will continue to display whilst the program button is being held.

If you want to lock the monitor to display the program input feed, then double press the program button to lock the display to the program feed. Pressing the program button again will exit the program feed and return to the camera view.

### Playback Control Buttons

The playback buttons let you start and stop playback, plus skip to the next or previous clip. When using an EF lens, the forward and reverse skip buttons can also be used to open or close the iris when using compatible lenses. Refer to the 'playback' section for more information on how to use the playback buttons.

## 16 Audio Level Adjustment Knobs

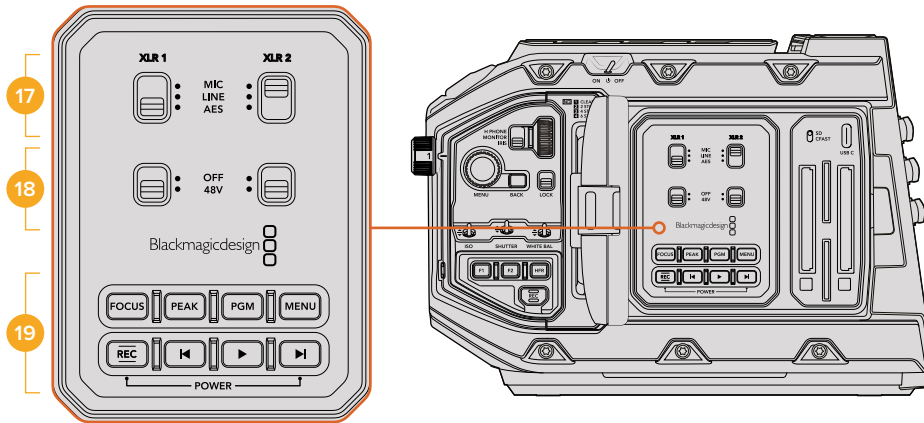


URSA Mini Pro 4.6K audio adjustment knobs

Use the built in adjustment knobs to set the recording levels for audio channels 1 and 2. Turn each knob clockwise or counterclockwise to increase or decrease the recording level for each channel of audio. Monitor the corresponding on screen audio meters as you adjust each knob so you can see the best level to set it to.

## Internal Control Panel

With your URSA Mini Pro 4.6K's foldout monitor open, you can access the internal control panel. Use the controls here to set your audio inputs as well as phantom power settings, iris, focus, menu and playback controls and more.



URSA Mini Pro 4.6K internal control panel

### 17 XLR1 / XLR2

Use these switches to set how your URSA Mini Pro 4.6K's XLR inputs behave when selected as an input source. The options available are mic audio, line level audio and AES digital audio.

### 18 Phantom Power

Your URSA Mini Pro 4.6K's XLR inputs can provide 48V phantom power so you can use microphones that aren't self powered. Move this switch to '48V' to enable phantom power for any microphone connected to the XLR above, or 'off' to disable phantom power.

**NOTE** It is standard practice to plug in your XLR cable before switching phantom power on. It is also important to switch phantom power to 'off' when you no longer have a phantom powered microphone connected. Connecting devices that don't have phantom power protection built into their AES XLR outputs whilst still sending phantom power from the camera's XLR audio inputs may damage your equipment. Please always ensure that the +48V switch is turned 'off' when you disconnect your microphone.

### 19 Control and Playback Buttons

#### Focus

When using an EF mount with an EF lens that supports electronic focus adjustments, press the 'focus' button to activate auto focus. A white focus square will appear on the fold out monitor. Anything within the square will be correctly focused. When the lens is focused, the square will disappear.

**NOTE** Some lenses have both manual and auto focus modes. In order for URSA Mini to be able to auto focus with your lens, you need to ensure that your lens is set to auto focus mode.

### Peak

Press the 'Peak' button to activate focus peaking. The focus peaking feature creates a green edge around the sharpest parts of the image so you can easily confirm your focus. Focus peaking is not recorded to storage media, but can be displayed via the HD monitoring output and on the fold out monitor by activating overlays using the touchscreen menu.

**TIP** If you are recording your video output to a Blackmagic Video Assist or Hyperdeck Studio Mini, you may want to ensure that you don't have peaking switched on for that output. This can be done by using our 'clean feed' feature on your Front SDI or Main SDI. For more information on outputting a 'clean feed' see the 'monitor settings' section in this manual.

### Program

The program button is marked PGM and lets you switch the LCD between the camera view and any signal plugged into the camera's 12G-SDI input. This means if you're using URSA Mini Pro 4.6K in a live broadcast, you can plug in the switcher's program output and monitor it during the shoot. Press and hold the program button to see your program feed. Double press the button to lock the program feed on. Press again to turn the program feed off.

To display a switcher's program output, your camera and switcher must be set to the same resolution and frame rate.

### Menu

Press the 'menu' button to open the dashboard. Refer to the 'settings' section for more information about the dashboard feature and how to adjust settings.

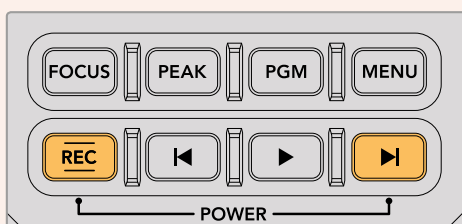
### Record

Press any of the record buttons marked REC to start and stop recording. Refer to the 'recording' section for more information.

### Playback Control Buttons

The playback buttons let you start and stop playback, plus skip to the next or previous clip. When using the EF mount, the forward and reverse skip buttons can also be used to open or close the iris when using compatible lenses. Refer to the 'playback' section for more information on how to use the playback buttons.

**NOTE** You can power your URSA Mini Pro 4.6K on or off via a combination of internal control panel buttons. Holding the 'rec' and 'forward step' buttons will power up the camera if it is turned off, or power it off if it is turned on. If your camera's power switch is set to 'on' but your camera is powered down, it may have been powered down via the control panel. Toggle the power switch to return it to normal operation.



# Touchscreen Controls

## Touchscreen

Your Blackmagic URSA Mini's 5" fold out LCD touchscreen pivots for shooting high and low angles. Buttons on the outside of the LCD panel let you control your URSA Mini when mounted on your shoulder using the URSA Viewfinder and the LCD closed.

## Touchscreen Features

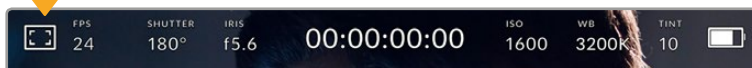
The LCD touchscreen features a touch and gesture based interface that is specifically designed for fast and intuitive user operation. By touching and swiping on different areas of URSA Mini's LCD touchscreen, you can quickly access the camera functions you are most likely to use while shooting.



Your URSA Mini's LCD touchscreen has a comprehensive head up display and gives you easy access to your camera's most used settings

## LCD Monitor Options

Tap the 'monitor' icon at the top left of your URSA Mini's LCD touchscreen to access the LCD monitor settings. These settings let you toggle and adjust the appearance of your URSA Mini's monitoring features, including zebra, focus assist, frame guide, and grids. When accessing LCD monitor options, the controls for these features appear in a tabbed menu along the bottom edge of the LCD touchscreen.

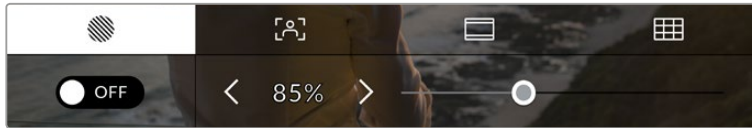


Tap the icon at the top left of your URSA Mini's LCD touchscreen to access LCD monitor options

## Zebra

The 'zebra' setting toggles the appearance of zebra on the LCD touchscreen, as well as setting the zebra level for all URSA Mini outputs.

Zebra displays diagonal lines over areas of your image that exceed a set exposure level. For example, setting zebra to 100% shows which areas are completely overexposed. This is useful for achieving optimum exposure in fixed lighting conditions.



Tap the 'zebra' icon while accessing 'LCD monitor options' to access your URSA Mini's zebra settings

To toggle zebra for the LCD touchscreen, tap the switch icon in the bottom left of the screen.

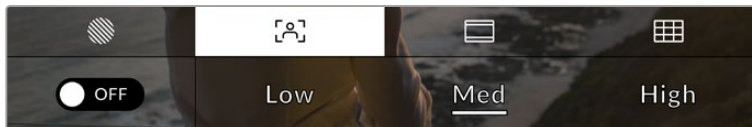
Set the exposure level that zebra appears at by dragging the slider left and right, or tapping the arrow buttons next to the zebra level percentage. Zebra level is adjustable in five percent increments between 75 and 100 percent exposure.

For information on enabling zebra on your camera's front and main SDI outputs, see the 'monitor settings' section in this manual.

**TIP** If you're shooting in variable light such as outdoors on a partly overcast day, setting your zebra level lower than 100 can warn you of potential overexposure.

### Focus Assist

The 'focus assist' setting toggles the appearance of focus assist on the LCD touchscreen, as well as setting the level of focus assistance for all outputs on your URSA Mini.



Tap the 'focus assist' icon while accessing 'LCD monitor options' to access your URSA Mini's focus assist settings

To toggle focus assistance for the LCD touchscreen, tap the switch icon in the bottom left of the screen while in the 'focus assist' tab.

To set the level of focus assistance for all outputs on your URSA Mini, tap the 'low,' 'medium' or 'high' titles along the bottom of your touchscreen.

The optimum level of focus assistance varies shot by shot. When focusing on actors, for example, a higher level of focus assistance can help resolve edge detail in faces. A shot of foliage or brickwork, on the other hand, may show distracting amounts of focus information at higher settings.

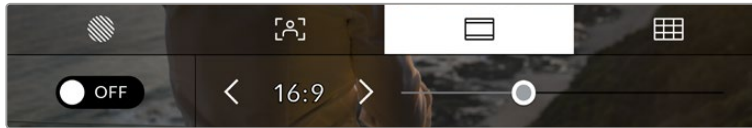
For information on enabling focus assist on your camera's front and main SDI outputs, see the 'monitor settings' section in this manual.

**TIP** Your URSA Mini has two focus assist modes. You can switch between 'peaking' and 'colored lines' focus assistance in the 'monitor' settings menu. For more information, see the 'monitor settings' section in this manual.

### Frame Guides

The 'frame guide' setting toggles the appearance of frame guides on the LCD touchscreen. You can also choose from seven frame guide options for all outputs on your URSA Mini.

Frame guides include aspect ratios for various cinema, television and online standards.



Tap the 'frame guides' icon while accessing 'LCD monitor options' to access your URSA Mini's frame guide settings

To toggle the appearance of frame guides on your URSA Mini's LCD touchscreen, tap the switch icon in the bottom left of the screen.

Choose the frame guide you want to use by dragging the slider left and right, or tapping the arrow buttons on either side of the currently selected aspect ratio.

The available guides are:

- **2.35:1, 2.39:1 and 2.40:1**

Displays the broad widescreen aspect ratio compatible with anamorphic or flat widescreen cinema presentation. The three widescreen settings differ slightly based on the changing cinema standards over time. 2.39:1 is one of the most prominent standards in use today.



URSA Mini LCD touchscreen with 2.40:1 frame guides enabled

- **1.85:1**

Displays another common flat widescreen cinema aspect ratio. This ratio is slightly wider than HDTV 1.78:1 but not as wide as 2.39:1.

- **16:9**

Displays a 1.78:1 aspect ratio compatible with 16:9 HD television and computer screens. This ratio is most commonly used for HD broadcasting and online videos. The same aspect ratio has also been adopted for Ultra HD broadcasting.

- **14:9**

Displays a 14:9 aspect ratio used by some television broadcasters as a compromise between 16:9 and 4:3 television sets. Ideally, both 16:9 and 4:3 footage remains legible when center cropped to fit 14:9. You can use this as a compositional guide if you know your project may be broadcast by a television station that uses 14:9 cropping.

- **4:3**

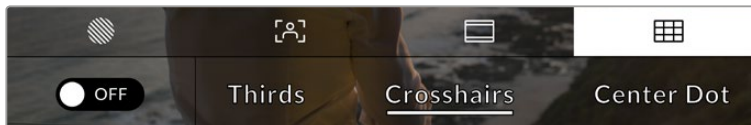
Displays the 4:3 aspect ratio compatible with SD television screens, or to help with framing when using 2x anamorphic adapters.

**TIP** You can change the opacity of frame guide overlays. For more information see the 'monitor settings' section of this manual.

**NOTE** For information on enabling frame guides on your camera's front and main SDI outputs, see the 'monitor settings' section in this manual.

## Grids

The 'grids' setting toggles the appearance of a rule of thirds grid, crosshair or center dot on the LCD touchscreen, as well as setting which overlay is visible on all URSA Mini outputs.

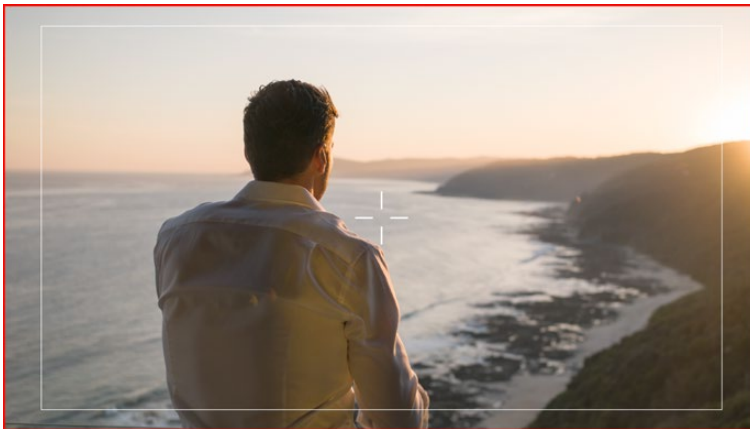


Tap the 'grids' icon while accessing 'LCD monitor options' to access your URSA Mini's grid settings

Grids and crosshairs are overlays that can help with image composition. When 'grids' are enabled, your URSA Mini can show a rule of thirds grid, crosshairs, or center dot.

To toggle the appearance of grids on your URSA Mini touchscreen, tap the switch icon in the bottom left of the screen.

When your URSA Mini is set up and connected to an ATEM switcher as the current program source, and 'grids' are set to 'on', the red 'program' tally outline will automatically illuminate on your LCD.



When connected to an ATEM switcher sending a tally signal, a red border will appear around your camera's image preview when grids are set to 'on'

To set which overlay you want to display on all URSA Mini outputs, tap the 'thirds,' 'crosshairs,' or 'center dot' options.

- **Thirds**

The 'thirds' setting displays a grid with two vertical and horizontal lines placed in each third of the image. Thirds are an extremely powerful tool to help compose your shots. For example, the human eye typically looks for action near the points where the lines intersect, so it's helpful to frame key points of interest in these zones. An actor's eyeline is commonly framed along the top third of the screen, so you can use the top horizontal third to guide your framing. Thirds are also useful to maintain framing consistency between shots.





The rule of thirds grid automatically scales to any on screen frame guides

- **Crosshairs**

The 'crosshair' setting places a crosshair in the center of the frame. Like thirds, the crosshair is a very useful compositional tool, making it easy to frame the subject of a shot in the very center of a frame. This is sometimes used when filming scenes that will be assembled using very fast cuts. Keeping viewers' eyes focused on the center of a frame can make rapid editing easier to follow.

- **Center Dot**

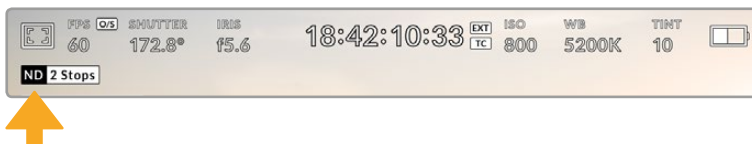
The 'center dot' setting places a dot in the center of the frame. This works in exactly the same way as the 'crosshair' setting, albeit with a smaller overlay that you may find less intrusive.

You can enable a combination of 'thirds' and 'crosshairs' or 'thirds' and 'center dot' by tapping both options in the 'grids' menu. 'Crosshairs' and 'center dot' cannot be selected together.

**TIP** For information on enabling grids on your URSA Mini's front and main SDI outputs, see the 'monitor settings' section in this manual.

## ND Filter indicator

Adjusting your URSA Mini Pro 4.6K's ND filter will display the ND filter indicator in the top left of the LCD touchscreen and any SDI outputs set to show status text. This indicator will be shown for four seconds and use the format you've selected in your URSA Mini Pro 4.6K's setup menu.

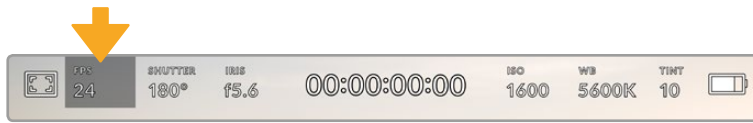


Adjusting your URSA Mini Pro 4.6K's ND filter setting will reveal the ND filter indicator

**NOTE** You can adjust the terminology used by the ND filter indicator to reflect the conventions you're used to. The options are ND number, stops and fractions. You can set your preferred format in your URSA Mini Pro 4.6K's 'setup' menu.

## Frames Per Second

The 'FPS' indicator displays your currently selected frames per second.



URSA Mini's frames per second indicator.  
Tap this to access frame rate settings

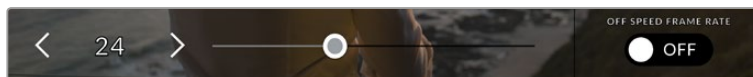
Tapping the 'FPS' indicator lets you change your camera's sensor and project frame rates via a menu at the bottom of your LCD touchscreen.

### Project frame rate

The project frame rate is URSA Mini's recording format frame rate and provides a selection of common frame rates used in the film and television industry. This frame rate is normally set to match your playback speed used in your post production workflow.

Your Blackmagic URSA Mini has 8 project frame rate settings including 23.98, 24, 25, 29.97, 30, 50, 59.94 and 60 frames per second.

To adjust your URSA Mini's project frame rate while in the 'FPS' menu, tap the left or right arrows next to the current frame rate at the bottom left of your touchscreen. Alternatively, you can drag the slider left or right.

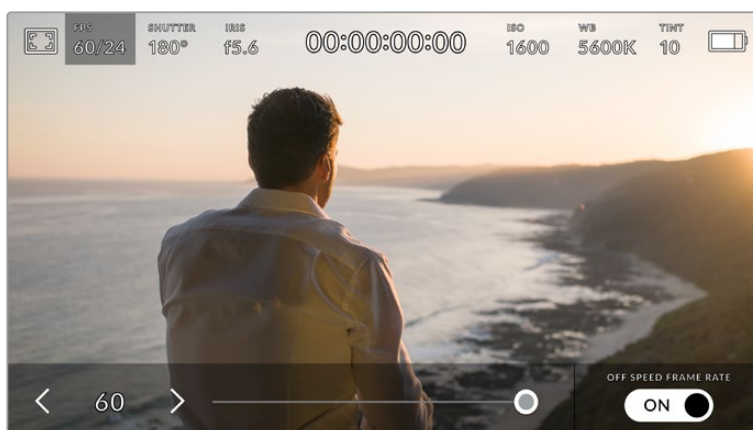


Tap the arrows on either side of the project frame rate or move the slider to make adjustments

**TIP** Your URSA Mini's project frame rate also sets the frame rate of the front and main SDI outputs.

### Sensor frame rate

The sensor frame rate sets how many actual frames from the sensor are recorded every second. This frame rate will affect how fast or slow your video will play back at your set project frame rate.



With 'off speed frame rate' enabled, tap the arrows on either side of the sensor frame rate or move the slider to make adjustments

By default, your URSA Mini's project and sensor frame rates are matched for a natural playback speed. However, by tapping the 'off speed frame rate' switch icon in the bottom right hand side of your URSA Mini's 'FPS' menu, you can independently set your sensor frame rate.

To change your sensor frame rate, tap the arrows next to the sensor frame rate indicator in the lower left of your touchscreen. You can also drag the slider left or right to increase or decrease the frame rate. Once you release the slider, the sensor frame rate will be selected.

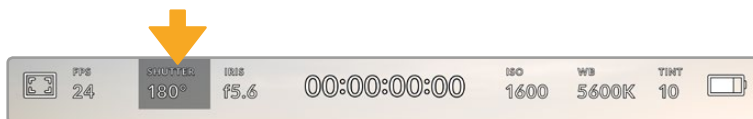
You can create dynamic and interesting speed effects in your clips by varying the sensor frame rate. Setting the sensor frame rate higher than your project frame rate will create slow motion during playback. Alternatively, the lower your sensor frame rate, the faster your clips will appear. The principle is similar to overcranking and undercranking a film camera. Overcranking speeds up the sensor frame rate so you can stretch out moments in time during playback to enhance emotion. Undercranking slows down the sensor frame rate so you can increase the action in fast moving scenes. The creative possibilities are endless and entirely up to you!

For information on the maximum frame rates available for each recording format and codec, refer to the table in the 'recording' section of this manual.

**NOTE** When 'off speed frame rate' is selected your URSA Mini's audio and video are no longer synced. This is true even if you set the same project and sensor frame rate. For this reason, 'off speed frame rate' should never be selected if you want to guarantee audio syncing.

## Shutter

The 'Shutter' indicator displays your shutter angle. By tapping this indicator, you can manually change your URSA Mini's shutter angle or configure shutter priority auto exposure modes.



Your URSA Mini's shutter indicator. Tap this to access shutter settings

Shutter angle defines the level of motion blur in your video, and can be used to compensate for varying light conditions. 180 degrees is the optimum shutter angle for capturing satisfying motion blur in most conditions. However as lighting conditions change, or the amount of movement in your scene increases, you may decide to adjust accordingly.

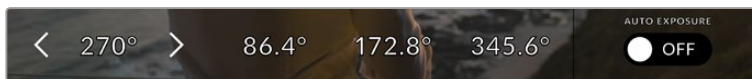
For example, 360 degrees is considered 'wide open' and allows maximum light onto the sensor. This is useful for low light conditions with subtle movement in your scene. Alternatively, if shooting motor sport with rapid movement, a narrow shutter angle, for example 90 degrees, will provide minimal motion blur for sharper, crisper images.

**NOTE** When shooting under lights, your shutter angle can effect the visibility of flicker. Your URSA Mini will automatically calculate flicker free shutter angles for your current frame rate. These angles are effected by mains power frequency in your region. You can set your local power frequency to 50Hz or 60Hz in your URSA Mini's setup menu. See the 'setup settings' section in this manual for more information.

Tapping the 'shutter' indicator brings up the shutter angle menu along the bottom of your URSA Mini's touch screen. If you have auto exposure set to 'off,' this screen will show you your currently selected shutter angle, as well as the available flicker free shutter angles, based on the mains power frequency you have selected in your URSA Mini's 'setup' menu. For more information, see the 'setup settings' section in this manual.

**NOTE** The characteristics of individual light sources may still cause flicker even when using flicker free angles. We recommend always performing a test shoot when not using continuous lights.

To select one of the flicker free shutter angles, simply tap it or use the arrows on either side of the current shutter angle indicator to cycle through available angles.



Your URSA Mini will suggest flicker free shutter angles based on the mains power frequency you choose in the 'setup' menu

If you are shooting outside, or using flicker free lights, you can also manually select a shutter angle by double tapping the current shutter indicator at the bottom left of your screen. This will bring up a keypad which you can use to set any shutter angle between 5 and 360 degrees.



Use the manual shutter keypad to enter your shutter timing of choice when shooting outdoors or under flicker free lights

Your URSA Mini has three shutter based auto exposure modes. To select one of these, tap the 'auto exposure' button in the far right of the shutter menu.

### Shutter

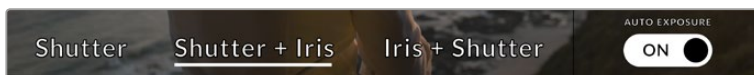
This setting automatically adjusts shutter speed to maintain a constant exposure while keeping iris aperture constant. If you want to maintain a fixed depth of field, this is the setting to choose. It's worth mentioning that the subtle automatic adjustments of the shutter may have an effect on motion blur. It's also worth keeping an eye out for any flicker that may be introduced from various light fixtures on indoor shoots. URSA Mini's auto iris feature is not available when the 'shutter' auto exposure mode is selected.

### Shutter + Iris

Maintains the correct exposure levels by adjusting the shutter, then the aperture. If the maximum or minimum available shutter speed is reached and exposure still cannot be maintained, URSA Mini will begin adjusting the aperture to keep exposure constant.

### Iris + Shutter

Maintains the correct exposure levels by adjusting the aperture, then the shutter speed. If the maximum or minimum available aperture is reached and exposure still cannot be maintained, URSA Mini will begin adjusting the shutter speed to keep exposure constant.

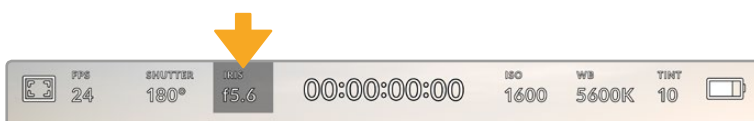


While in the shutter menu, tap 'auto exposure' to access shutter based auto exposure modes

**TIP** When an auto exposure mode that effects the shutter is enabled, a small "A" will appear next to the shutter angle indicator at the top of your URSA Mini touchscreen.

## Iris

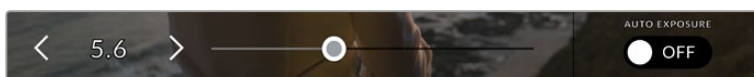
The 'Iris' indicator displays your current lens aperture. By tapping this indicator, you can change the aperture of compatible lenses and configure iris based auto exposure modes.



Your URSA Mini's iris indicator. Tap this to access shutter settings

**NOTE** To adjust your Iris from the LCD touchscreen, your URSA Mini must be fitted with a lens that supports changing aperture via the camera. If you are using a B4 or PL lens connected via the broadcast 12 pin connector on URSA Mini PL, make sure that the lens iris switch on the handgrip is set to 'A' or 'auto.'

Tapping the 'iris' indicator once brings up the iris menu along the bottom of your URSA Mini touchscreen. You'll see your current lens aperture at the far left of this menu. You can change the aperture by tapping the left and right arrows on either side of the current aperture, or moving the slider left or right.



While in the 'iris' menu, tap the arrows on either side of the iris indicator or use the slider to adjust iris settings

Tapping the 'auto exposure' switch icon at the far right of the iris menu opens the iris auto exposure menu.

This gives you the following auto exposure options.

### **Iris**

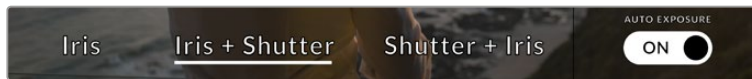
This setting automatically adjusts the aperture to maintain a constant exposure, while keeping shutter speed constant. This will keep motion blur constant, but may affect your depth of field.

### **Iris + Shutter**

Maintains the correct exposure levels by adjusting the aperture, then the shutter speed. If the maximum or minimum available aperture is reached and exposure still cannot be maintained, URSA Mini will begin adjusting the shutter speed to keep exposure constant.

### **Shutter + Iris**

Maintains the correct exposure levels by adjusting the shutter, then the aperture. If the maximum or minimum available shutter speed is reached and exposure still cannot be maintained, URSA Mini will begin adjusting the aperture to keep exposure constant.



While in the iris menu, tap 'auto exposure' to access iris based auto exposure modes

When an auto exposure mode that effects the iris is enabled, a small “A” will appear next to the iris indicator at the top of your URSA Mini touchscreen.

**TIP** Automatic exposure works smoothly with compatible B4 or PL lenses which are designed for video or film production. EF lenses may produce noticeable ‘steps’ in exposure when changing aperture. For this reason, we recommend using only ‘shutter’ auto exposure mode if shooting on URSA Mini EF.

## Duration Display

At the top of your URSA Mini LCD touchscreen, you’ll see your camera’s duration display.



Your URSA Mini's duration display. This will turn red while recording

The duration display provides a timecode counter for checking the duration of your clips and monitoring timecode during recording and playback. The counter displays a time sequence showing Hours:Minutes:Seconds:Frames and will progress through the sequence as you record or play back clips. The timecode will turn red during recording.

The displayed duration of each clip starts from 00:00:00:00 for each clip. The clip duration of the current, or last recorded, clip is displayed on the touchscreen. Time of day timecode is embedded into clips for easier post production.

To see the time of day timecode, simply tap the duration display. Tap the duration display again to return to clip duration.

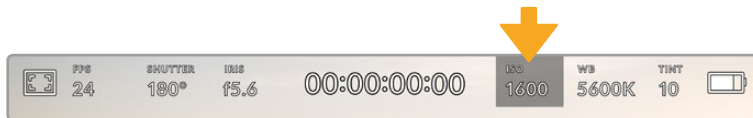
### Additional status indicators may appear around the duration display:

|            |   |
|------------|---|
| <b>W</b>   | Appears to the left of the duration display when your URSA Mini is using a windowed sensor mode.  |
| <b>TC</b>  | Appears to the right of the duration display when showing time of day time code.  |
| <b>EXT</b> | Appears to the right of the duration display if an external timecode is connected and valid.  |
| <b>INT</b> | Appears to the right of the duration display if the camera is running off an internal timecode after being 'jam synced' and disconnected. |
| <b>GEN</b> | Appears when a valid reference source is connected and locked, based on the reference input settings.                                     |

## ISO

The 'ISO' indicator displays your URSA Mini's current ISO setting, or light sensitivity. Tapping this indicator lets you adjust your ISO to suit varying lighting conditions.

The optimum ISO for URSA Mini 4K is 400. The optimum ISO for URSA Mini 4.6K is 800.



Your URSA Mini's ISO indicator. Tap this to access ISO settings

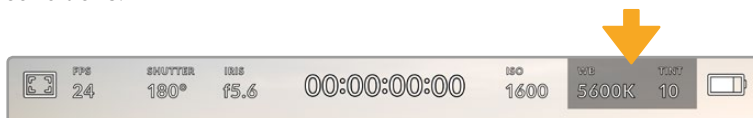


While in the 'ISO' menu, your URSA Mini's ISO settings appear along the bottom of the LCD touchscreen

Depending on your situation, you may choose a lower or higher ISO setting. For example, in low light conditions ISO 1600 can be suitable when shooting on URSA Mini 4.6K but may introduce some visible noise. In bright conditions ISO 200 can provide richer colors.

## White Balance






The 'WB' and 'TINT' indicators display your camera's current white balance and tint. Tapping these indicators lets you adjust your camera's white balance and tint to suit varying lighting conditions.



Your URSA Mini's white balance and tint indicators. Tap these to access white balance and tint settings

Every light source emits a color. For example, a candle flame emits a warm color, and an overcast sky emits a cool color. White balance settings are used to color balance your image so white stays white by adjusting the mix of orange and blue in your image. For example, when shooting under tungsten lamps which emit a warm, orange light, selecting 3200K adds some blue to the image. This balances the color so white is accurately recorded.

Your URSA Mini comes with white balance presets for a variety of color temperature conditions. These are:

|   |                           |         |
|---|---------------------------|---------|
|  | <b>Bright sunlight</b>    | (5600K) |
|  | <b>Incandescent bulbs</b> | (3200K) |
|  | <b>Fluorescent bulbs</b>  | (4000K) |
|  | <b>Mixed light</b>        | (4500K) |
|  | <b>Cloud</b>              | (6500K) |

You can customize any of these presets by tapping or holding the arrow icons to the left and right of the temperature indicator in the bottom left of the 'white balance' menu. Each tap moves the color temperature up or down 50K, but holding the arrow icons down will increase these increments for faster changes. Alternatively, you can move the temperature slider in the middle of the 'white balance' menu.

To further dial in your image, you can adjust the 'tint.' This adjusts the mix of green and magenta in your image. For example, adding some magenta can compensate for the green cast of many fluorescent lights. Many of your URSA Mini's white balance presets include some tint.



Tapping the white balance and tint indicator on your URSA Mini gives you access to five presets, as well as a white balance indicator and slider on the left, and a tint indicator on the right. Adjust these to set a custom white balance for your lighting conditions

While in the 'white balance' menu, your camera's current tint setting is shown at the bottom right of the screen. To adjust the tint, simply tap or hold the arrows to the left and right of the tint indicator. The available range is -50 to +50 in one unit increments. Holding down on the arrows speeds up adjustment.

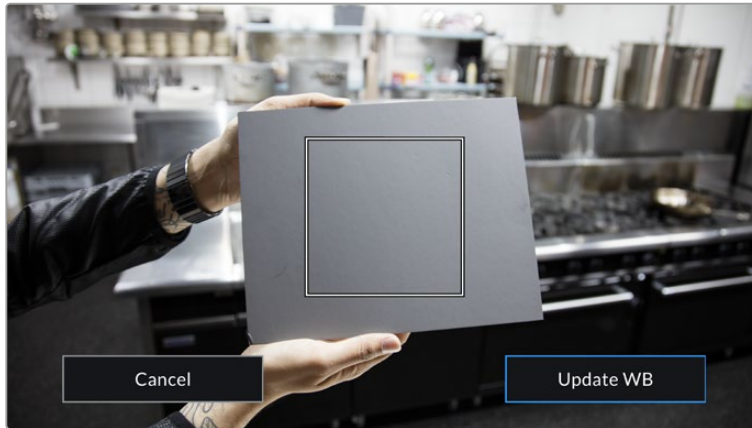
**NOTE** Customizing the white balance or tint will change your preset to 'CWB,' or custom white balance. Custom white balances are persistent; your CWB settings will stay configured between power cycles, and when switching to a preset and back to CWB. This makes it easy to compare a custom white balance to the last preset used.

#### **Auto White Balance**

Your URSA Mini can set white balance automatically. Tapping 'AWB' will bring up the white balance screen.



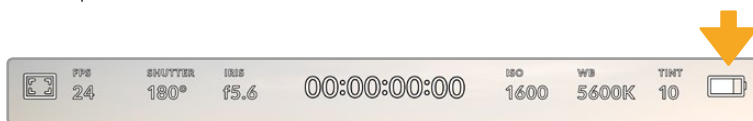
When setting white balance automatically, a square will be overlaid on the center of your image. Fill this square with a neutral surface such as a white or gray card and tap 'update.' Your URSA Mini will automatically adjust its white balance and tint values to ensure that the average of the white or grey within the white balance square is as neutral as possible. Once updated, this will be set as your camera's custom white balance.







Tapping the 'AWB' icon in the white balance menu will bring up the auto white balance screen. Use this with a white or neutral grey surface to automatically set a neutral white balance

## Power

Your URSA Mini's power status is displayed in the top right of the LCD screen. There are four possible indicators:



Your URSA Mini's power indicator is at the top right of the LCD touchscreen. While using battery power, tapping this toggles between 'voltage' and 'percentage' displays

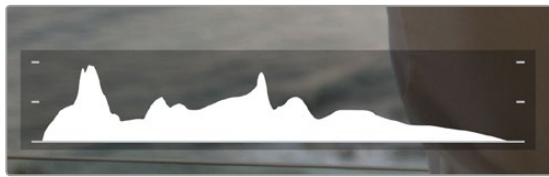
|   |                     |   |
|---|---------------------|---|
|  | <b>AC</b>           | Displayed when your URSA Mini is plugged into mains power.  |
|  | <b>Percentage</b>   | If you are using a percentage accurate battery and plate combination and have your battery display set to 'percentage,' the indicator will display your battery level as a percentage. At 20% charge remaining, the indicator will turn red.  |
|  | <b>Battery bars</b> | If your battery display is set to 'percentage' but your battery plate and battery combination does not support percentage accurate battery information, your URSA Mini will display a battery icon that drains in 25% increments. At 20% charge remaining, the battery bar will turn red. |
|  | <b>Voltage</b>      | When your battery display is set to 'voltage,' this indicator will display your battery's remaining voltage. When your battery drops below 12.5 volts, this indicator will turn red. Your URSA Mini will automatically shut down once the battery reaches 11.9 volts.                     |

When using battery power, you can switch between 'voltage' and 'percentage' or 'battery bars' power indicators by tapping the power indicator. For more information on setting up and reading different battery display modes, see the 'setup' section in this manual.

**TIP** A list of batteries that support percentage accurate power information is provided in the 'mounting batteries' section of this manual.

## Histogram

At the bottom left of your URSA Mini touchscreen, you'll see the histogram. The histogram shows the contrast between whites and blacks along a horizontal scale.



The histogram gives you an indication of the tonal range between shadows and highlights in your clip. It is also a helpful tool for checking the balance of your exposure and to prevent your highlights from clipping.

The left edge of the histogram displays shadows, or blacks, and the far right displays highlights, or whites. When you close or open the lens aperture, you'll notice the information in the histogram moves to the left or right accordingly. You can use this to check 'clipping' in your image shadows and highlights. If the left and right of your edges of the histogram come to an abrupt stop rather than falling off gradually, you may be losing highlight or shadow detail.

**NOTE** If you don't see a histogram in the bottom left of your touchscreen, your LCD monitor settings may be set to display 'codec and resolution.' See the 'monitor settings' section in this manual for more information.

## Record button

Next to the histogram at the bottom of your URSA Mini's touchscreen, you'll see a round grey button. This is the 'record' button. Tap this once to begin recording, and tap it again to stop. While recording, the button and the timecode at the top of your URSA Mini touchscreen will turn red.



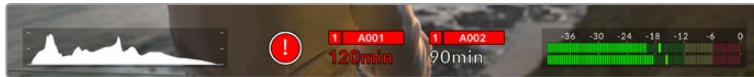
Your URSA Mini's 'record' button, next to the storage indicators at the bottom of the LCD touchscreen



The 'record' button turns red when recording

## Dropped Frame Indicator

The 'record' button will be overlaid with a flashing '!' indicator if your URSA Mini begins dropping frames while recording. The time remaining indicator for the affected card or cards will also turn red. For example, if you are recording in dual card mode and card 1 is dropping frames, the '!' indicator will appear over the 'record' button, and the time remaining indicator on card 1 will turn red. This lets you know if a particular card is too slow for your currently selected codec and resolution. The 'dropped frame indicator' will also display if you have dropped a frame on the previously recorded clip. This indicator will continue to display until another clip is recorded, or the camera is power cycled. Refer to 'Choosing a CFast 2.0 card' section in this manual, for more information on how to avoid dropping frames.



Dropped frame indicator for CFast card 1 dropping frames

**TIP** If you have the your URSA Mini's door LED enabled, this will flash rapidly when dropped frames are detected. For more information, see the 'setup settings' section in this manual.

**NOTE** You can set your URSA Mini to stop recording if dropped frames are detected to prevent a situation where you waste time shooting unusable footage if you don't notice the dropped frame indicator. See the 'record settings' section in this manual for more information.

## Recording Time Remaining

At the bottom of your URSA Mini touchscreen, you'll see the CFast card indicators.

When a CFast card is inserted, the storage indicator at the bottom of the screen will show how much recording time is left on the card. The time is shown in minutes and will vary according to your selected frame rate and codec.

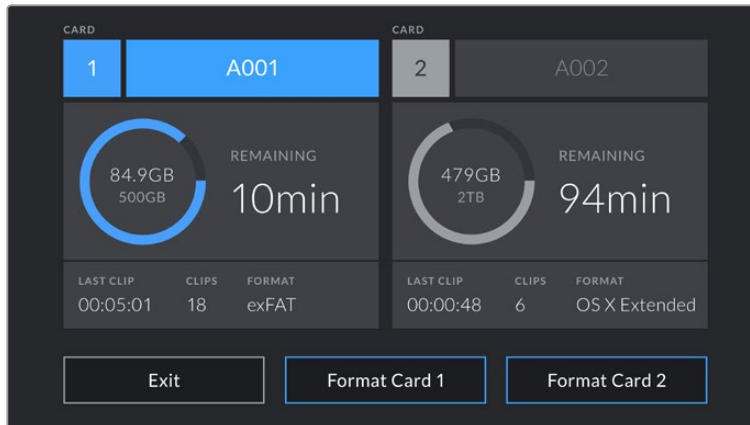
The indicator will automatically recalculate if either of these settings are changed. When there is approximately 5 minutes remaining on your card, the indicator text will turn red, and will blink intermittently when there is only 2 minutes remaining. The indicator displays FULL when a card reaches maximum capacity.



Your URSA Mini's storage indicator will display the name of your CFast card and the record time remaining in minutes

The card name will also be shown in a small bar above the time remaining. This bar will turn blue to indicate that it is the card that the camera will be recording to. While recording, the bar will turn red.

Tapping the CFast card indicators will bring up the storage and formatting menu.



Tap the storage indicators on your URSA Mini's LCD touchscreen to access the storage manager

This menu displays the amount of free space on each CFast card currently in your URSA Mini, as well as the card name, length of the last clip, total number of clips per card, and each card's file format.

You can format CFast cards from this menu. For more information on formatting CFast cards using URSA Mini, see the 'preparing a CFast card for recording' section of this manual.

**TIP** Tapping the card name in the storage menu sets it as the active card. Your URSA Mini will fill this card first.

## Audio Meter

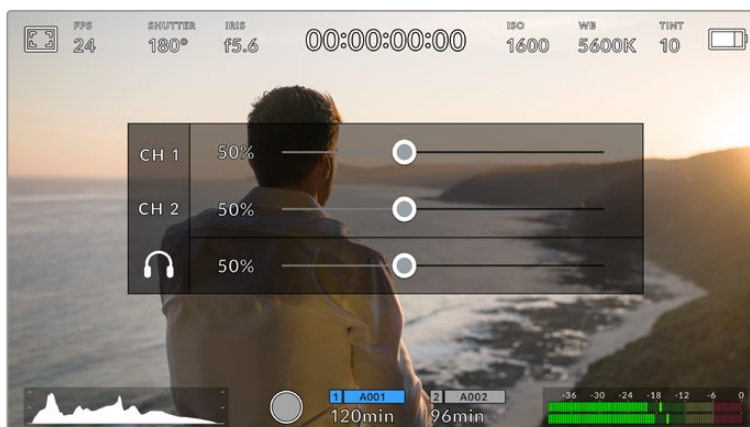
The peak audio meters display audio levels for channels 1 and 2 when using the internal microphone, or via external audio when connected. The display is calibrated to dBFS units and features peak hold indicators which stay visible for a short time so you can clearly see the maximum levels reached.

To achieve optimum audio quality, ensure your audio levels do not reach 0 dBFS. This is the maximum level that your camera can record, meaning that any audio that exceeds this level will be clipped, resulting in distortion.



The colored bars on the audio meter represent peak audio levels. Ideally your peak audio levels should fall in the upper end of the green zone, between -20 and -12dBFS. If your peaks enter into the yellow or red zones, corresponding to -12 and -6dBFS your audio is in danger of clipping

You can tap the audio meter to bring up volume controls for audio input channels 1 and 2, as well as headset or speaker volume.



Tap the audio meters on your URSA Mini LCD touchscreen to easily access volume and headset or speaker settings

## Double tap to zoom

You can magnify any part of your URSA Mini's preview image by double tapping the LCD touchscreen. The area you tap will be magnified, and you can move around the image by dragging your finger around the LCD touchscreen. This is very helpful when checking focus. To return to standard magnification, simply double tap your camera's touchscreen again.



While zoomed in, an indicator in the top left of your LCD touchscreen will show which part of the image you are viewing. You can move around the image by dragging your finger along the screen as you would on a smartphone or tablet

## Full Screen Mode

It can be useful when framing or focusing a shot to temporarily hide your touchscreen's status text and meters. Simply swipe up or down on URSA Mini's LCD touchscreen to hide these. The record indicator, frame guides, grids, focus assist and zebra will remain visible.



Swipe up or down to hide all status indicators on your URSA Mini LCD touchscreen

## Playback Menu

Tap the 'play' control button on your URSA Mini to access the playback menu. You can control previously recorded clips with your camera's control buttons or the LCD touchscreen.

When using the LCD touchscreen, tap 'play' once to start playback and again to pause. Use the forward and reverse buttons just as you would on a CD player. Tapping 'forward' once will move you to the next clip, while tapping 'reverse' once will move you back to the beginning of the current clip. Tapping 'reverse' twice will move to the beginning of the previous clip. Playback of clips can also be looped by activating the loop icon.



The reverse, play, forward and loop icons

To shuttle, hold down either the forward or reverse transport buttons. This will play your footage back at twice regular speed in either forward or reverse, depending on which transport key you held.

Once shuttling, you can change the shuttle rate by tapping the transport keys again. Each time you tap the transport key in the same direction you will double the shuttle rate. The maximum shuttle rate is x16 normal speed. Tapping the transport key again at x16 speed will return you to x2 speed. Tapping the opposite direction will halve the current shuttle speed until you reach 2x speed. You can return to normal playback by tapping the 'play' button.



The shuttle speed indicator displays the speed and direction of footage being fast forwarded or reversed

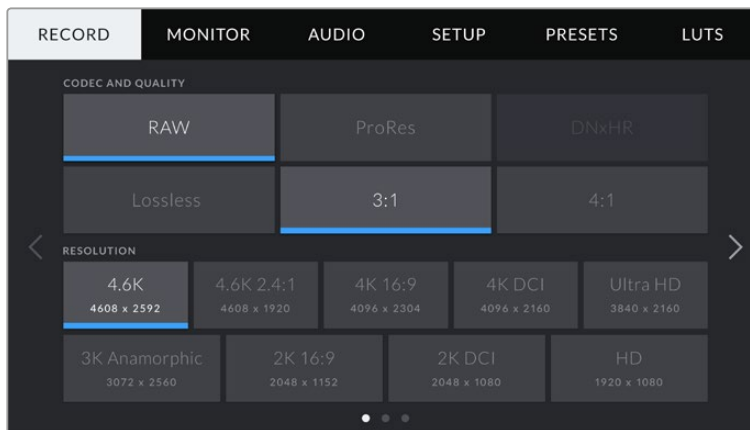
Tapping the 'record' control button in playback mode will return your camera to 'standby' mode, ready to record.

**TIP** Swipe up or down on your URSA Mini's touchscreen to hide status text while playing back footage. Entering the slate in playback mode will allow you to mark the current clip 'good take' in metadata. For more information, see the 'entering metadata' section in this manual.

# Settings

## Dashboard

Pressing the 'menu' control button on your URSA Mini will bring up your camera's dashboard. This is a tabbed menu containing the settings not available from your URSA Mini's head up display. Settings are divided by function into 'record,' 'monitor,' 'audio,' 'setup,' 'presets,' and 'LUTS' tabs. Some tabs, such as 'record,' 'monitor,' and 'setup' contain multiple pages. You can cycle between these pages by tapping the arrows on the left and right of the settings screen, or swiping left or right as you would on a smartphone or tablet.



Tap the 'record,' 'monitor,' 'audio,' 'setup,' 'presets,' and 'LUTS' headings to move between your URSA Mini's dashboard tabs

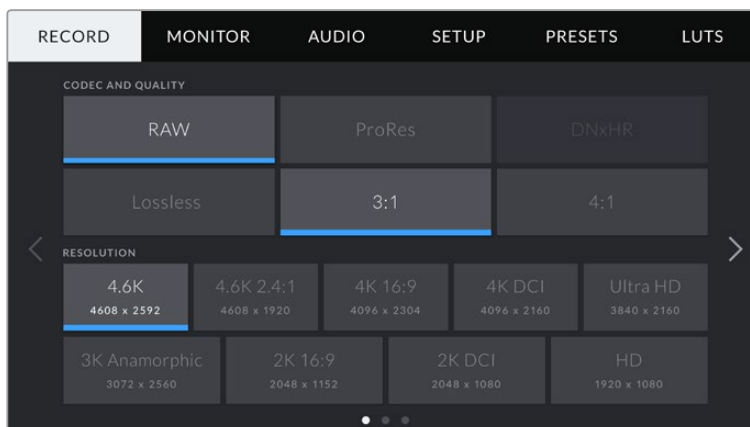
**NOTE** On URSA Mini Pro 4.6K, the camera dashboard times out after one minute of inactivity, returning you to the heads up display.

## Record Settings

The 'record' tab allows you to set your video format, codec, and resolution, as well as other settings which affect the footage saved by your URSA Mini, such as preferred card and detail sharpening. This menu has three pages, which you can cycle through by tapping the arrows at the edge of your camera's touchscreen, or swiping left or right.

### Record Settings 1

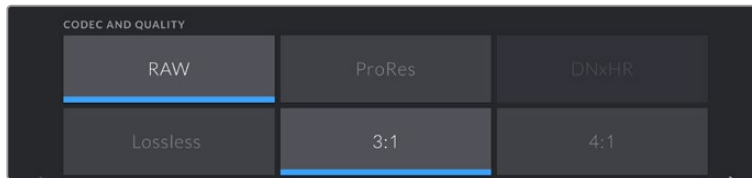
The first page of the 'record' settings tab contains the following settings.



## Codec and Quality

The 'codec and quality' menu is split into two rows. The top row lets you choose between two codec families, CinemaDNG RAW and Apple ProRes, while the bottom row offers quality options within those families. For example, the quality options available within the RAW codec family are 'lossless', '3:1' and '4:1'.

The DNxHR codec family is planned to be available in an upcoming release.

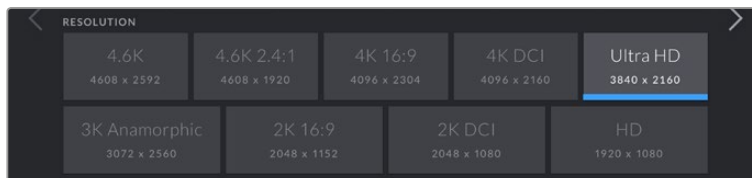


**TIP** The amount of video you can record on a CFast card, or SD card on URSA Mini Pro 4.6K, will increase when choosing codecs that utilize higher compression. Refer to the 'record duration table' in the 'recording' section for more information.

## Resolution

This setting works in combination with the 'codec' setting. Use it to select the resolution for your desired recording format.

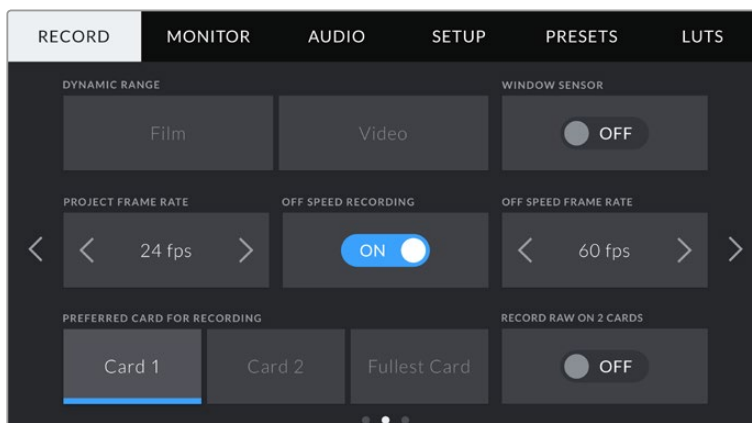
For example, if you want to record Ultra HD clips using ProRes HQ, select 'ProRes' and 'HQ' in the 'codec and quality' menu. Now choose 'Ultra HD' in the resolution menu.



**NOTE** Blackmagic URSA Mini supports a wide range of Cinema DNG RAW and Apple ProRes resolutions from 4.6K or 4K on URSA Mini 4.6K and URSA Mini 4K, respectively, down to HD.

## Record Settings 2

The second page of the 'record' settings tab contains the following settings.





## Dynamic Range

Adjust the 'dynamic range' setting by tapping the dynamic range icons. Blackmagic URSA Mini has two dynamic range settings:

- **Film**

The 'film' setting shoots video using a log curve giving you 12 to 15 stops of dynamic range, depending on your URSA Mini model, and maximizes the information in your video signal to help you get the most out of color grading software, such as DaVinci Resolve.

**NOTE** When recording in CinemaDNG RAW formats, only the film dynamic range setting is available. However, you can still monitor your RAW clips using video dynamic range by loading the default Blackmagic film to video LUT in your camera's LUTs menu. For more information, refer to the LUTS section in this manual.

- **Video**

The 'video' setting is similar to the REC 709 color standard for high definition video. This lets you work faster by recording directly to the compressed video formats in a color space suitable for direct delivery or minimal post processing.

## Window Sensor

URSA Mini can be set to use the 'full' sensor area. Alternatively, for even higher frame rates you can use 'window' mode. This will use only the amount of sensor pixels needed for a given video format rather than downscaling images from the entire sensor.

As the HD 'window sensor' and 2K 'window sensor' modes use only the very center of URSA Mini's sensor, the field of view of any given lens will appear narrower due to the crop factor involved. When using a 20mm lens to shoot HD footage in windowed sensor mode, for instance, field of view of URSA Mini will be equivalent to a 48mm lens.

This setting is available when shooting below your URSA Mini's maximum resolution. For example, 'window sensor' is available when shooting 4.6K 2.4:1, 4K, 3K anamorphic, 2K or HD ProRes footage on URSA Mini 4.6K.

The fastest frame rates are available when shooting HD footage in windowed mode.

**TIP** When using 'window sensor' mode, your URSA Mini's 'resolution' settings will be labelled 'resolution - sensor windowed' to reflect this.

## Project Frame Rate

The project frame rate is URSA Mini's recording format frame rate and provides a selection of common frame rates used in the film and television industry. For example, 23.98 frames per second using 4K ProRes HQ. This frame rate is normally set to match your playback speed and audio sync used in your post production workflow and delivery requirements.

Your Blackmagic URSA Mini has 8 project frame rate settings including 23.98, 24, 25, 29.97, 30, 50, 59.94 and 60 frames per second.

### Off Speed Recording

By default, your URSA Mini's project and sensor frame rates are matched for a natural playback speed. However, by tapping the 'off speed recording' switch icon you can set your sensor frame rate independently.

### Off Speed Frame Rate

With 'off speed frame rate' enabled, simply tap the arrows next to the 'off speed frame rate' indicator to set your URSA Mini's sensor frame rate.

The sensor frame rate sets how many actual frames from the sensor are recorded every second. This frame rate will affect how fast or slow your video will play back at your set project frame rate.

For more information on off speed frame rates, see the 'FPS' guide in the 'touchscreen features' section of this manual.

**NOTE** For information on the maximum frame rates available for each recording format and codec, refer to the 'maximum sensor frame rates' table in the 'recording' section of this manual.

### Preferred Card for Recording

Use this setting to select which storage card your URSA Mini will record to first when both slots are in use. The options are 'card 1,' 'card 2,' and 'fullest card'. Picking either 'card 1' or 'card 2,' is a matter of personal preference, but using either consistently will let you know which card to swap out first as your storage fills up. 'fullest card' can help group files chronologically when shooting a single camera project.

The setting you choose is applied when a CFast card, or SD card for URSA Mini Pro 4.6K, is inserted. You can override this setting at any time by entering the storage manager and setting a different card as 'active.' It's important to note, however, that ejecting and reinserting cards will revert to the current 'preferred card for recording' setting.

**TIP** The 'fullest card first' setting is based on the percentage that your storage cards are filled, rather than their sizes or the amount of data used.

### Record RAW on 2 Cards

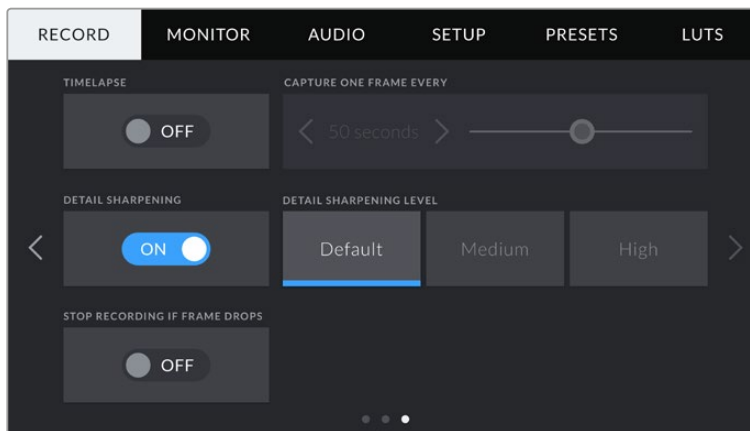
Blackmagic URSA Mini lets you record CinemaDNG RAW clips at higher frame rates by recording to both CFast cards simultaneously. When this setting is enabled your URSA Mini will record to both cards when available. If only one CFast card is inserted, your camera will attempt to record at the chosen frame rate to the single card. Turn 'record RAW on 2 cards' on or off by tapping the switch icon.

You can also enable 'record RAW on 2 cards' to increase the reliability of CFast cards if you find a single card is dropping frames while recording CinemaDNG RAW clips.

This setting also applies to SD cards for URSA Mini Pro 4.6K.

## Record Settings 3

The third page of the 'record' settings tab contains the following settings.



### Timelapse

This setting activates the time lapse feature to automatically record a still frame at the following intervals:

- **Frames** 2 - 10
- **Seconds** 1 - 10, 20, 30, 40, 50
- **Minutes** 1 - 10

For example, you can set the camera to record a still frame every 10 frames, 5 seconds, 30 seconds, 5 minutes etc.

The time lapse feature offers many creative options. For example, setting a 2 frame time lapse interval will give your recorded video a high speed effect when played back.

The format of each still frame is based on your recording format, so if you set the camera to record in 4K ProRes HQ, the time lapse setting will maintain this format. The frame rate will be based on your project frame rate setting, i.e., 24 fps. This is so your time lapse footage can be easily incorporated into your post production workflow.



Your URSA Mini will indicate it is in time lapse mode with an icon over the 'record' button

**TIP** When you record footage in time lapse mode, the timecode counter updates when a frame of video is recorded.

### Detail Sharpening

Use this setting to sharpen your URSA Mini's image. When sharpening is enabled, decrease or increase the level of sharpening by selecting 'default', 'medium' or 'high'.

When sharpening is enabled, it will be applied to ProRes video recorded on camera as well as your URSA Mini's SDI output.

This setting is intended for live studio production where there is no time for post production and you want to output the image live to air. We recommend leaving it 'off' for images you are recording for further post production. For this reason, sharpening is not applied to RAW files that are intended for significant post processing.

### Stop Rec If Card Drops Frames

Use this setting to configure your URSA Mini's behavior when dropped frames are detected. When set to 'off,' recording will continue with dropped frames. When set to 'on,' your camera will stop recording if dropped frames are detected. This can prevent you wasting time shooting unusable footage if you don't spot the dropped frame indicator.

**TIP** Refer to the 'Choosing a CFast 2.0 card' for more information on how to avoid dropping frames.

## File Naming Convention

Clips are recorded to your CFast cards in the CinemaDNG RAW format or to a ProRes QuickTime movie, depending upon which recording format you have chosen.

The table below shows an example of the file naming convention:

| <b>A001_08151512_C001.mov</b>   | <b>QuickTime Movie Filename</b> |
|---------------------------------|---------------------------------|
| A001_08151512_C001.mov          | <b>Camera index</b>             |
| A <b>001</b> _08151512_C001.mov | <b>Reel Number</b>              |
| A001_ <b>08</b> 151512_C001.mov | <b>Month</b>                    |
| A001_08 <b>15</b> 1512_C001.mov | <b>Day</b>                      |
| A001_0815 <b>15</b> 12_C001.mov | <b>Hour</b>                     |
| A001_081515 <b>12</b> _C001.mov | <b>Minute</b>                   |
| A001_08151512_ <b>C001</b> .mov | <b>Clip Number</b>              |

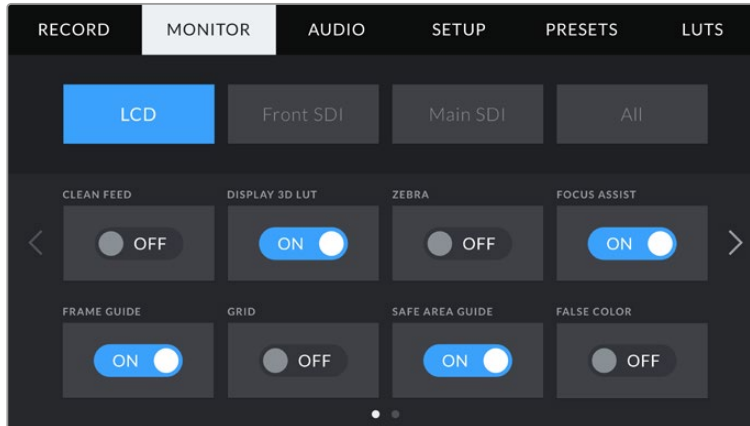
For CinemaDNG files, the folder of the image sequence will also be named the same way.

## Monitor Settings

The 'monitor' tab lets you adjust status text, overlays, and other monitoring options for your URSA Mini's LCD touchscreen, front and main SDI outputs. Options are arranged by output between 'LCD', 'Front SDI' and 'Main SDI', as well as 'All,' which covers monitor settings that affect all outputs on your URSA Mini. Each of these menus has two pages of options, which you can cycle through by tapping the arrows at the edge of your camera's touchscreen, or swiping left or right.

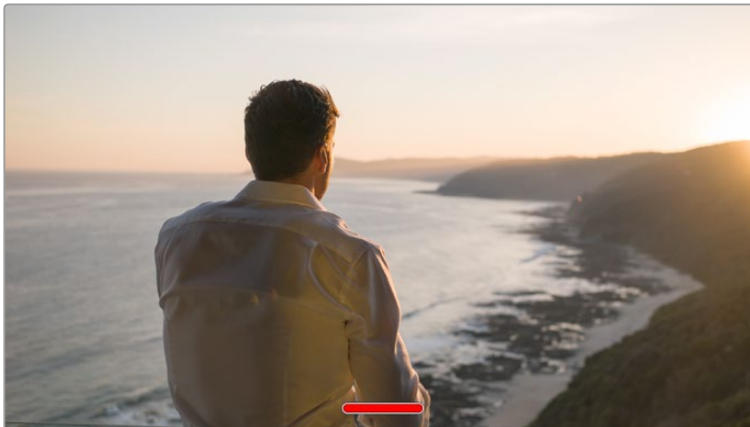
## LCD, Front SDI, Main SDI Monitor Settings 1

The first page of the 'LCD,' 'Front SDI,' and 'Main SDI,' monitor tab contains identical settings for each output. For example, you can set 'zebra' on for the LCD touchscreen, but off the Front or Main SDI outputs.



### Clean Feed

Tap the 'clean feed' switch in the 'LCD,' 'Front SDI' and 'Main SDI' menus to disable all status text and overlays for that output, except the record tally indicator.



Your URSA Mini LCD touchscreen will still display a record tally in clean feed mode

**NOTE** LUTs will still be applied to outputs with 'clean feed' enabled. To disable LUTs, disable the 'display LUT' switch in the 'Monitor' menu for that output.

### Display 3D LUT

Your URSA Mini can apply 3D LUTs to any output to approximate the look of color graded footage. This is especially useful when shooting RAW footage, or with 'film' dynamic range in ProRes or DNxHR, as these produce an intentionally 'flat' low contrast image.

If your URSA Mini has a 3D LUT active, use this setting to independently apply that LUT to your LCD touchscreen, front or main SDI output.

**NOTE** For more information on loading and using 3D LUTs, see the 'LUTS' section of this manual.

### Zebra

Tap the 'zebra' switch in the 'LCD,' 'Front SDI' and 'Main SDI' menus to enable zebra guides for those outputs. For more information on zebra guides and setting zebra levels, see the 'touchscreen features' section in this manual.

### Focus Assist

Tap the 'focus assist' switch in the 'LCD,' 'Front SDI' and 'Main SDI' menus to enable focus assist for those outputs. For more information on focus assist and setting focus assist levels, see the 'touchscreen features' section in this manual.

### Frame Guide

Tap the 'frame guide' switch in the 'LCD,' 'Front SDI' and 'Main SDI' menus to enable frame guides for those outputs. For more information on frame guides and choosing different guides, see the 'touchscreen features' section in this manual.

### Grid

Tap the 'grid' switch in the 'LCD,' 'Front SDI' and 'Main SDI' menus to enable a rule of thirds grid for those outputs. For more information on the rule of thirds grid, see the 'touchscreen features' section in this manual.

### Safe Area Guide

Tap the 'safe area' switch in the 'LCD,' 'Front SDI' and 'Main SDI' menus to enable safe area overlay for those outputs.



The 'safe area' indicator set to 70%

Safe areas are used in broadcast production to ensure that the most important parts of a shot can be seen by most viewers.

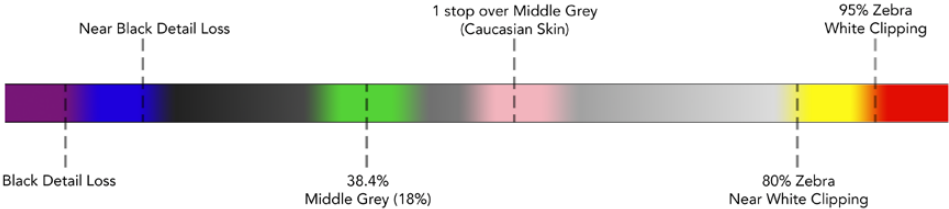
By keeping the most important parts of your shot within a central 'safe area,' you can avoid cropping on older televisions, as well as leaving space for a broadcaster to add bugs, tickers and other overlays along the edges of the screen. Many broadcasters require footage to be submitted within a 90% safe area.

**NOTE** Use the 'safe area guide %' setting in your URSA Mini's 'all' monitoring settings to set the size of the safe area guide.

**False Color**

Tap the 'false color' switch in the 'LCD,' 'Front SDI' and 'Main SDI' menus to enable false color exposure assistance for those outputs.

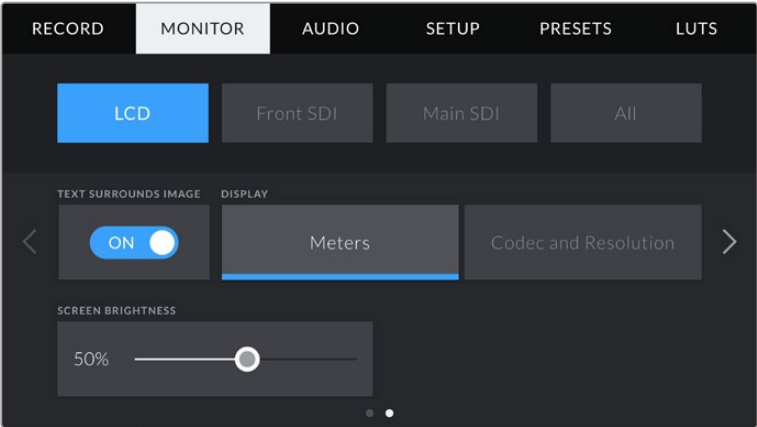
False color overlays different colors onto your image that represent exposure values for different elements in your image. For example, pink represents optimum exposure for caucasian skin tones, while green is a good match to darker skin tones. By monitoring the pink or green false color when recording people, you can maintain consistent exposure for their skin tones. Similarly, when elements in your image change from yellow to red, that means they are now over exposed.



False Color Chart

**LCD Monitor Settings 2**

The second page of your URSA Mini's 'LCD' monitor tab contains settings unique to your LCD touchscreen.



**Text Surrounds Image**

This setting is available on URSA Mini 4K and URSA Mini 4.6K models only. Tap the 'text surrounds image' switch in the 'LCD' menu to scale the image on your LCD touchscreen down 75%. This puts the image in the centre of the LCD touchscreen away from status indicators at the top and bottom edges, giving you an unobstructed view of your URSA Mini's preview image while keeping status text on screen.

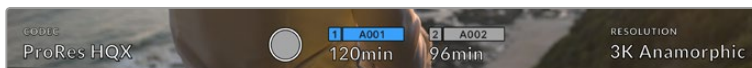


'Text surrounds image' gives you a clear view of your URSA Mini EF or PL's preview image for framing purposes while keeping status text on screen

## Display

Instead of a histogram and audio meters, your URSA Mini can display codec and resolution information at the left and right bottom edges of the LCD touchscreen. This can be useful if you prefer to use false color for dialling in exposure, or are recording audio separately and want to display additional information in the space normally used by the histogram and audio meter.

Simply tap 'meters' or 'codec and resolution' in the 'LCD' menu to select your preferred view.



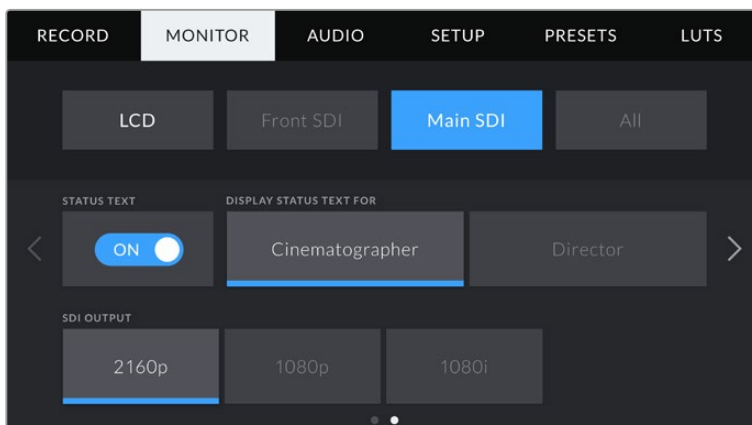
Your URSA Mini can display codec and resolution information in place of the histogram and audio meters

## Screen Brightness

Drag the 'screen brightness' slider in the 'LCD' menu left or right to adjust the brightness of your URSA Mini's LCD touchscreen.

## Front SDI and Main SDI Monitor Settings 2

The second page of your URSA Mini's 'Front SDI' and 'Main SDI' monitor tab contains settings unique to your Front and Main SDI outputs.





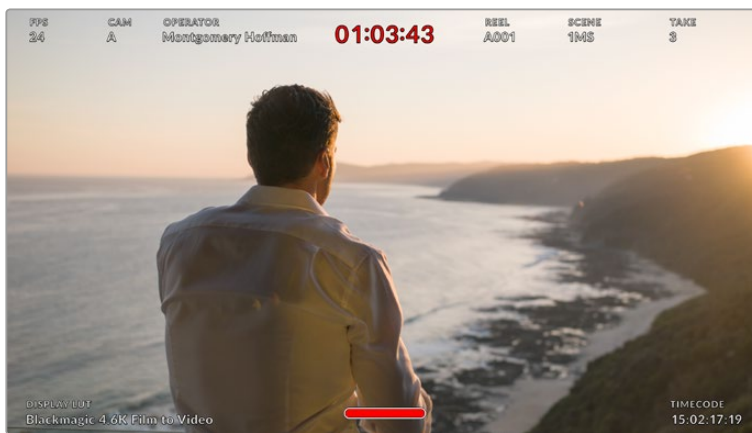
## Status Text

It can be useful to hide the status text and meters on your Front SDI or Main SDI output, leaving only the information necessary to compose or direct a shot. Tap the 'status text' switch icon in the 'Front SDI' or 'Main SDI' monitor menus to toggle the appearance of status text and meters for that output. Overlays such as frame guides, grids, focus assist and zebra will remain visible, if enabled.

Swiping up or down on your URSA Mini's LCD touchscreen has the same effect for the touchscreen.

## Display Status Text For Cinematographer or Director

Your URSA Mini's LCD touchscreen displays information such as ISO, white balance, and aperture that is useful to a camera operator or cinematographer setting up individual shots on that camera. URSA Mini's front and main SDI outputs, however, can also show information useful to a director or script supervisor who is keeping track of multiple shots or cameras.



Your URSA Mini can display director specific status text on its Front and Main SDI outputs

Setting the status text to 'director' in your URSA Mini's 'front SDI' or 'main SDI' monitor settings changes the status text for that output to show the following information.

- **FPS**  
Displays the currently selected frames per second for that camera. If off speed frame rate is disabled, only the project frame rate will be shown. If an off speed frame rate is being used, the sensor frame rate will be shown, followed by the project frame rate.
- **CAM**  
Displays the camera index as set in your URSA Mini's Slate. See the 'slate' section later in this manual for more information.
- **OPERATOR**  
Identifies the camera operator as set in your URSA Mini's Slate. See the 'slate' section later in this manual for more information.
- **DURATION DISPLAY**  
Displays the duration of the current clip, while recording, or the last recorded clip in the following format: hours:minutes:seconds
- **REEL, SCENE, TAKE**  
Displays the current reel, scene and take. For more information on reels, scenes, takes and their labelling conventions, refer to the 'slate' section later in this manual.

- **DYNAMIC RANGE**

The bottom left hand corner of the monitor displays your URSA Mini's currently applied LUT, if applied to that output. If no LUT is applied, 'film' or 'video' dynamic range will be displayed.

- **TIMECODE**

The bottom right of the monitor displays your URSA Mini's timecode, in the following format: hours:minutes:seconds:frames

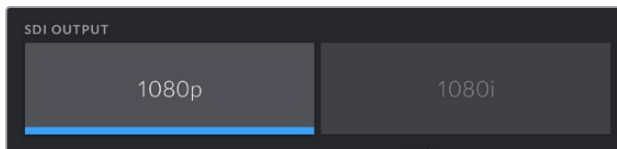
### SDI Output

Both outputs allow you to choose between progressive and interlaced HD output, while your URSA Mini's Main SDI output also has to option of progressive Ultra HD.

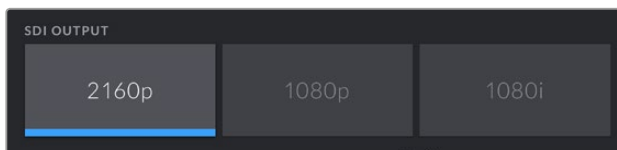
The options available in this setting depend on your camera's resolution and frame rate settings.

Progressive HD, or '1080p' is always available regardless of your recording resolution and frame rate, while interlaced HD, or '1080i' is available when your project frame rate is set to 50, 59.95 or 60.

Ultra HD SDI output, or '2160p' is available on your URSA Mini's main SDI when shooting at Ultra HD resolutions.



SDI Output - Front SDI

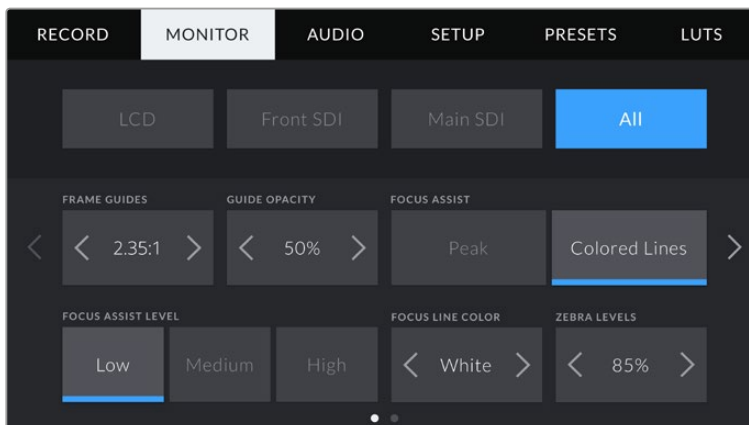


SDI Output - Main SDI

### All Monitor Settings 1

Monitor settings that affect all of your URSA Mini's outputs are grouped within the 'all' menu. For example, setting 'safe area guide %' to 90% in this menu will set the safe area guide to 90% for your camera's LCD, Front SDI and Main SDI outputs.

There are two pages of 'all' settings. The first page of your URSA Mini's 'all' monitor tab contains the following settings.



## Frame Guides

Tap the left or right arrows in the 'frame guides' menu setting to cycle through seven frame guide options for all outputs on your URSA Mini, including EVFs such as Blackmagic URSA Viewfinder. The options are detailed in the 'touchscreen' section of this manual, and are also accessible from the LCD monitoring menu in your LCD touchscreen head up display. It's worth noting that you can individually select whether frame guides will appear on your LCD touchscreen, front SDI and main SDI output in their respective 'monitor' menus.

## Guide Opacity

Tap the left or right arrows in the 'guide opacity' menu setting to choose the opacity of the areas blocked out by frame guides on your LCD touchscreen, front and main SDI outputs. The options are 25%, 50%, 75% and 100%.

## Focus Assist

Your URSA Mini camera has two focus assist modes, 'peak' and 'colored lines.'

- **Peak**

When 'peak' style focus assist is selected, areas of the shot that are in focus are heavily sharpened on your LCD touchscreen or SDI outputs, but not in the recorded image itself. This causes focused parts of your shot to 'pop' out of the softer background on screen. As no additional overlays are used, this can be a very intuitive way to tell when focus is dialled in, especially when the subject you're focusing on is physically well separated from other elements in shot.

- **Colored Lines**

When 'colored lines' style focus assist is selected, a coloured line is superimposed around the parts of the image that are in focus. This can be a little more intrusive than 'peak' style focus assistance as the lines are drawn over your image, but especially in busy shots with a lot of visible elements, it can be a precise focus aid.

## Focus Assist Intensity

To set the level of focus assistance for your LCD touchscreen, front SDI and main SDI, tap the 'low,' 'medium' or 'high' setting.

**NOTE** Setting the focus assist intensity level does not effect whether focus assistance is enabled on your URSA Mini's LCD touchscreen or SDI outputs. You'll still need to turn focus assistance on individually for each output in the 'LCD,' 'front LCD,' or 'main LCD' monitor menus.

**TIP** The optimum level of focus assistance varies shot by shot. When focusing on actors, for example, a higher level of focus assistance can help resolve edge detail in faces. A shot of foliage or brickwork, on the other hand, may show distracting amounts focus information at higher settings.

## Focus Line Colour

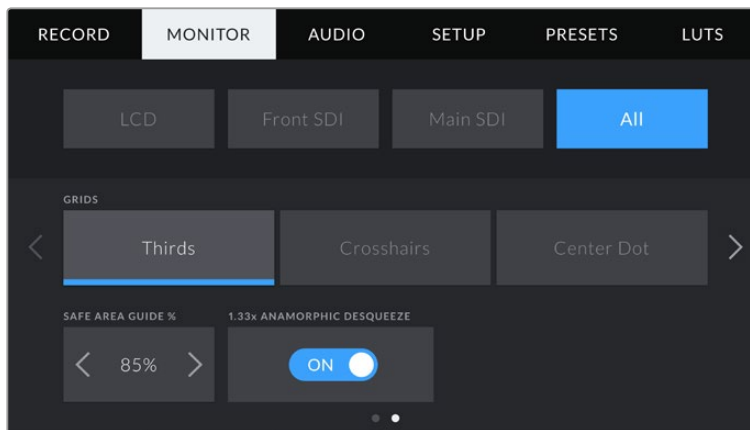
Use this setting to change the color of focus line overlays when using 'colored lines' style focus assistance. Changing the focus line color can make it easier to tell focus assistance lines apart from your image. The available options are 'white,' 'red,' 'green,' 'blue' and 'black.'

## Zebra Levels

Set the exposure level that zebra appears at by tapping the arrow icons on either side of this setting. Zebra level is adjustable in five percent increments between 75 and 100 percent exposure. For more information, see the 'zebra' guide in the 'touchscreen features' section of this manual.

## All Monitor Settings 2

The second page of your Ursa Mini's 'all' monitor tab contains the following options:



### Grids

To set which combination of grids and crosshairs you want to display on your URSA Mini's LCD touchscreen, Front SDI and Main SDI outputs, tap the 'thirds,' 'crosshairs,' or 'center dot' options in this setting.

For more information, see the 'grids' guide in the 'touchscreen features' section earlier in this manual.

### Safe Area Guide %

To adjust the size of the safe area overlay on your URSA Mini's LCD touchscreen, Front SDI and Main SDI outputs, tap the arrows to the left and right of the percentage displayed in this setting. This percentage indicates the size of the safe area in relation to the image frame. Most broadcasters require a 90% safe area.

### Anamorphic Desqueeze

When shooting with anamorphic lenses, the image will appear horizontally 'squeezed' on your URSA Mini's preview outputs and in recorded files. Enabling 'anamorphic desqueeze' will correct the preview image on your URSA Mini as well as recording the desqueeze amount used in the clip metadata for easy correction in post.

The desqueeze amount available will vary depending on what you've set your URSA Mini resolution to, but the resulting image will always be in the cinematic widescreen 2.4:1 aspect ratio.

Anamorphic lenses designed for film typically have a 2x squeeze factor. Your URSA Mini's '3K anamorphic' resolution is designed for use with these lenses and will perform a 2x desqueeze when set to this resolution with 'anamorphic desqueeze' enabled.

Anamorphic lenses designed for 16:9 digital image sensors often use a 1.33x squeeze factor to produce 2.4:1 cinematic widescreen images from the entire 16:9 sensor. Therefore, when your URSA Mini is set to 16:9 resolutions such as '4K 16:9' and 'HD 16:9,' the desqueeze ratio will be 1.33:1.

**TIP** If your image appears horizontally stretched when shooting with a standard spherical lens, make sure you don't have 'anamorphic desqueeze' enabled.

## Audio Settings

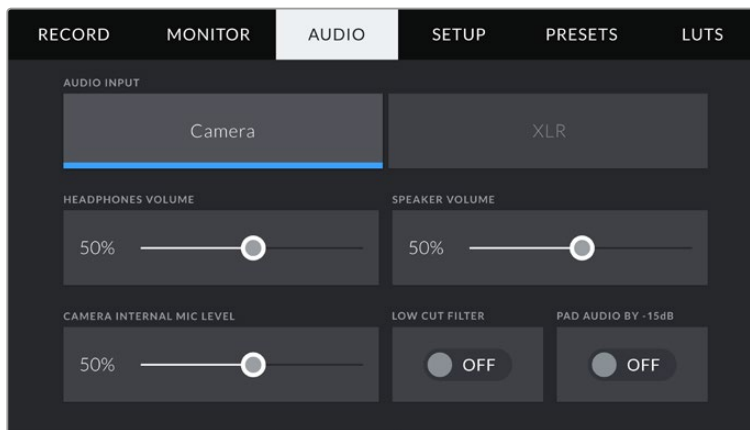
The 'audio' tab lets you adjust the audio input and monitoring settings on your URSA Mini. This menu is slightly different between URSA Mini and URSA Mini Pro 4.6K models, so the available settings are described separately below.

### Audio Settings – URSA Mini

The audio settings for your URSA Mini are divided by audio input source between 'camera' and 'XLR' for onboard and externally sourced audio. 'XLR' settings are spread over two pages, which you can cycle through by tapping the arrows at the edge of the LCD touchscreen or swiping left or right.

#### Camera Audio Settings

When you select 'camera' audio input, your URSA Mini will have one page of audio settings available. The 'camera' audio tab contains the following settings.



#### Headphones Volume

This slider adjusts the output levels for headphones attached to URSA Mini's 3.5mm headphone jack. Move the audio slider left or right to adjust levels.

#### Speaker Volume

This slider adjusts the output levels for your URSA Mini's built in speaker. Move the audio slider left or right to adjust levels.

#### Camera Internal Mic

This slider adjusts the recording levels for your URSA Mini's built in microphone. Move the audio slider left or right to adjust levels. The built in microphone records to audio channels 1 and 2.

#### Low Cut Filter

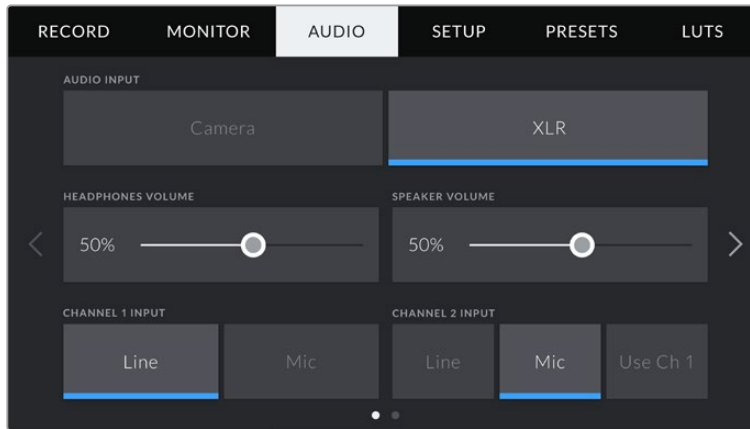
Tap this switch icon to enable the low cut filter which helps to reduce potential wind noise or low frequency rumbling that may occur in exterior shooting conditions.

#### Pad Audio By -15dB

The -15dB pad option gives you added control to further reduce the microphone input gain levels on your URSA Mini's internal microphone when shooting in a loud environment even after your input levels are already turned down.

## XLR Audio Settings 1

When you select 'XLR' audio input, your URSA Mini will have two pages of settings available. The first page of the 'XLR' audio tab contains the following settings.



### Headphones Volume

This slider adjusts the output levels for headphones attached to URSA Mini's 3.5mm headphone jack. Move the audio slider left or right to adjust levels.

### Speaker Volume

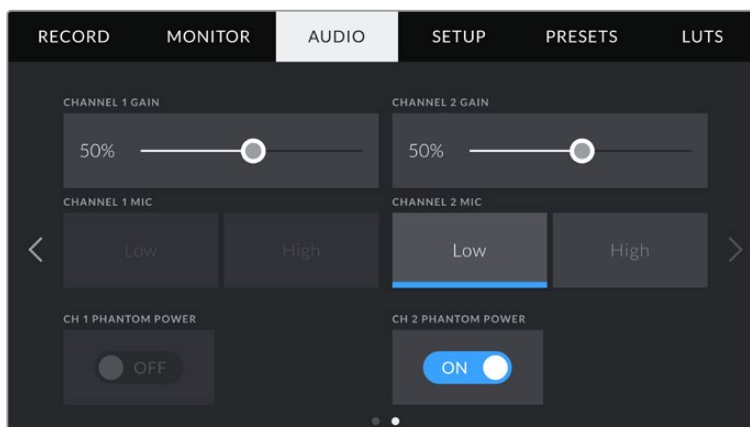
This slider adjusts the output levels for your URSA Mini's built in speaker. Move the audio slider left or right to adjust levels.

### Channel 1 and 2 input

Set the external audio input levels by tapping 'line' or 'mic' for channels one or two. These correspond to line, or microphone levels with 48V phantom power. It's important to select the appropriate level for your audio signal. You can set these independently for channels one and two. Channel 2 also has the option of using channel 1's input if you want to record channel 1 external audio to channels 1 and 2.

## XLR Audio Settings 2

The second page of the 'XLR' audio tab contains the following settings.



### Channel 1 and 2 gain

Move the slider left and right on the 'channel 1 gain' and 'channel 2 gain' settings to adjust the audio levels for each channel.

### Channel 1 and 2 Mic

The Mic option gives you added control of input gain levels on an external microphone by setting the preamplification level to 'low' or 'high.' The 'low' setting can be useful when shooting in a loud environment even after your input levels have already been turned down.

### Channel 1 and 2 phantom power

Your URSA Mini's XLR inputs can provide 48V phantom power so you can use microphones that aren't self powered. When your camera is set to 'XLR' audio input, simply tap the 'phantom power' switch icon to enable phantom power.

**NOTE** It is standard practice to plug in your XLR cable before switching phantom power on. It is also important to switch phantom power to 'off' when you no longer have a phantom powered microphone connected. Connecting equipment that doesn't require phantom power whilst still in phantom power mode can damage your equipment, as the camera outputs a charge when in this mode. Phantom power can also take quite a while to discharge after switching phantom power off on URSA Mini. Please be aware that you should wait a few minutes when switching off phantom power before plugging in any other microphones or XLR audio equipment.

## Audio Settings – URSA Mini Pro 4.6K

The audio settings for your URSA Mini Pro 4.6K are spread over two pages and divided between channels 1 and 2, while an upcoming software update will add two additional channels.

You can map each audio channel to a different source, as well as adjusting various settings such as padding and low cut filters.

These settings work together with the switches on your URSA Mini Pro 4.6K's internal control panel. So after you've set your audio source for a particular channel, you can use the internal control panel switches to set the signal type and whether phantom power is enabled for that channel.

### Audio Settings 1

The first page of your URSA Mini Pro 4.6K's 'audio' tab contains the following settings.



## Channel Source

Use the 'record channel 1 source' and 'record channel 2 source' buttons to select your audio source for each audio channel. The options are

- **Camera Left or Right**  
Use this setting to record from your camera's internal microphones.
- **Camera Mono**  
Use this setting to record audio from your URSA Mini Pro 4.6K's built in microphone's left and right channels onto a single audio channel.
- **XLR 1 or 2**  
Use this setting to record from your camera's XLR inputs. Depending on which audio signal you've set on your URSA Mini Pro 4.6K's internal control panel switches, your XLR input may be listed as 'mic,' 'line,' or 'AES.' If phantom power is enabled and you have your XLR input set to 'mic' you'll also see a '+48V' indicator here. On URSA Mini Pro, it is important to ensure that the +48V switch gets turned 'off' when you disconnect your phantom powered microphone.
- **XLR 1 or 2 - Mic Backup**  
Use this setting to record audio from a microphone plugged into your URSA Mini Pro 4.6K's XLR 1 or 2 input at a lower level than the standard 'mic' recording. This can be used to avoid audio clipping in the event of an unexpected increase in loudness. This feature will only be available as a selectable item if the XLR 1 or 2 input switch is set to 'mic'.
- **None**  
Use this setting to disable your audio channel.

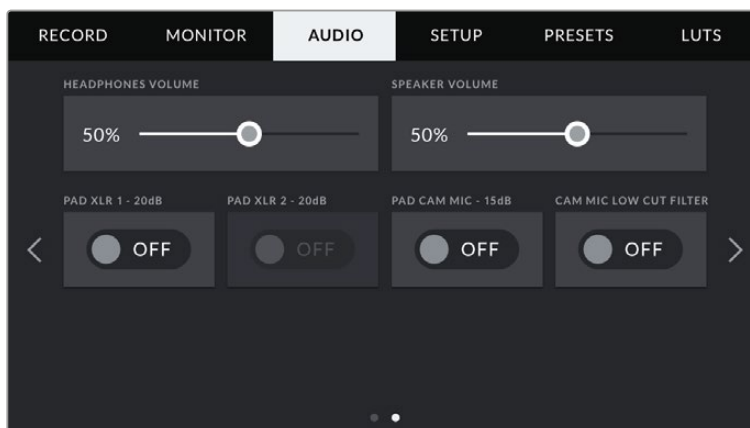
## Recorded Channel Level 1/2

Use these sliders to adjust the recording levels of your chosen channel 1 and 2 sources. Audio meters are included with each slider to help you set the correct audio level. These levels will also update when you adjust the audio using the audio knobs on the ergonomic control panel.

To achieve optimum audio quality, ensure your audio levels do not reach 0 dBFS. This is the maximum level that your camera can record, meaning that any audio that exceeds this level will be clipped, resulting in distortion.

## Audio Settings 2

The second page of your URSA Mini Pro 4.6K's 'Audio' tab contains the following settings





### Headphone Volume

This slider adjusts the output levels for headphones attached to URSA Mini's 3.5mm headphone jack. Move the audio slider left or right to adjust levels. These levels will also update when you adjust the headphone volume using the settings wheel on the forward control panel.

### Speaker Volume

This slider adjusts the output levels for your URSA Mini's built in speaker. Move the audio slider left or right to adjust levels. These levels will also update when you adjust the speaker volume using the settings wheel on the forward control panel.

### Pad XLR -20dB

The -20dB pad option gives you added control to further reduce the input gain levels on your URSA Mini's XLR audio inputs when shooting in a loud environment even after your input levels are already turned down.

### Pad Cam Mic - 15 dB

The -15dB pad option gives you added control to further reduce the microphone input gain levels on your URSA Mini's internal microphone when shooting in a loud environment even after your input levels are already turned down.

### Cam Mic Low Cut Filter

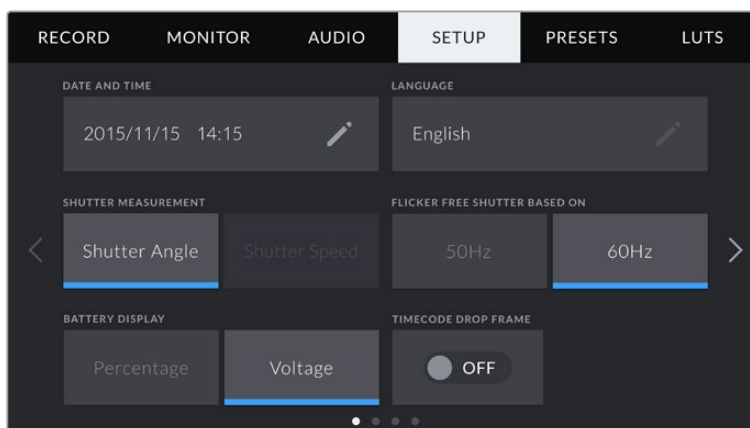
Tap this switch icon to enable the low cut filter which helps to reduce potential wind noise or low frequency rumbling that may occur in exterior shooting conditions.

## Setup Settings

The 'setup' tab contains your URSA Mini's identification settings, software version, function button settings and other camera settings not directly linked to recording or monitoring. This menu has four pages, which you can cycle through by tapping the arrows at the edge of the LCD touchscreen, or swiping left or right.

### Setup Settings 1

The first page of your URSA Mini's 'setup' tab contains the following settings.



Setup menu in URSA Mini. On URSA Mini Pro 4.6K there is an additional option to customize how the ND filter information is displayed.

### **Date and Time**

Set your URSA Mini's date and time by tapping the 'date and time' setting. The date format is year, month, day and the time format is 12 hour. Your URSA Mini's date and time are also used for time of day timecode if an external timecode source is not connected.

### **Language**

Tap the 'language' setting to change the language of your URSA Mini's menus and status text. English is the only currently available language but more are planned for upcoming software updates.

### **Flicker Free Shutter Based On**

Use this setting to change the mains power frequency your URSA Mini uses to calculate flicker free shutter settings.

When shooting under lights, your shutter angle can effect the visibility of flicker. Your URSA Mini will automatically calculate flicker free shutter angles for your current frame rate and display suggestions in the 'shutter angle' menu. These angles are effected by the frequency of the local mains power supply used to drive those lights. In most PAL countries, this frequency is 50Hz, while NTSC countries typically use 60Hz power. Simply tap '50Hz' or '60Hz' to set the right frequency for your region.

**NOTE** The characteristics of individual light sources may still cause flicker even when using flicker free angles. We recommend always performing a test shoot when not using continuous lights.

### **Battery Display**

Your URSA Mini can change the way the battery level indicator displays the remaining charge. The two settings are 'percentage' and 'voltage.' When using a battery and plates that support percentage accurate levels, setting 'battery display' to 'percentage' will show your battery power remaining as a percentage.

**TIP** A list of batteries that support percentage accurate power information is provided in the 'mounting batteries' section of this manual.

If your battery and plate combination does not support percentage accurate readings, the display will show four bars which empty as the battery depletes.

If this option is set to 'voltage,' battery levels will be displayed in volts. We recommend that you swap the battery as it approaches 12V.

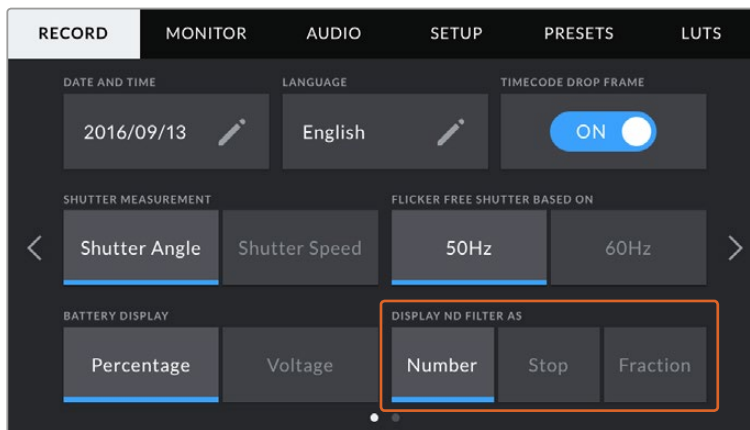
**TIP** You can also toggle between 'voltage' and 'percentage' battery displays by tapping the power icon on the LCD touchscreen.

### Time Code Drop Frame

Use the 'timecode drop frame' option to use drop frame timecode when using NTSC project frame rates of 29.97 and 59.94. Drop frame timecode drops a small number of frames from the timecode at set intervals. This keeps your project timecode accurate despite each second not containing a whole number of frames at NTSC frame rates.

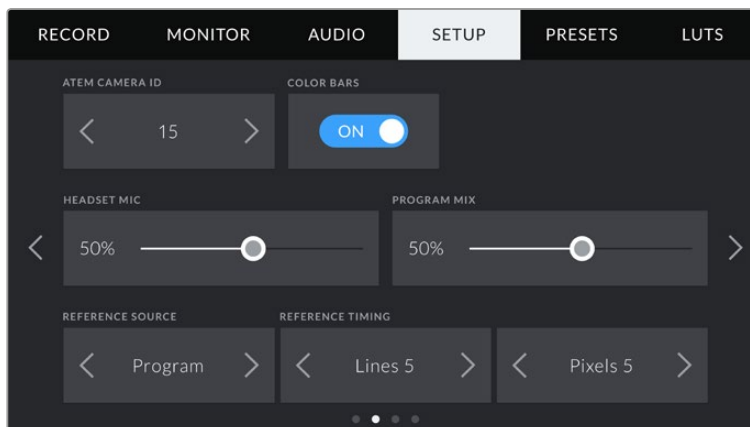
### Display ND Filter As

Use this setting to adjust how the ND filter indicator on your URSA Mini Pro 4.6K displays your ND filter setting. Each setting corresponds to a different camera convention. Cinematographers typically use ND.number notation, while users familiar with DSLRs or broadcast cameras may prefer this information in f-stop format, or as a fraction of available light. These options are available here as 'number,' 'stop,' and 'fraction,' respectively.



### Setup Settings 2

The second page of your URSA Mini's 'setup' tab contains the following settings.



### ATEM Camera ID

If you're using URSA Mini with an ATEM Switcher and want your camera to receive tally signals from the switcher, you'll need to set the camera number on your camera. This ensures the switcher sends the tally signal to the correct camera. The camera number can be set to a value of 1-99 by tapping the left or right buttons. The default setting is 1.

## Color Bars

Outputting color bars rather than a preview image can be useful when connecting your URSA Mini to a switcher or external monitor. The appearance of your URSA Mini's color bars on your switcher or monitor confirms the connection, and you can perform basic monitor calibration based on the colors of the bars. To turn on color bars for all outputs on your URSA Mini, including the LCD touchscreen, simply tap the 'color bars' switch icon.

## Headset Mic

Move this volume slider left or right to increase or decrease audio microphone input levels. The default setting is 50%.

## Program Mix

This setting changes the balance of camera sound to talkback sound. The headphones will output audio following what is displayed on the LCD. For instance, if you are in camera view, camera audio is heard. If you are in program view, program audio is heard. The default setting is 100%.

## Reference Source

This setting is used to select the reference source. Your URSA Mini can lock to an internal or external reference source, or to the reference signal in program input from an ATEM switcher. If you are using your URSA Mini with an ATEM Switcher's camera control function, you should always set your reference source to 'program' unless the switcher itself and all connected cameras are set to an external reference.

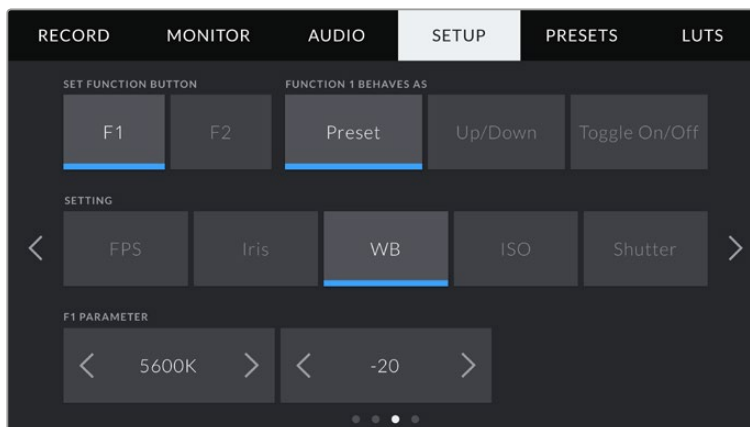
**NOTE** When you are setting your reference source for URSA Mini, you may experience a small dropout on your camera's outputs when switching between your reference sources. This is because the camera is adjusting its referencing timing to match that of the external source. For this reason it is important not to change this setting during a production and only while setting up.

## Reference Timing

These settings allow you to manually adjust the reference timing on a line or pixel basis. Simply tap the arrow icons on either side of the "lines" and "pixels" settings to make adjustments.

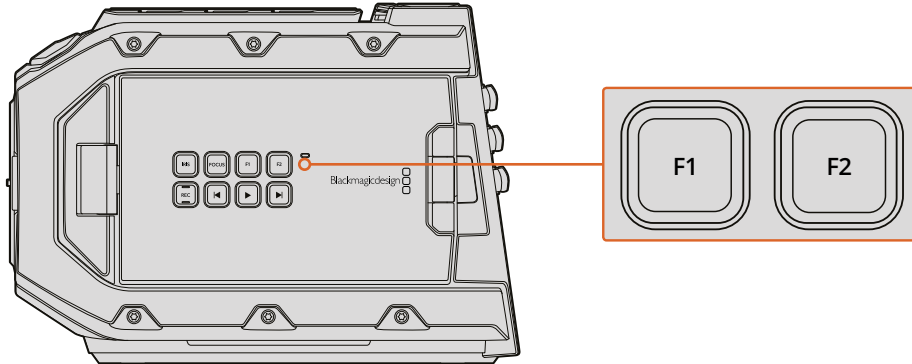
## Setup Settings 3

The third page of your URSA Mini's 'setup' tab contains the following settings

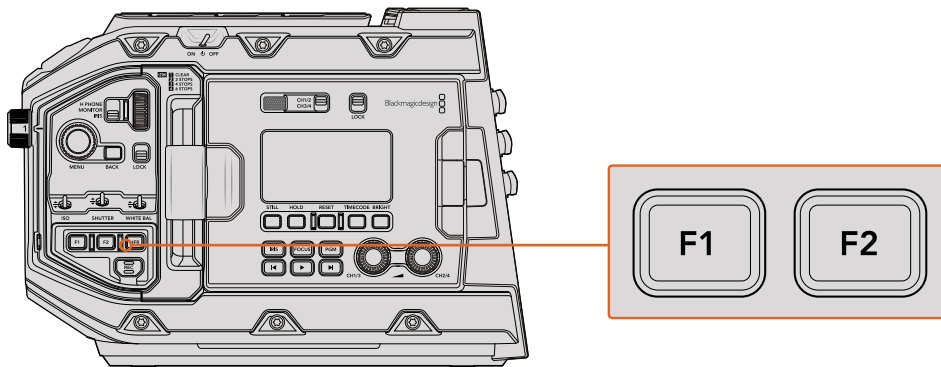


## Set Function Button

On the outside of your URSA Mini's LCD touchscreen, you'll notice two function buttons, 'F1' and 'F2.' These are mappable to frequently used features and are quickly accessible when using your camera with the LCD touchscreen closed, such as when you are using URSA Viewfinder.

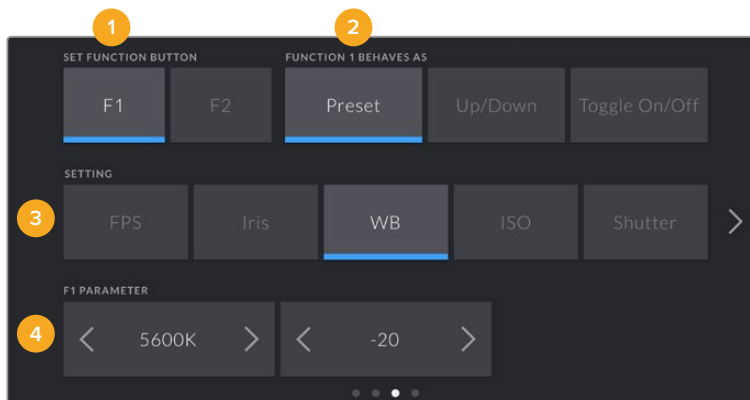


Your URSA Mini's F1 and F2 buttons are located on the outside of the LCD touchscreens



URSA Mini Pro 4.6K

To set these buttons, select a function button and then its behavior, a setting, and a parameter for that setting.



- 1 Button
- 2 Behavior
- 3 Setting
- 4 Parameter

## Function 1/2 Behaves as

Once you have selected the function button you want to map, you can select a behaviour. The available options are:

- **Preset**

When set to this behavior, pressing a function button will recall a combination of a setting and a parameter.

To set a preset, select the setting you want to use from the 'setting' menu, and adjust that setting by tapping the arrow icons on either side of the 'parameter' menu.

For example, to set the F1 button to recall a preset aperture of f8, select the 'preset' behavior, tap the 'iris' setting, and tap the arrows on either side of the 'parameter' menu until you get to f8. Tapping the preset again returns your camera to the previous setting.

- **Up/Down**

When set to this behavior, pressing a function button will move a particular setting up or down.

For example, you may want to set F1 to increase your lens aperture and F2 to decrease it. To do this, select the 'F1' function button, set the behavior to 'up/down', and the parameter to 'up.' Do the same for the 'F2' function button, but set the option to 'down.'

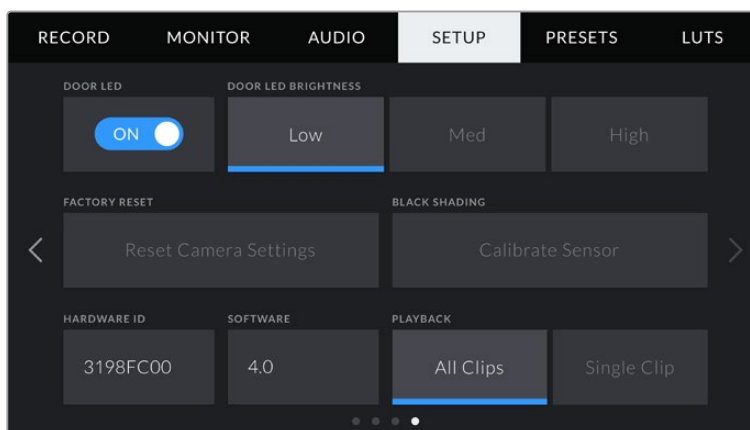
- **Toggle On/Off**

When set to this behavior, pressing a function button will toggle a particular setting on or off. The 'setting' menu is greyed out in this mode. Instead, tap the left or right arrows in the parameter menu to scroll through the available options. These are 'off speed recording,' 'color bars,' 'clean feed,' 'display LUT,' 'frame guides,' 'focus assist,' 'false color,' and 'zebra.'

Using the 'Toggle On/Off' behaviour also lets you select the output this setting applies to. Simply tap any combination of 'LCD,' 'Front SDI' and 'Main SDI' to select. If the output for an option is not available, such as 'color bars' which always applies to all outputs, the 'LCD,' 'Front SDI,' and 'Main SDI' settings are disabled.

## Setup Settings 4

The fourth page of your URSA Mini's 'setup' tab contains the following settings.



### Door LED

Your URSA Mini has a small LED on the outside of the LCD touchscreen that provides tally and status information. You can enable or disable it by tapping the 'Door LED' switch icon. The LED for tally and status information is located in the forward control panel on URSA Mini Pro 4.6K, and is referred to as 'Status LED'. It can be enabled or disabled by tapping the 'Status LED' switch icon.

The LED will provide the following status indicators:

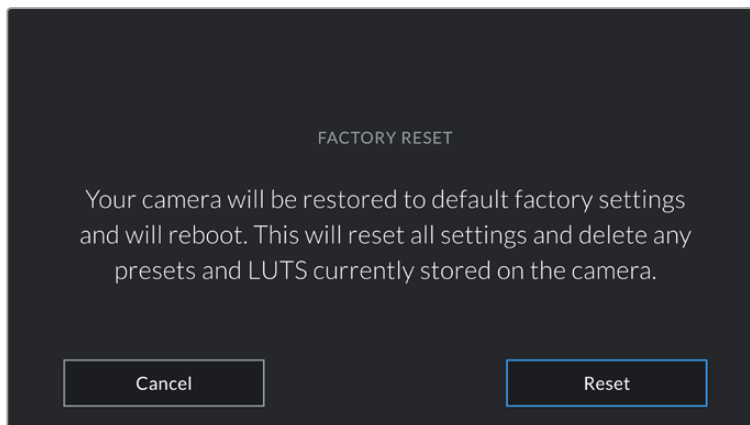
- **White**  
The camera is powered on and in 'standby' mode.
- **Red**  
The camera is recording. Slow flashing indicates that your camera's storage is filling up, while rapid flashing indicates dropped frames.
- **Green**  
The camera is in playback mode.
- **Orange**  
If your camera's battery is low, the LED will flash orange and your other current status color. For example, if currently recording, the LED indicator will flash orange and red. The threshold for 'low' battery is 20 percent for batteries that support percentage accurate charge information, or 12.5 volts for batteries that don't.

### Door LED Brightness

To set the brightness of your URSA Mini's door LED or URSA Mini Pro 4.6K's status LED, simply tap 'low,' 'medium,' or 'high.'

### Factory Reset

To reset the camera to its default factory settings, tap the 'reset' button. You will be asked to confirm this action as it will erase any LUTS and presets currently stored on the camera. Tap 'reset' on the confirmation page to reset your camera settings. On URSA Mini Pro 4.6K, this process can take up to two minutes to complete.



When selecting 'factory reset' you will be prompted to confirm your action

### Hardware ID

The 'Hardware ID' indicator displays an 8 character identifier for your URSA Mini. This is unique to each camera. A longer, 32 character version of this ID is also included in the metadata for RAW and ProRes video. This can be useful for identifying which footage came from a particular camera if filenames are changed as the camera hardware ID remains constant.

### Software

Displays the current software version installed on your URSA Mini. See the 'Blackmagic Camera Setup Utility' section for more information on updating software.

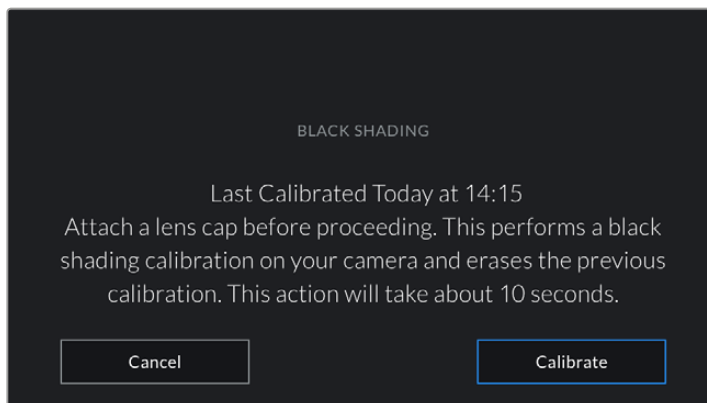
### Playback

This setting allows you to select whether to play back a 'Single Clip' or 'All Clips' during playback. 'All Clips' will play back through all matching media sequentially, and 'Single Clip' will

play one clip at a time. This also applies for the loop function. Selecting loop on 'All Clips' will play through all of the clips on the CFast 2.0 card and then loop. Selecting 'Single Clip' will loop one clip at a time.

### Black Shading

On URSA Mini cameras using the 4.6K sensor, the black shading feature optimizes image quality by balancing the black levels on the sensor. It is best to carry out this process after your camera has warmed up and has been running for a few minutes. To carry out a black shading calibration you will need to place the dust cap on the camera, or place the lens cap on the lens and then press the 'calibrate' button. You will be asked to confirm this action, as you require the correct setup for this to function correctly. Calibration will take up to 10 seconds and you will be notified when the process is completed. Your camera will remember the last date and time that black shading was completed. This will optimise image quality in the shadows.

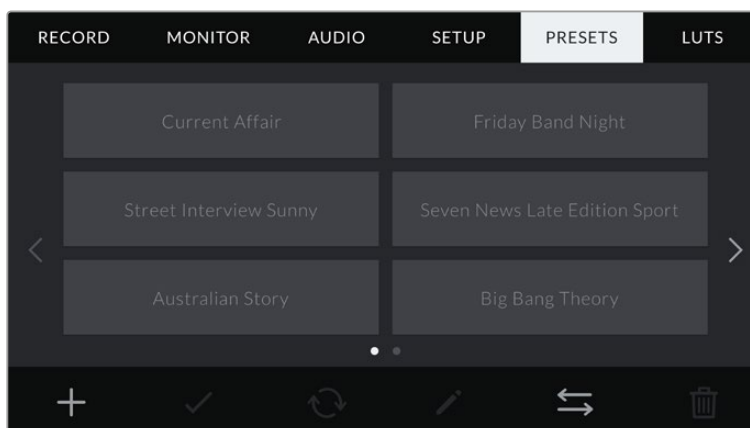


Black shading callibration recommended

## Presets

The 'presets' tab lets you save and recall a complete collection of settings for your URSA Mini. This is very useful when one camera is used for multiple projects. For example, you may use your URSA Mini for a variety of different shoots, from documentaries to music videos, with very different settings between types of projects. Your URSA Mini's 'presets' function lets you save the setup for a particular project or type of shoot and come back to it quickly and easily when required.

You can also import and export presets, which is very useful for setting up a multi camera shoot. Simply set up one URSA Mini to suit your project, then export that preset for all the other URSA Minis on set.



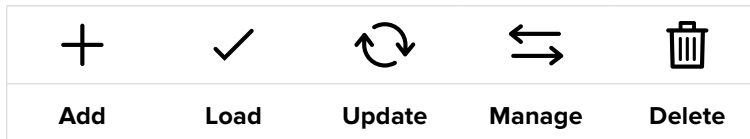
Your URSA Mini's Presets tab



**NOTE** Your URSA Mini can save up to twelve presets to its internal memory.

### Preset buttons

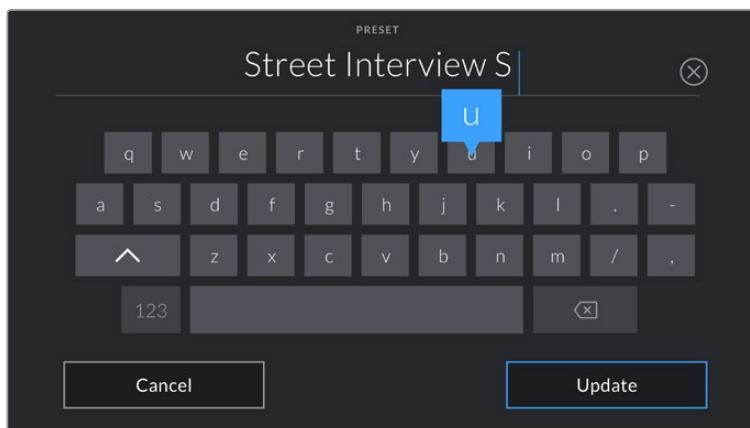
The button icons along the bottom of your URSA Mini's 'preset' menu correspond with the following functions.



### Saving and loading presets

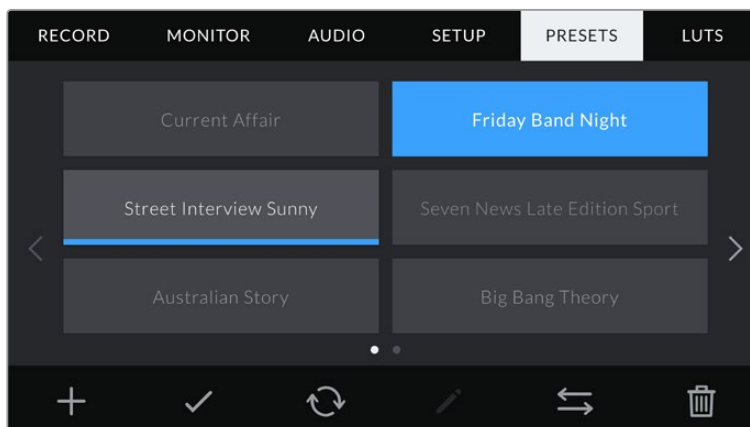
To create a new preset, tap the 'add' icon. This will bring up a touch keyboard on your LCD touchscreen where you can name your preset. Once you've typed in the name, tap 'update' to save all of your URSA Mini's current settings to that preset.

If your URSA Mini already has a preset loaded with the same name, you will be prompted to overwrite the existing preset or keep both.



Enter a name for your preset by tapping the 'add' icon in the preset tab and using the touch keyboard

Once you have a preset saved, tap its name in the preset menu to select it. To load it tap the 'load' icon.



Select a preset and tap the 'load' icon to load it. Selected presets will appear solid blue, while currently loaded presets have a blue line along the bottom of their icon

You can update a preset by tapping the 'update' icon. This will bring up a prompt asking you if you want to update the preset with your URSA Mini's current setting. Tap 'update' to confirm.

### Importing presets

To import presets, tap the 'preset manager' icon at the bottom of the preset menu.

Tap 'import preset' and confirm your selection with the 'import' icon. This will bring up the import screen. Choose 'card 1' or 'card 2' at the top left of this screen to display any available presets on those cards.

Your URSA Mini will search the root directory and 'presets' folder on the selected CFast card. It's worth noting that presets saved elsewhere on your CFast cards will not be visible.

Tap a preset to select it, and tap 'import' to confirm. At the top right of this screen, you'll see the number of remaining empty preset slots available on your camera.

**NOTE** If your URSA Mini's preset slots are full, the import menu will not be available. You will need to delete an existing preset to make room.

### Exporting presets

To export a preset to a CFast card, select the preset you want to export by tapping it, and tap the 'manage' icon. You will be prompted with two options, 'import preset' or 'export selected preset.'

Tapping 'export selected preset' will prompt you to choose which CFast card you would like to export to. Choosing a card will export the selected preset to a 'presets' folder on that card.

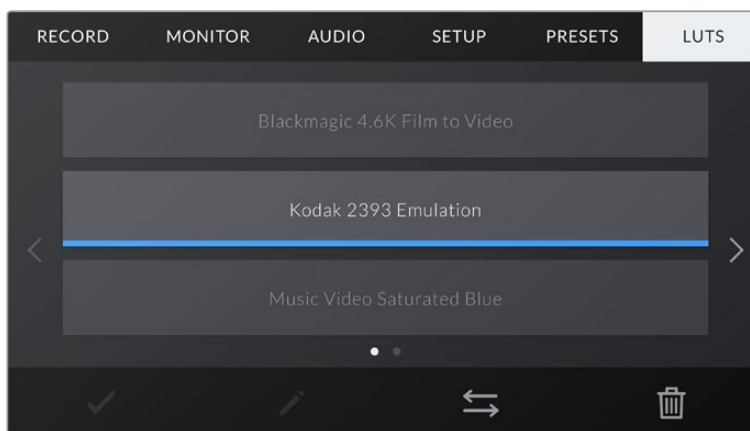
If the CFast card you've chosen already has a preset saved to it with the same name as the one you're exporting, you will be prompted to overwrite the preset on the card, or keep both presets.

### Deleting presets

Your URSA Mini has space for twelve presets. To delete a preset, select it and tap the 'delete' icon. You will be prompted to confirm your choice. Tap 'delete' to confirm.

## LUTS

The 'LUTS' menu lets you import, export and apply 3D LUTs to your camera's outputs.



Your URSA Mini's LUT tab

## Introducing 3D LUTs

Your URSA Mini can apply 3D LUTs to images on its LCD touchscreen, front SDI and main SDI. LUTs work by telling your URSA Mini what color and luminance output to show for a particular color and luminance input. For example, a LUT may tell your URSA Mini to display a vibrant, saturated blue when it receives a relatively dull blue input. This can be useful when shooting RAW footage, or using 'film' dynamic range, both of which have an intentionally undersaturated, 'flat' appearance. By applying a LUT, you can get an idea of what your footage will look like after it has been graded.

It is easy to create 3D LUTs using DaVinci Resolve or other color correction software, and LUTs are available online from a variety of sources. Your URSA Mini can store up to six 17 point or 33 point 3D LUTs, of up to 1.5 megabytes each. Once loaded, you can choose to display a given LUT on your camera's LCD touchscreen, front SDI, main SDI or any combination of these outputs.

Your URSA Mini supports 33 point 3D LUTs in .cube format created in DaVinci Resolve and 17 point 3D LUTs converted to Resolve .cube format via LUT conversion programs. Your camera processes 3D LUTs using high quality tetrahedral interpolation.

**TIP** For more information on displaying LUTs, see the 'monitor settings' section in this manual.

**NOTE** Your URSA Mini does not apply, or 'bake in,' LUTs to recorded footage. LUTs are used as a preview tool only.

## LUTS buttons

The button icons along the bottom of your URSA Mini's 'LUTS' screen correspond to the following functions:

|   |   |   |
|---|---|---|
|  |  |  |
| <b>Load</b>   | <b>Manage</b>   | <b>Delete</b>   |

## Importing LUTS

To import a 3D LUT, tap the 'manage' icon at the bottom of the LUT menu, and tap 'import LUT' to confirm.

**NOTE** If your URSA Mini's six 3D LUT slots are full, you will not be able to import until you delete some existing LUTs to make space.

This will bring up the import screen. Choose 'card 1' or 'card 2' at the top left of this screen to display any available 3D LUTs on those cards.

Your URSA Mini will search the root directory and '3DLUTS' folder on your selected CFast card. Any LUTs you have saved elsewhere will not be visible.

Tap a LUT to select it and tap 'import' to confirm your selection. The LUT will be saved to your URSA Mini.

If the LUT you want to import has the same name as a LUT already saved to your camera, you will be prompted to overwrite the existing LUT or keep both. At the top right of this screen, you'll see the number of remaining empty LUT slots available on your camera. You will only be able to import as many LUTs as you have free slots on your camera.

**NOTE** If you are having trouble importing a LUT to your URSA Mini, it may be the wrong size. You can use a LUT editor like Lattice to check its size, or open it in any text editor on your computer. Next to the tag 'LUT\_3D\_SIZE' will be a number indicating the LUT's size. If this value is not 17 or 33, you can use Lattice to resize your 3D LUT to 17 points.

### **Applying a LUT**

Once you have a LUT saved onto your camera, tap it in the LUT menu to select it, and tap the 'load' icon. This will enable that LUT to all outputs on your camera. However, you will still have to turn 'display LUT' on in the monitor menu for each output to apply it. See the 'monitor settings' section in this manual for more information.

### **Exporting LUTs**

To export a LUT to a CFast card, select the LUT you want to export and tap the icon. You will be prompted with two options, 'import LUT' and 'export selected LUT.'

Tapping 'export selected LUT' will prompt you to choose which CFast card you want to export to. Choosing a card will commence exporting, unless you are exporting a LUT that already exists on that card. If a duplicate LUT is found, you will be asked if you want to overwrite the LUT on your CFast card, or if you would like to keep both.

### **Deleting LUTS**

Your URSA Mini has space for six 17 point LUTs 3D LUTs. To delete LUTs you are no longer using, or make room for more, select the LUTs you want to delete and tap the icon. You will be prompted to confirm your choice. Tap 'delete' to confirm.

# Entering Metadata

Metadata is information saved inside your clip, such as take numbers, camera settings and other identifying details. This is extremely useful when sorting and processing footage in post production. For example, take and shot and scene numbers are essential organisational tools, while lens information can be used to automatically remove distortion or better match VFX assets to plates.

Your Blackmagic URSA Mini automatically saves some metadata to each clip, such as camera settings, timecode, date and time. You can use your camera's slate to add many additional details.

## The Slate

### Blackmagic URSA Mini

Swiping left or right on your URSA Mini's touchscreen will bring up the slate.

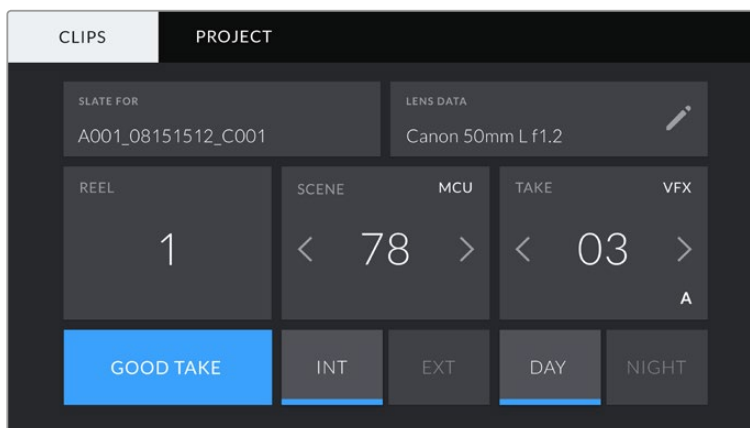
The slate is divided into two tabs, 'clips' and 'project.' The 'clip' tab contains information that may vary clip by clip, while 'project' is where you enter details common between clips, such as the project name, director, and camera and operator ID.

**TIP** Metadata entered into the slate is viewable on your URSA Mini's front or main SDI outputs when set to 'director view.' See the 'monitor settings' section in this manual for more information.

### 'Clip' metadata

Changes made to clip metadata work slightly differently in 'standby' mode, when your URSA Mini is ready to record, and 'playback' mode, when you're reviewing footage you've already shot. In 'standby,' clip metadata will be saved to the next clip recorded, except for 'good take last clip' which refers to the most recently recorded clip.

In 'playback' mode clip metadata is always recorded to the current clip being viewed.



Your URSA Mini's slate is divided into 'clip' and 'project' tabs

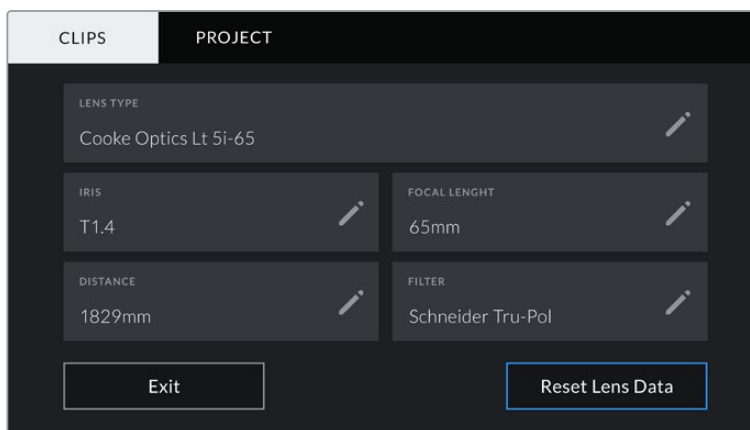
### Slate for

This setting shows the clip which the metadata currently displayed in the 'clip' applies to. In 'standby' mode, this refers to the next clip that will be recorded.

### Lens Data

These settings display information about the current lens fitted to your camera. Many electronic lenses automatically supply information such as the lens model, aperture and focal length. If you are using a lens that does not provide this information, or you want to enter additional data, you can tap the pencil icon in this setting to enter the information manually.

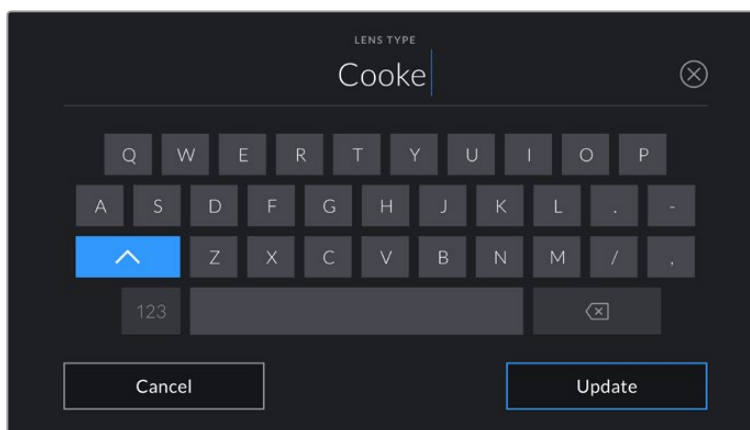
This will bring up the 'lens data' menu, which contains the following information:



Use the 'lens data' screen to enter in depth information about your lens type, settings, and any filters fitted

#### • Lens Type

Shows the lens model. If your lens type is not automatically shown here, you can tap this setting to enter the data manually.



Use the touch keyboard to enter lens data if it is not provided automatically

#### • Iris

Shows the iris aperture setting at the start of your clip. This information can be displayed in f- or T-stops depending on the lens used, if supplied automatically. Tap this setting to enter data manually.

- **Focal length**

Shows the focal length setting of the lens at the start of the recorded clip. When automatically supplied, this is shown in millimeters. Tap this setting to enter data manually.

- **Distance**

Shows the focal distance settings of the lens for the recorded clip. Some lenses can provide this data automatically and it will be provided in feet and inches. You can also enter this data manually.

- **Filter**

Shows the current lens filters used. Tap this setting to enter data manually. You can make multiple entries separated by commas.

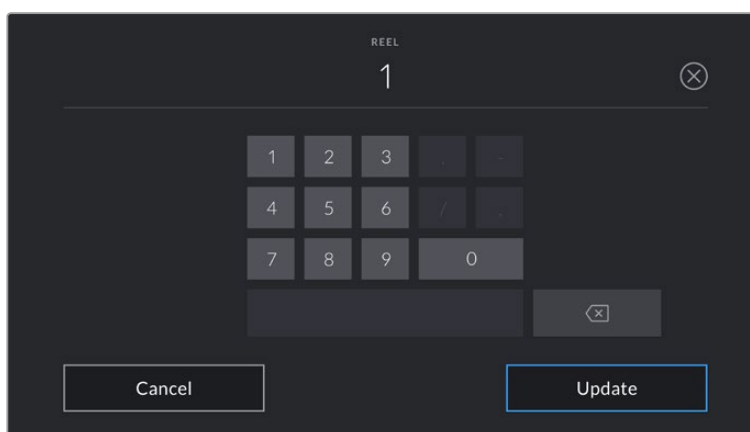
**NOTE** You can clear lens data at any time by tapping the 'reset lens data' icon in the 'lens data' menu. You will be prompted to confirm your choice. If you confirm, all lens data will be cleared and repopulated with any lens data automatically provided by the currently fitted lens. If you have manually entered any information into these fields, you will need to reset the lens data the next time you mount a lens, otherwise the manually entered value will remain.

## Reel

The 'reel' indicator shows the current reel. This number refers to what media will be named when formatted. See the 'URSA Mini settings' section in this manual for more information on file naming conventions.

Your URSA Mini automatically increments reel numbers, so there is usually no need to enter this manually. The only exception is when you are moving to a new project and want to start from reel '1' again.

To manually enter a reel number, tap the 'reel' display' and enter the number you want to increment from. We strongly recommend starting from '1' for each project.



Tap the 'reel' indicator to manually enter a reel number

**NOTE** The reel number also effects card formatting. When formatting CFast cards in camera, the current reel number will be applied to the next CFast card formatted in your URSA Mini.

## Scene

The 'scene' indicator shows the current scene number, and can also show the current shot number and type.

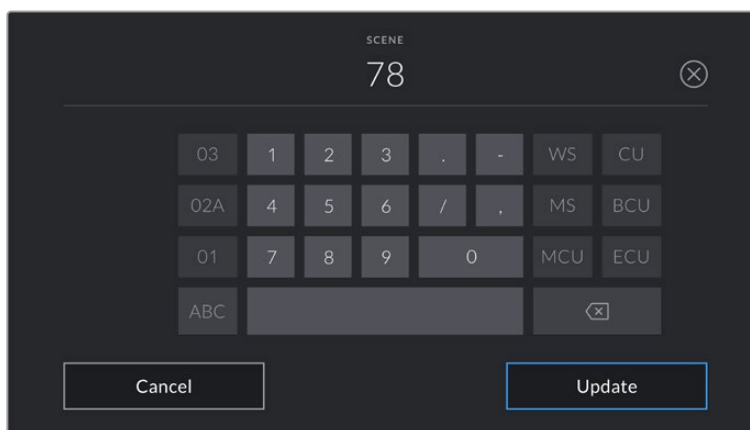
The number on this indicator always refers to the current scene. You can move this up and down using the left and right arrows on either side of the scene number, or tapping the scene number to enter the scene number editor.

The range of possible scene numbers is 1 to 999.

By adding a letter to the scene number in the scene number editor, you can also indicate the current shot. For example 23A would indicate scene twenty three, shot one. If you have a shot letter added to your scene, your URSA Mini will suggest letter increments whenever you enter the scene number editor. For example, if your current scene number is 7B, your URSA Mini will offer '7C' as an increment suggestion.

The scene number indicator can also show information about the current shot type in the top right corner. You can select these in the scene number editor at the right hand side of the shot keyboard. The shot types available are:

|            |                  |
|------------|------------------|
| <b>WS</b>  | wide shot        |
| <b>MS</b>  | medium shot      |
| <b>MCU</b> | medium close up  |
| <b>CU</b>  | close up         |
| <b>BCU</b> | big close up     |
| <b>ECU</b> | extreme close up |



When entering 'scene' metadata, your URSA Mini will prompt you with increment suggestions to the left of the touch keyboard, and shot types to the right



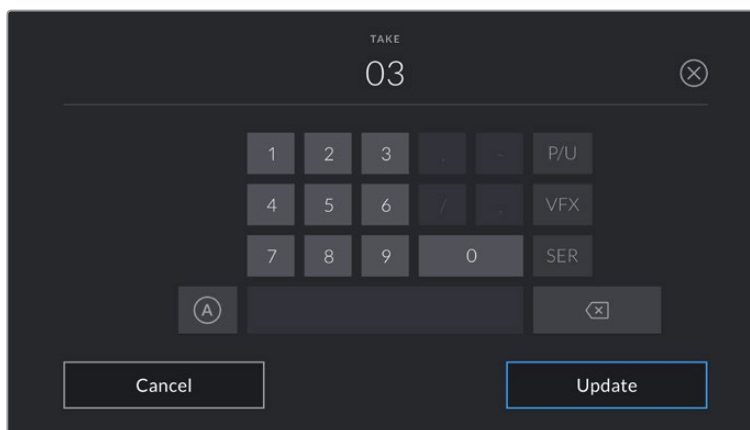
## Take

The 'take' indicator shows the take number for the current shot. You can increment this up or down by tapping the left or right arrows on either side of the take number, or tapping the indicator to enter the take number editor.

**TIP** When the shot number or scene letter are advanced, the take number will revert to '1.'

You can add take descriptions in the take number editor. These are offered to the right of the take number keyboard, and correspond to the following scenarios:

|            |  |
|------------|--|
| <b>PU</b>  | 'Pick up.' This refers to a reshoot of a previous take to add additional material after principal photography has wrapped. |
| <b>VFX</b> | 'Visual effects.' This refers to a take or shot for visual effect use.   |
| <b>SER</b> | 'Series.' This refers to a situation in which multiple takes are shot while the camera is kept running.                    |



When entering 'take' metadata, your URSA Mini will offer prompts for additional shot types to the right of the touch keyboard

## Good take

Tap the 'good take' indicator to flag good takes for easy recall in post production. This tag applies to either the last clip recorded, if your URSA Mini is in 'standby' mode, or the clip currently being viewed in 'playback' mode.

## Int / Ext

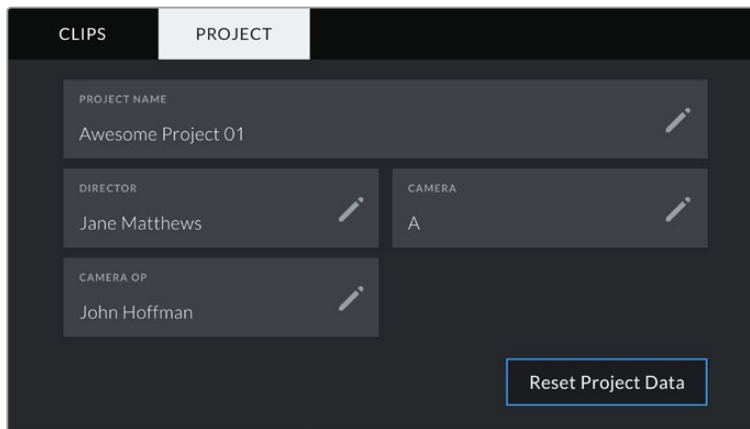
Tap 'int' or 'ext' to add a 'interior' or 'exterior' tag to the next clip in standby mode, or the current clip in playback mode.

## Day / Night

Tap the 'day' or 'night' icons to add a 'day' or 'night' tag to the next clip in standby mode, or the current clip in playback mode.

## 'Project' Metadata

Project metadata behaves the same way whether you are in 'standby' or 'playback' mode. This metadata always refers to your project as a whole and is independent of clip numbers.



Your URSA Mini's 'project' slate tab

### **Project name**

Displays your current project name. Tap the pencil icon to change the project name.

### **Director**

Displays the director's name for the current project. Tap the pencil icon to change the director name.

### **Camera**

Displays a single letter camera index. Tap the pencil icon to change the camera index.

**NOTE** Camera index is used in metadata and for file naming purposes and differs from your URSA Mini's ATEM Camera ID, which is used when controlling your URSA Mini with an ATEM switcher. For more information on ATEM Camera ID, see the 'ATEM camera control' section in this manual.

### **Camera Op**

Displays the camera operator. Tap the pencil icon to change the camera operator name.

# Camera Video Output

## HD Monitoring Output

Blackmagic URSA Mini's down converted 3G-SDI out connector always outputs 1080 HD video so you can easily connect to routers, monitors, SDI capture devices, broadcast switchers and other SDI devices. This output is labeled 'Front SDI' in the touchscreen settings menu.

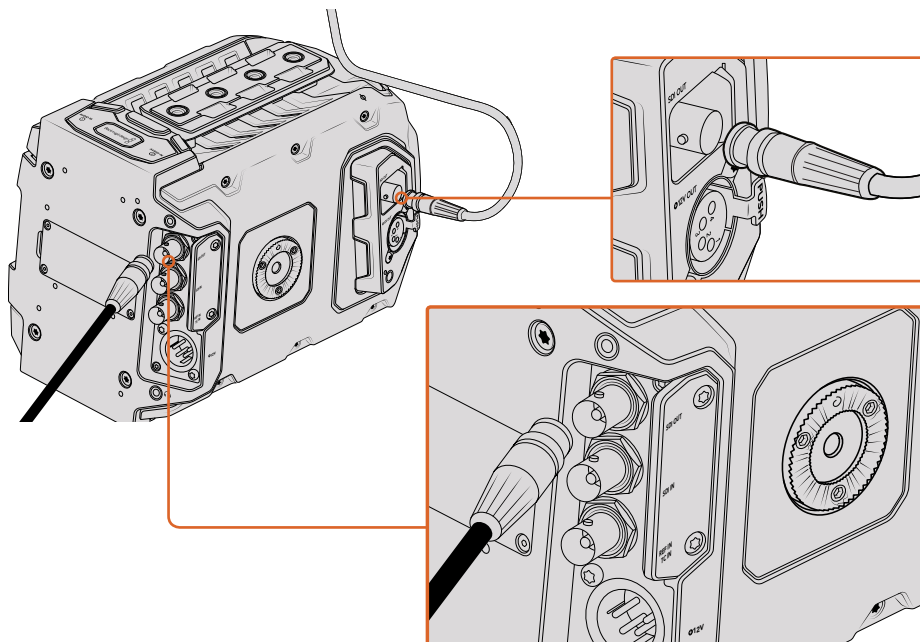
## 12G-SDI Output

The 12G-SDI out connector on the rear panel supports HD and 4K video including High P formats such as 2160p50, 59.94 and 60 on a single SDI cable. Interlaced HD formats are also supported including 1080i50, 59.94 and 60. You can use the 12G-SDI output to connect to any SDI monitor as well as 4K switchers such as ATEM Production Studio 4K. This output can be switched between HD and Ultra HD by selecting 1080p or 2160p from 'display settings/SDI mode' on the touchscreen.

### Connecting to Video Switchers

The SDI outputs allow you to use your camera for live television production. You can connect the rear panel SDI output directly to production switchers for live production work, or to ATEM Camera Converters to convert your signal to optical so you can send it hundreds of meters to a broadcast truck on location.

When connected to a switcher, you can easily view the switcher's program output on your Blackmagic URSA or URSA Mini. To do this, first connect the switcher to your camera's rear 12G-SDI input. Now press the 'program' button marked PGM on your camera's fold out monitor. To switch back to the camera image, simply press the PGM button again.



You can connect the 12G-SDI output to any 1080 HD or Ultra HD live production switcher or monitor. The HD monitoring output can be plugged into an external viewfinder, such as the Blackmagic URSA Viewfinder, or plugged into an external monitor when mounted to production equipment. For example a jib arm or crane

### Connecting to Monitors

SDI monitoring can be really handy when accessing the fold out monitor is impractical, such as when secured high on a jib arm, on a crane, or mounted on a vehicle.

Monitoring information is displayed via your HD-SDI monitoring out connector by adjusting the 'front SDI overlay' settings in the display settings menu. SDI overlays provide frame guides and information such as recording details and camera settings. If you simply want to monitor your shots, you can always turn overlays off for a clean SDI output.

Connect the camera's SDI output to SDI monitors or to a Blackmagic SmartScope Duo 4K for live waveform monitoring.

### SDI Output Formats

|                          |  |
|--------------------------|--|
| Rear SDI Output          | 2160p23.98, 24, 25, 29.97, 30, 50, 59.94, 60.<br>1080p23.98, 24, 25, 29.97, 30, 50, 59.94, 60. 1080i50, 59.94, 60. |
| 3G-SDI Monitoring Output | 1080p23.98, 24, 25, 29.97, 30, 50, 59.94, 60.<br>1080i50, 59.94, 60.   |

# URSA Mini Shoulder Mount Kit

## Attaching the shoulder mount

The URSA Mini Shoulder Mount Kit lets you carry URSA Mini on the shoulder for ENG style shooting. This kit includes a top handle, shoulder mount baseplate, extension arm for the URSA Mini side handle, long LANC cable, Viewfinder adapter plate, plus all the required screws.

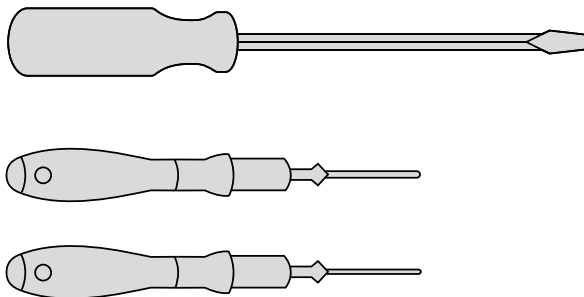
The quick release mount on the baseplate lets you lock your camera into an ENG style tripod plate or place it on your shoulder so you can follow the action.

The URSA Mini Shoulder Mount Kit works with any tripod plate modeled after the Sony VCT 14. These mounts are easily found at camera stores or online.

It's also worth mentioning that mounts modeled after the VCT U14 tripod plate are a different system and are not compatible.

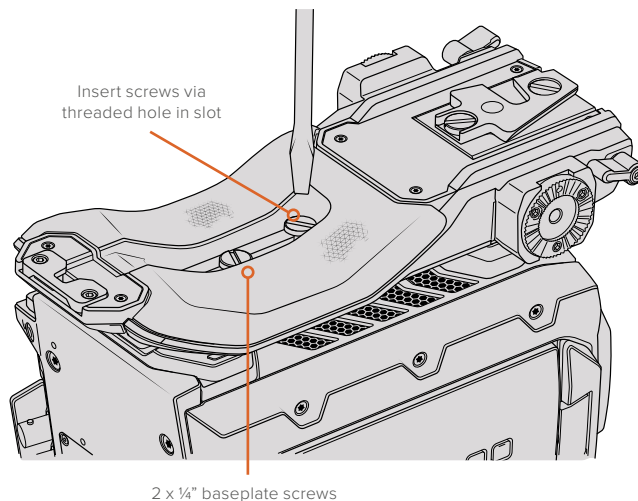
### When attaching the shoulder mount kit, you will need the following tools:

- 1 x flat head screwdriver for the 2 x ¼" shoulder mount base plate screws.
- 1 x 3/16" Hex key driver for the 2 x ¼" top handle screws.
- 1 x 2.5mm Hex key driver for the 4 x Viewfinder adapter plate M3 screws.



To attach the shoulder mount kit to your URSA Mini you will need a large flat head screwdriver, a 3/16" Hex key driver for the top handle and a 2.5mm Hex key driver for the Viewfinder adapter plate

## To attach the shoulder mount baseplate

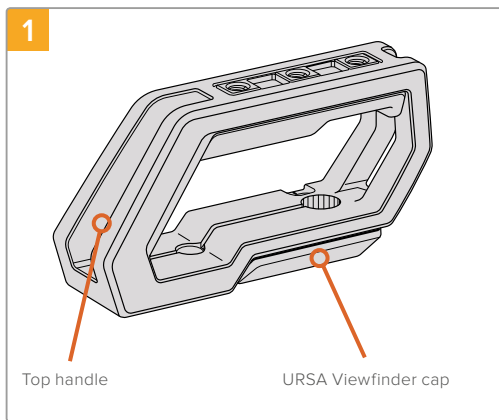


- 1 Gently place your URSA Mini upside down on a flat, stable surface so you can easily access the base of your camera.
- 2 Fasten the shoulder mount baseplate to URSA Mini using the 2 x ¼" flat head screws and driver.
- 3 Tighten the screws until the baseplate is firmly attached and the screws won't loosen. Avoid over-tightening as it may damage the screw threads.

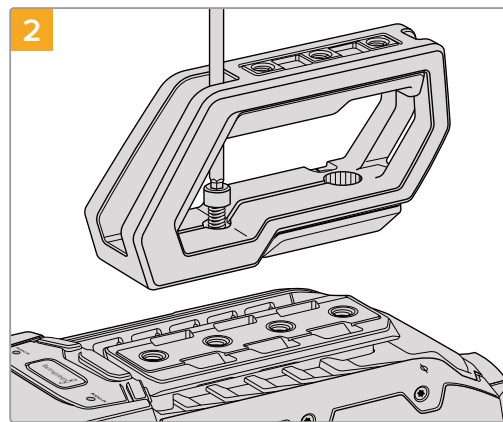
## To attach the top handle without URSA Viewfinder

You can use URSA Mini Shoulder Mount Kit with or without the optional URSA Viewfinder.

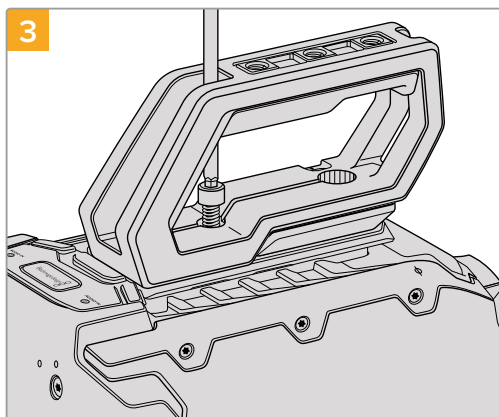
The top handle is supplied with a rubber viewfinder cap on its base which is replaced with an adapter plate when attached to the URSA Viewfinder. We recommend leaving the cap attached when using the handle without the URSA Viewfinder.



Place your URSA Mini on a flat, stable surface so you can access the top of your camera.

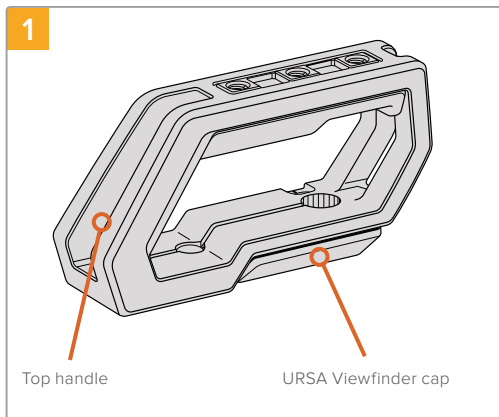


Fasten the handle to any two of your URSA Mini's top ¼" mounting points using the two supplied ¼" screws with a 3/16" Hex key driver. URSA Mini's rear two mounting points are recommended for most situations, but you can choose any pair for better weight balance when using large lenses.

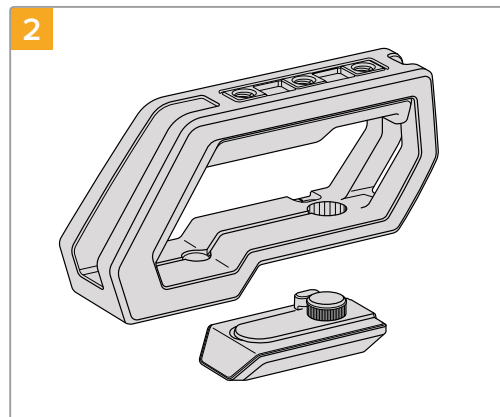


Tighten the screws until the handle is firmly in place and the screws won't easily loosen. Avoid over-tightening the screws as it may damage the screw threads.

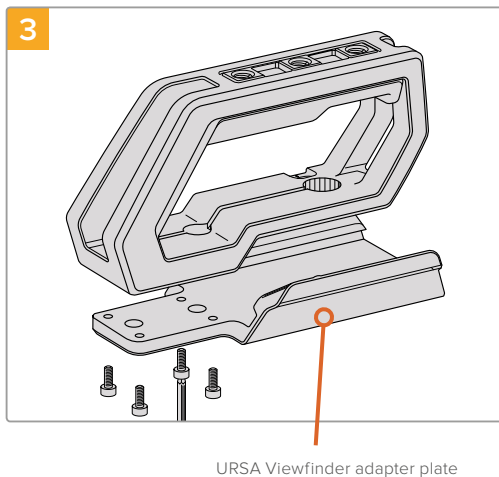
## To attach the top handle with URSA Viewfinder



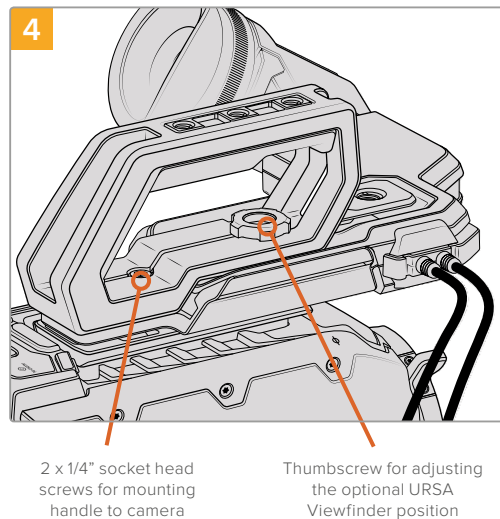
Place your URSA Mini on a flat, stable surface so you can access the top of your camera.



Remove the URSA Viewfinder cap from the base of the handle by gently lifting its arm away from the side of the handle and pulling the cap from the hole.



Fasten the URSA Viewfinder adapter plate to the handle using the 4 x M3 screws with a 2.5mm Hex key driver.



Fasten the handle to any two of URSA Mini's top 1/4" mounting points using the two supplied 1/4" screws with a 3/16" Hex key driver. URSA Mini's rear two mounting points are recommended for most situations, but you can choose any pair for better weight balance when using large lenses. Avoid over-tightening the screws as it may damage the screw threads.

The hole inside the front of the handle is used with the thumb screw when attaching and adjusting the URSA viewfinder. For information on how to attach the URSA Viewfinder to the top handle, refer to the 'Blackmagic URSA Viewfinder' section in your URSA manual.

## Attaching the extension arm

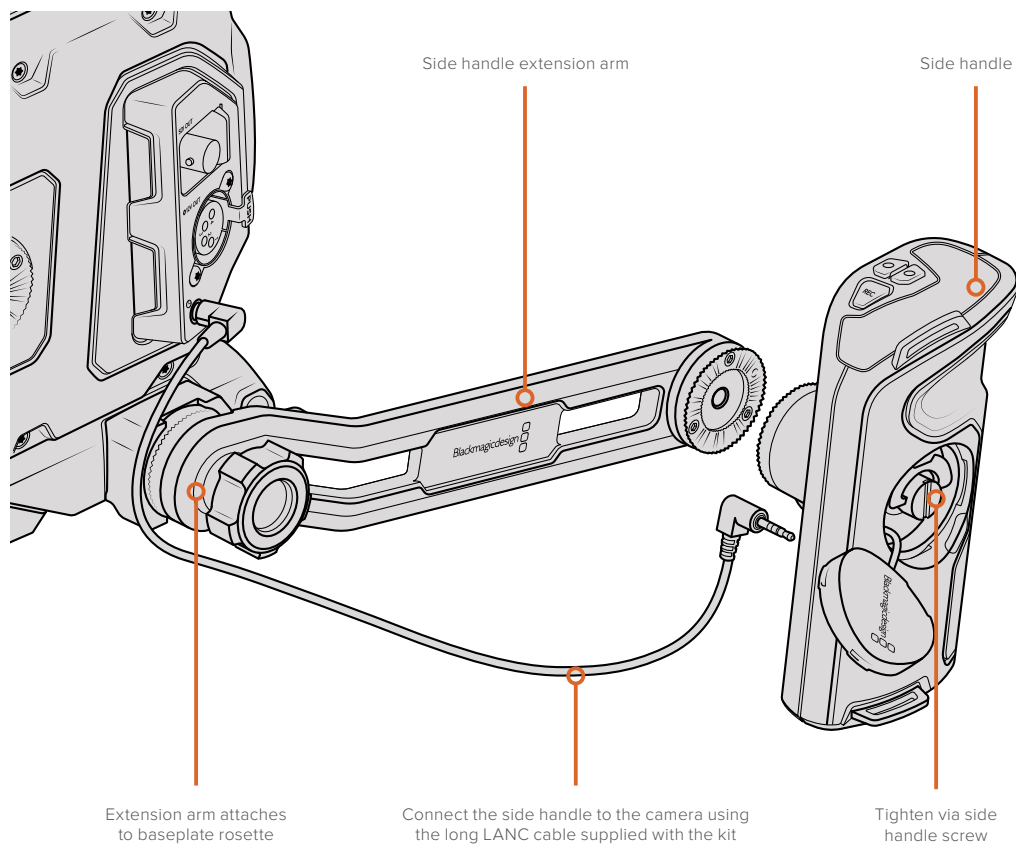
When using the URSA Mini shoulder mount kit, you'll need to reposition URSA Mini's side handle for comfortable shoulder based shooting. Use the bundled extension arm and longer LANC cable to move the side handle to a more ergonomic position.

To attach the side handle extension arm:

- 1 Place your URSA Mini on a flat, stable surface allowing room next to the camera to lower the extension arm. Mounting URSA Mini to a tripod is helpful for this purpose.
- 2 Attach the indented end of the extension arm to the baseplate rosette, lower the arm to suit, and fasten with the supplied rosette thumbscrew.
- 3 Attach the side handle to the extension arm's front rosette. Fasten by tightening the side handle screw with the large flat head screwdriver, or by twisting the D ring with your thumb and forefinger.
- 4 Connect the side handle LANC output to the camera LANC input using the long LANC cable supplied with your shoulder mount kit.

You can easily adjust the extension arm and side handle to suit your preference by loosening the rosette screws, making your adjustment, then retightening.

With your URSA Mini Shoulder Mount Kit now attached, you have additional speed for fast shooting on the run, plus the ability to quickly mount your camera on a tripod for tight, stable shots!





# Blackmagic URSA Viewfinder

Blackmagic URSA Viewfinder is a powerful electronic viewfinder designed for your Blackmagic URSA Mini. The 1080HD color OLED display and precision glass optics provides a bright, vivid, and lifelike image so you can quickly find focus and see the finest detail in your images.

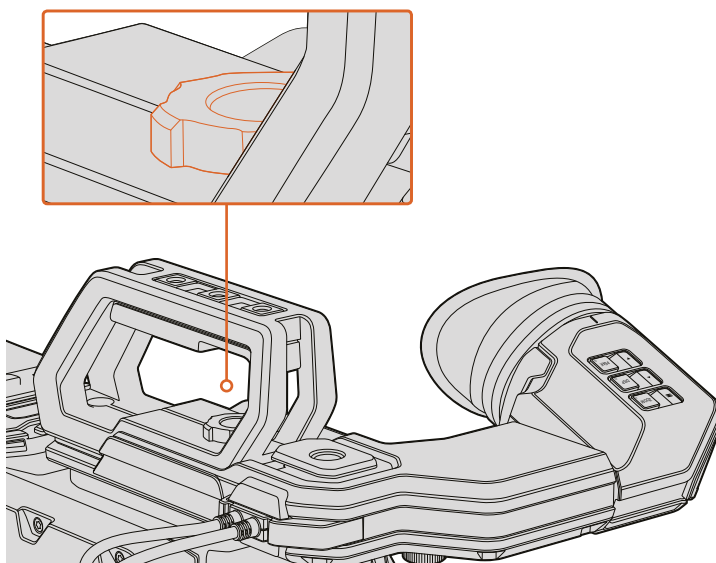
This viewfinder is perfect for handheld operation on the shoulder, or for environments where you need absolute precision with zero reflection and light glare, for example in extremely bright shooting conditions.

The viewfinder is connected and powered by the camera and uses the embedded SDI data from the camera to generate the various display options. This means that your camera can output a clean SDI feed to the viewfinder but still allows you to toggle various display options within the viewfinder for quick access to camera status, plus accurate information.

For example, if you select the '2.40:1' frame guide option in URSA Mini's menu, it will actually tell the viewfinder which frame guide is selected in the camera so when you toggle the frame guide display on the viewfinder, the same '2.40:1' frame guide is also displayed.

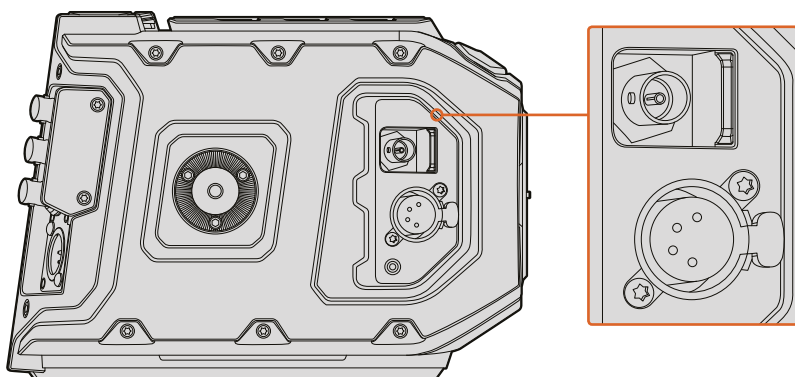
## Mounting and Connecting to Blackmagic URSA

To attach the Blackmagic URSA Viewfinder to the camera body, slide it along the handle ridges and tighten the thumb screw to one of the 3/8" mounting points.



To mount your Blackmagic URSA Viewfinder to your URSA Mini, slide the viewfinder mount along your camera's handle ridges and tighten the thumbscrew to a 1/4" mounting point

To connect your URSA Viewfinder to your URSA, simply connect the viewfinder's attached cables to URSA's front 12V power and 3G-SDI outputs. Your URSA Viewfinder will turn on automatically when your camera is powered.



Connect your viewfinder's SDI and power cables to your URSA Mini HD-SDI monitoring output and +12 volt output

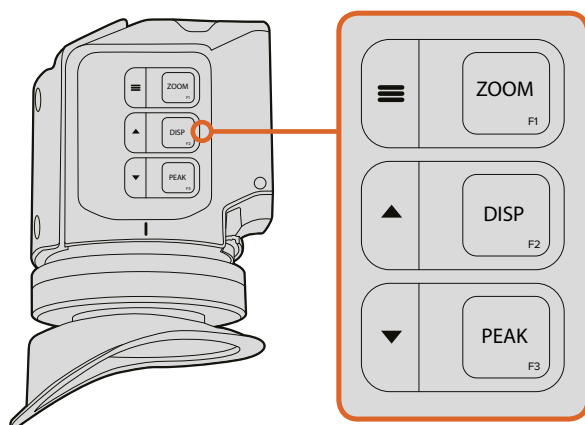
When using the URSA Viewfinder with URSA Mini, it is highly recommended that you also install the URSA Mini shoulder mount kit as this provides the correct mounting points, 1/4" thumb screw, and height adjustments to optimize the positioning of your viewfinder. See the section 'URSA Mini shoulder mount' section in this manual.

## Adjusting the Eyepiece

The detachable rubber eyepiece can be adjusted to fit your left or right eye. Adjust the viewfinder arm by loosening the knob on the bottom of the arm and sliding it left or right to comfortably fit your eye.

## Button Features

On the top of the viewfinder you'll find the zoom, display and peak buttons. These buttons are used for zooming into your image, and turning overlays and focus peaking on or off.



The Zoom (F1), Display (F2) and Peak (F3) buttons are located on top of the URSA Viewfinder

They are also used for additional features, such as opening the menu and navigating settings. Icons printed on the side of the buttons show you which buttons are used to control the viewfinder menu and navigation features.

The buttons also have a customizable function feature so you can assign shortcuts to quickly enable common features you may use frequently. For example you may wish to assign the false color feature to the zoom button. Refer to the 'shortcuts' section for more information.

### **ZOOM (F1) - 'menu'**

The 'zoom' feature helps you find sharp focus by zooming into your picture. Press the 'zoom' button to zoom in and press again to return to 100% view. When using the settings menu, the 'zoom' button also serves as the 'menu' button. Press and hold this button to open the settings menu. In the settings menu, press this button once to confirm setting changes.

### **DISPLAY (F2) - 'up'**

Press the 'display' button to see the overlay view. When using the settings menu, this button also serves as the 'up' button. You can also quickly open the 'shortcuts' menu setting by pressing and holding this button. Refer to the 'setting shortcut buttons' section for information on how to set shortcuts.

### **PEAK (F3) - 'down'**

The focus peaking feature creates a green edge around the sharpest parts of the image so you can easily confirm your focus. Press the 'peak' button to turn the peaking feature on. Press again to turn peaking off. When using the settings menu, this button also serves as the 'down' button. You can also quickly open the 'setup' menu by pressing and holding this button.

## Menu Settings

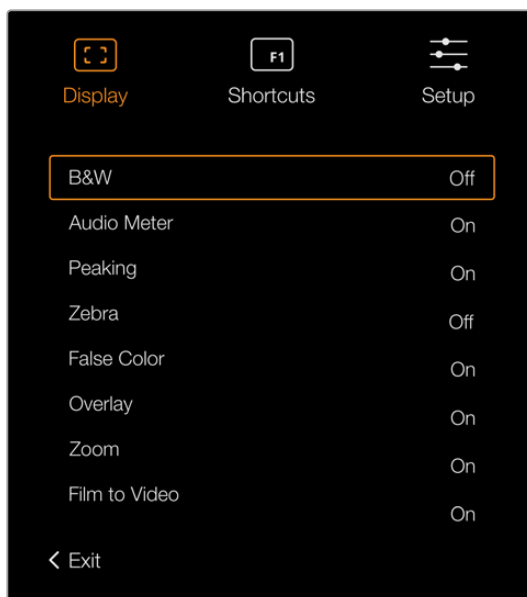
The settings menu contains three primary menu headings for display, shortcuts, and setup. To open the settings menu, press and hold the 'menu' ☰ button. Press the 'up' ▲ and 'down' ▼ button to navigate between the settings and press the 'menu' ☰ button again to confirm your selection.

### Display

The 'display' menu provides the following features:

#### **B&W**

Switches between color and monochrome.



The 'display' menu in URSA Viewfinder

## Meters

Switches between the types of meters to display in overlay view. The options are 'histogram', 'audio', 'both' or 'none'.

## Peaking

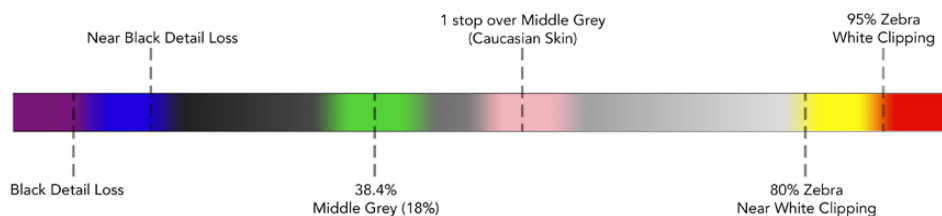
Switches peaking on and off.

## Zebra

Switches zebra levels on and off. Set your desired zebra levels using the camera settings. For more information, refer to the 'settings' section in this manual.

## False Color

Switches the false color feature on and off. False color overlays different colors onto your image that represent exposure values for different elements in your image. For example, pink represents optimum exposure for skin tones. By monitoring the pink false color when recording people, you can maintain consistent exposure for skin tones. Similarly, when elements in your image change from yellow to red, that means they are now over exposed.



False Color Chart

## Overlay

Switches overlays on and off. You can select which types of overlay to display in your viewfinder's 'setup' menu. The style of these overlays, such as the safe area percentage, are set in your camera.

## Zoom

Turns the zoom feature on and off.

## Film to Video

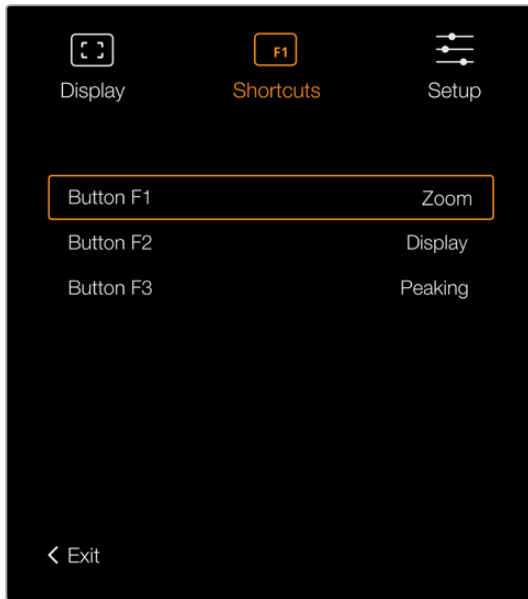
Switches between film and video display mode. Refer to the 'settings/display settings' section in this manual for information on film and video mode. This setting is only available when your camera is outputting 'film' images to your viewfinder. It is disabled when receiving 'video' images to prevent applying a LUT over a LUT.

## Shortcuts

The shortcut function is useful when you need to quickly access a particular setting for a frequently used feature. To customize your shortcut buttons:

- 1 In the 'shortcuts' menu, press the 'up' ▲ or 'down' ▼ button to move up or down and select one of the 3 buttons to make it your shortcut button. Press the 'menu' ≡ button to confirm your selection.
- 2 Press the 'up' ▲ or 'down' ▼ button to toggle and select one of the features below to assign to the shortcut button. Press the 'menu' ≡ button to confirm your selection.
  - B&W
  - Peaking
  - Zebra
  - False Colour
  - Display
  - Zoom
  - Film to Video
  - Meters
  - Focus Chart

- 3 Scroll to 'exit' and press the 'menu' ≡ button to close the menu display view.



The 'shortcuts' settings in URSA Viewfinder

## Setup

The 'setup' menu provides the following features:

### **Brightness Adjustment**

Allows adjustments for the brightness of the display with range -10 to +10.

### **Tally Brightness**

Allows adjustments of tally LED brightness.

### **Focus Chart**

Your Blackmagic URSA Viewfinder has a built in focus chart so you can focus the eye piece to suit your eyes. Simply turn the focus diopter on the eyepiece until the chart is in perfect focus. Pressing any button on your viewfinder will close the focus chart display.

### **Frame Guides**

Toggles the appearance of frame guides. When 'frame guides' are turned 'on' in your URSA Mini's 'Front SDI' monitor settings, you can use this setting to toggle the appearance of these guides in your Blackmagic URSA Viewfinder. For more information, see the 'URSA Mini setup' section in this manual.

### **Safe Area Guide**

Toggles the appearance of a safe area guide. When 'safe area guide' is turned 'on' in your URSA Mini's 'Front SDI' monitor settings, you can use this setting to toggle its appearance in your Blackmagic URSA Viewfinder. For more information, see the 'URSA Mini setup' section in this manual.

### **Grid**

Toggles the appearance of a rule of thirds grid, crosshair or center dot. When 'grids' are turned 'on' in your URSA Mini's 'Front SDI' monitor settings, you can use this setting to toggle their appearance in your Blackmagic URSA Viewfinder. For more information, see the 'URSA Mini setup' section in this manual.

**NOTE** Enabling 'Grid' in your URSA Viewfinder setup menu will also allow your viewfinder to display tally signals sent from an ATEM switcher. Overlays must also be set to 'on' in the display menu.

### Status Text

Toggles the appearance of status text, such as white balance, frame rate and ISO. When 'status text' is turned 'on' in your URSA Mini's 'Front SDI' monitor settings, you can use this setting to toggle its appearance in your Blackmagic URSA Viewfinder. For more information, see the 'URSA Mini setup' section in this manual.

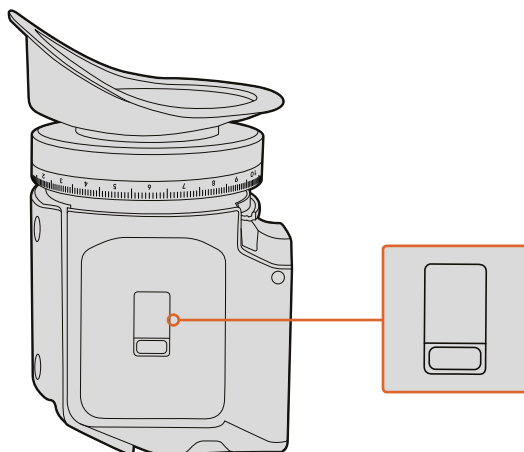
**TIP** When using Blackmagic Viewfinder with URSA Mini, the appearance of status text can clash if both the viewfinder and camera are set to show status text. In this situation, we recommend turning status text to 'on' in your camera, and status text to 'off' in your viewfinder.

### IR Sensor

The IR Sensor on your viewfinder automatically detects when you are near the eyepiece and turns on the OLED display. If you are away from the viewfinder for over twenty seconds in 'standby' mode, display turns off to conserve power and to extend the life of the OLED display. While recording, the timeout sensor is extended to 5 minutes, at which point the OLED display will be slowly dimmed. Any movement in front of the eyepiece will reset this timer. The viewfinder will detect when you look into the viewfinder eyepiece, pressing any button on the viewfinder will also turn the display back on.



Deliberately blocking or covering the IR sensor could cause the viewfinder's display to remain powered for prolonged periods of time. This could decrease the lifespan of the display and cause image retention if high contrast images or frame guides are displayed on the viewfinder.



The IR sensor is located at the bottom of the URSA Viewfinder

## Updating URSA Viewfinder's Internal Software

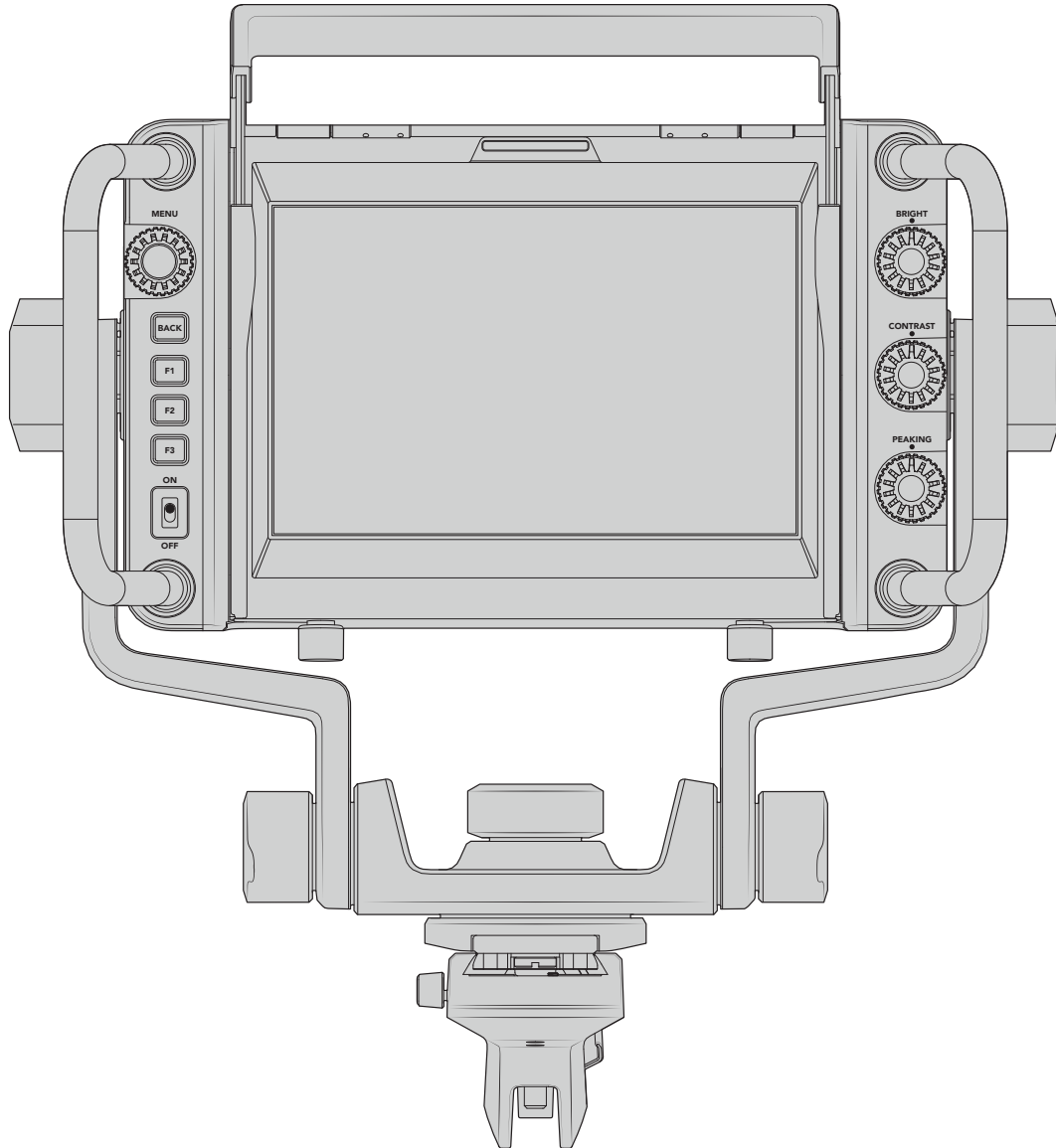
Update your viewfinder using the Blackmagic Camera Setup utility software. The viewfinder will need to be powered when updating, so we recommend keeping the viewfinder connected to your URSA Mini during the update process. This also means your URSA Mini will need to supply consistent power, so be sure to plug into external power.

Connect your computer to the small USB connection located at the front of your viewfinder, near the eyepiece. When Blackmagic Camera Utility is launched and your viewfinder is connected to your computer, you will be prompted to update if your computer detects that your viewfinder is using an older version. Follow the on screen prompts to update your viewfinder's internal software.

**NOTE** Refer to the 'Blackmagic Camera Setup Utility' section in this manual for more information.

**TIP** We recommend updating all your Blackmagic URSA equipment at the same time for optimized performance

# Blackmagic URSA Studio Viewfinder



Blackmagic URSA Studio Viewfinder

Blackmagic URSA Studio Viewfinder is a powerful viewfinder that allows you to turn your Blackmagic URSA Mini into a professional live production camera. The studio viewfinder features a bright 7" screen and has a large easily viewable tally light, control knobs, large handles, sun hood and variable tension articulated mount. These features make it easy to stand behind the camera and comfortably follow the action for extended periods of time, especially when filming live concerts, sports, and other long events. The URSA Studio Viewfinder is perfect for professional live production in the studio or on location.

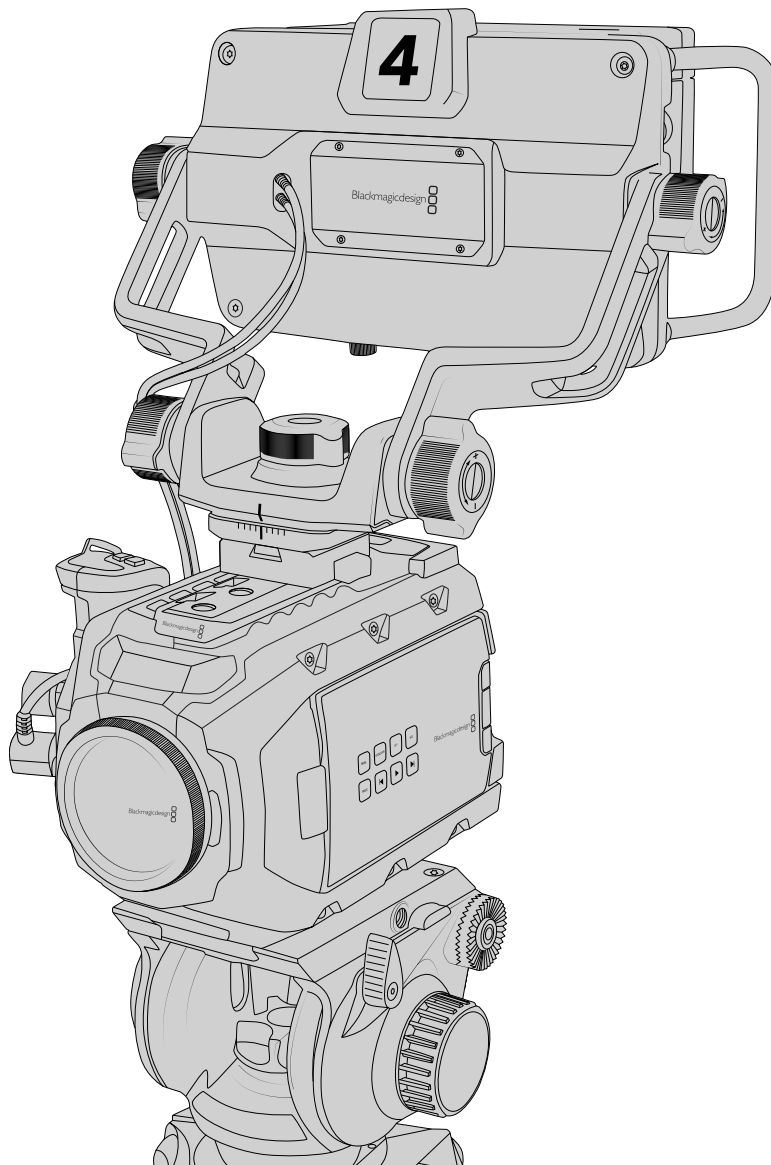


## Mounting and Connecting to Blackmagic URSA Mini

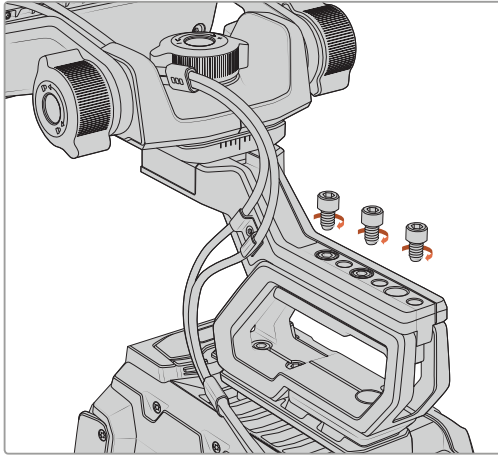
When using the Blackmagic URSA Studio Viewfinder with Blackmagic URSA Mini, you have the option of mounting the unit to the camera in a number of ways.

You can mount the Blackmagic URSA Studio Viewfinder directly to the top of Blackmagic URSA Mini via the supplied V-lock mount plate which can be easily removed from the top handle mount.

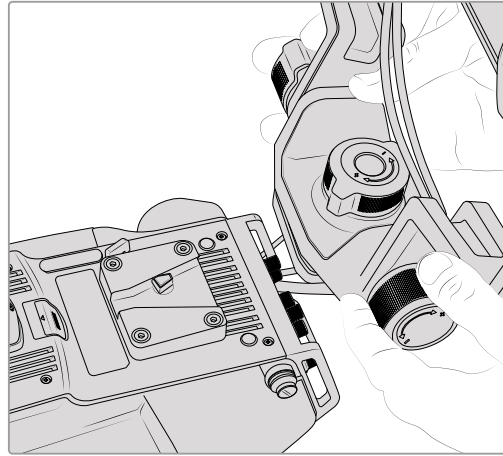
Unscrew the V-lock plate from the URSA Mini handle mount using a 3/16 Hex key, and then attach it to the top of the camera with the supplied 1/4" screws. As this will make the centre of gravity on the camera much higher. We recommend doing this while the camera is attached to a tripod for stability.



If you are mounting the Blackmagic URSA Studio Viewfinder to your URSA Mini whilst using the URSA Mini Shoulder Kit, you need to attach it using the supplied URSA Mini handle mount. Attach the supplied URSA Mini handle mount to the top handle with three of the supplied 1/4" screws using a 3/16 Hex key. Slide the Studio Viewfinder's V-lock into the V-lock plate slot until it clicks in securely. See the section 'URSA Mini Shoulder Mount Kit' section in this manual for more information.

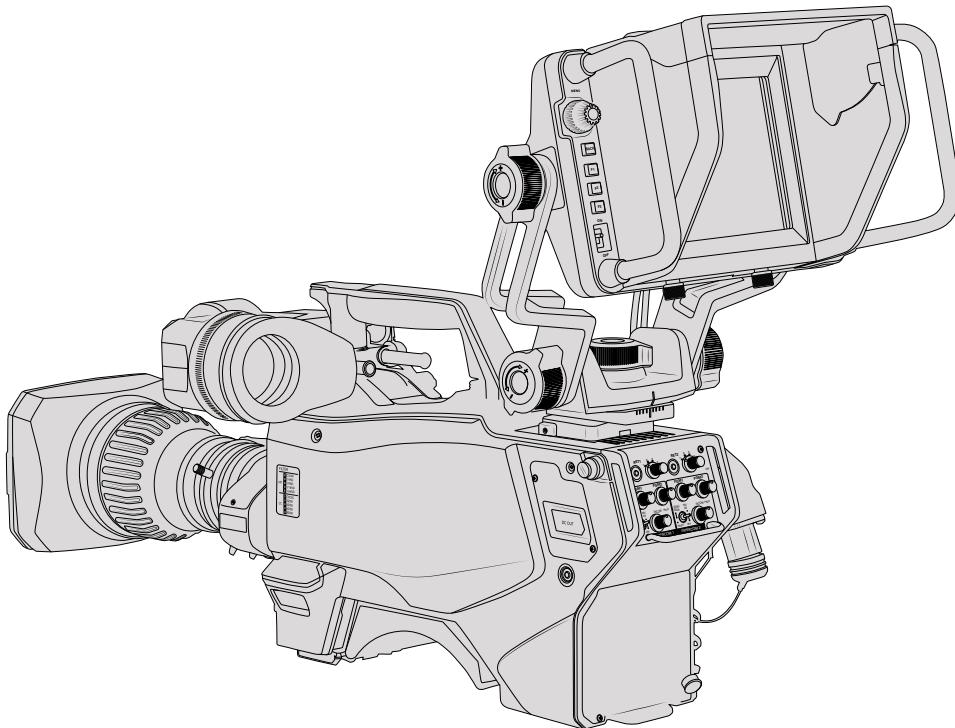


Blackmagic URSA Studio Viewfinder mounted to shoulder mount kit



V-Lock mount plate being attached to 3rd party camera

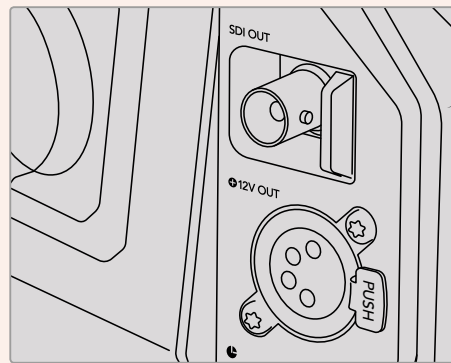
The V-Lock mount plate can also be installed on any camera you want to use the URSA Studio Viewfinder with that has 1/4" mounting points, or by using a third party cheese plate. You can also mount the Blackmagic URSA Studio Viewfinder to a third party camera system that has an existing V-lock mount plate as many of them have this quick release plate on them already.



**TIP** The Blackmagic URSA Studio Viewfinder connects to the camera via a quick release V-lock mount plate, which means that the viewfinder can be removed quickly if you need to take the camera off a tripod. When filming sports matches it can be advantageous to leave both the Blackmagic URSA Viewfinder and Blackmagic URSA Studio Viewfinder attached to the camera, so that at the conclusion of the match you can quickly switch to the URSA Viewfinder for handheld filming. Both viewfinders use the same 12V power and 3G-SDI cables to connect to the camera, making it easy to swap cables in such a situation.

To connect your Blackmagic URSA Studio Viewfinder to your URSA Mini, simply connect the viewfinder's attached cables to URSA's front 12V power and 3G-SDI outputs.

The power switch on the viewfinder will then allow you to turn on the viewfinder instantly when your camera is powered. Note that there are cable clamps on the side of the URSA Mini handle mount to keep your cables neat and hold the cables in place.

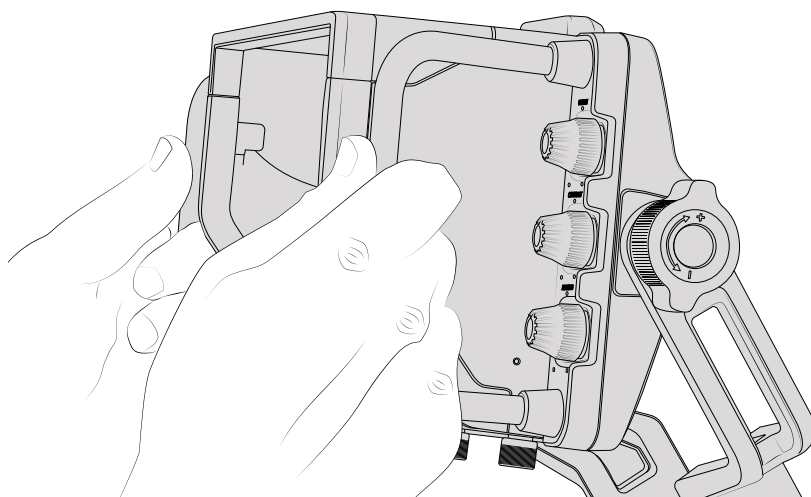


SDI and 12v power connections on URSA Mini

**TIP** The URSA Studio Viewfinder uses open standard SDI and broadcast 4 pin XLR power connections so it can be used with any other camera or even as an adjustable portable location monitor. It also uses the open standard ATEM tally and device control protocol so any other camera system can add this information to their SDI stream to allow them to work with the tally and overlays on the URSA Studio Viewfinder.

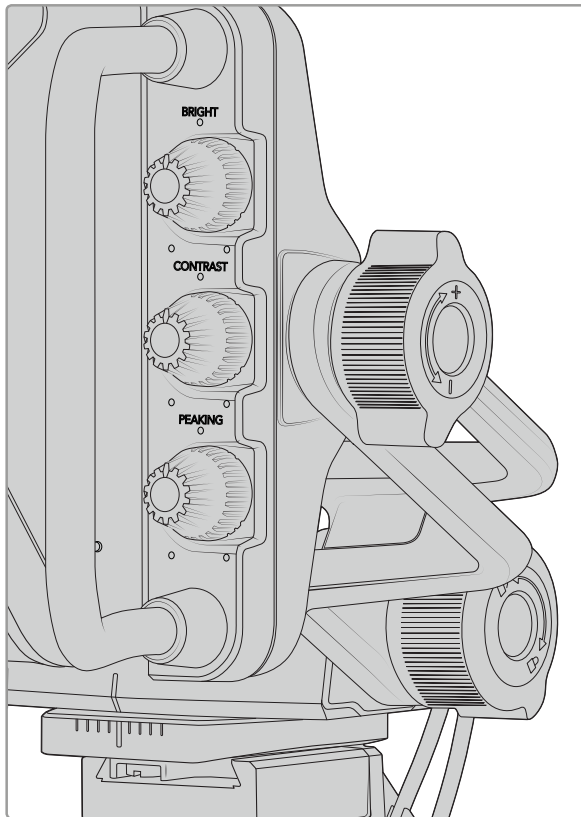
## Adjusting the Blackmagic URSA Studio Viewfinder

The Blackmagic URSA Studio Viewfinder features large handles and variable tension articulated mounting that allow you to adjust the position and angle of the viewfinder. The large handles allow you to quickly and easily take hold of the viewfinder and adjust the angle and direction of the unit. Combined with the sun hood the handles also help to protect the screen from damage, which means that you can store the fully assembled Blackmagic URSA Studio Viewfinder in a carry case without disassembly. The large handles also allow you easily to pick up and carry the unit between locations.

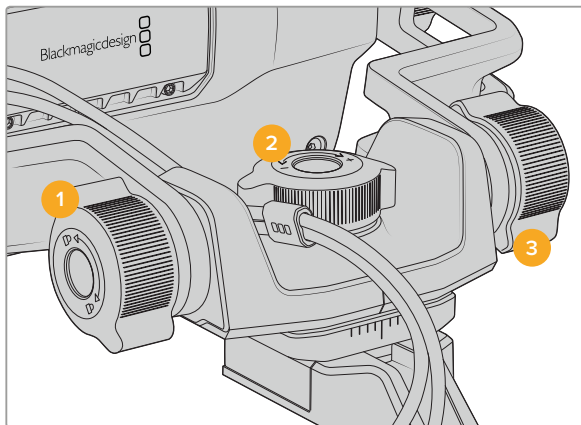


The supplied mount features tension dials for pan and tilt, with additional tension dials on either side of the viewfinder for additional friction control. The left hand dial allows you to adjust the drag friction of the arm and the right hand dial allows you to lock the Viewfinder in place once you have found the angle you require.

These tension dials have a very large range of tension adjustment, allowing you to select a specific amount of resistance. This allows you to easily pan and tilt the viewfinder to the precise position you require.



Tension dials on either side of the viewfinder

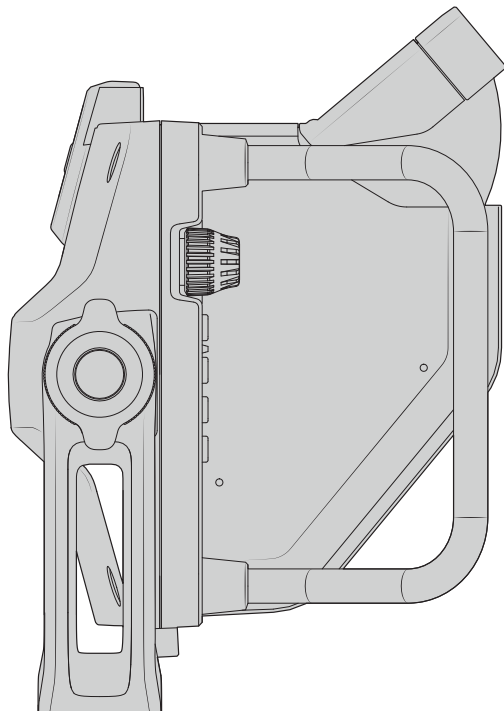
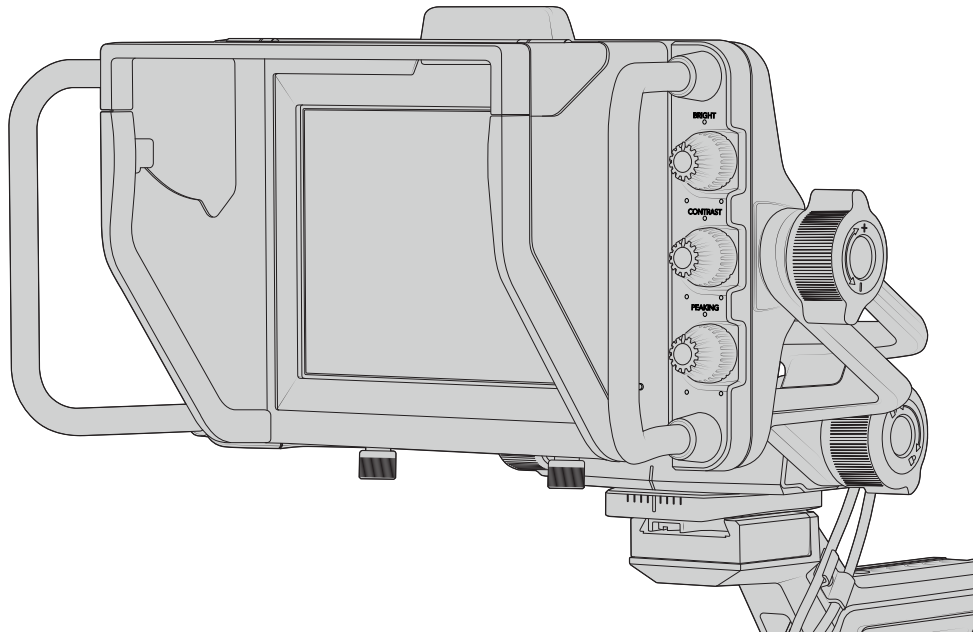


- 1 Tilt Lock Dial**  
Locks the angle of tilt on the viewfinder mechanism.
- 2 Pan Tension Dial**  
Controls pan tension.
- 3 Tilt Tension Dial**  
Controls tilt tension.

**TIP** The center tension dial on the supplied mount controls pan tension, and can be loosened to allow you to take hold of the viewfinder and move the camera independently. This means that you can film things like motorsport, where you need to pan the camera left and right to follow the action, whilst holding the viewfinder positioned towards your eyes. A visual guide on the mount helps to ensure that the viewfinder can easily be returned to the center.

## Sun hood

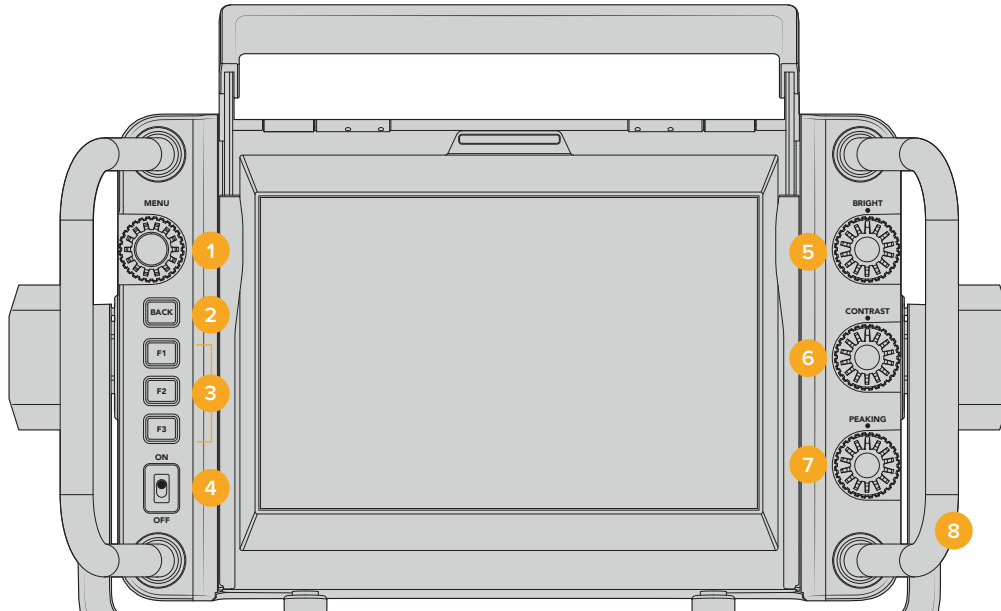
The sun hood helps you to see the screen in bright or sunny conditions. To attach the sun hood, slide it over the top of the Blackmagic URSA Studio Viewfinder and push it into place, securing it with the two captive screws on the base of the sun hood. The top section of the visor is adjustable, and can raise and lower to provide additional viewing angles. The sun hood provides additional protection for the 7" screen, and can be removed quickly and easily if desired or to access the USB-C connector for software updates.



Sun hood and adjustable visor

## Button Features

The tactile dials down the right hand side let you change brightness, contrast, peaking quickly and easily. The dials are ergonomically designed so you can adjust the dials from the side with your thumb when using the sun hood, or with two fingers for finer more controlled adjustment.



- 1 Menu Dial**

The push button 'menu' dial allows you to enter the menu, and navigate through the viewfinder settings.
- 2 Back button**

Exits the menu system
- 3 F1, F2, F3**

Assignable function buttons. You can assign functions to these buttons for easy access to your most commonly used functions.
- 4 ON/OFF switch**

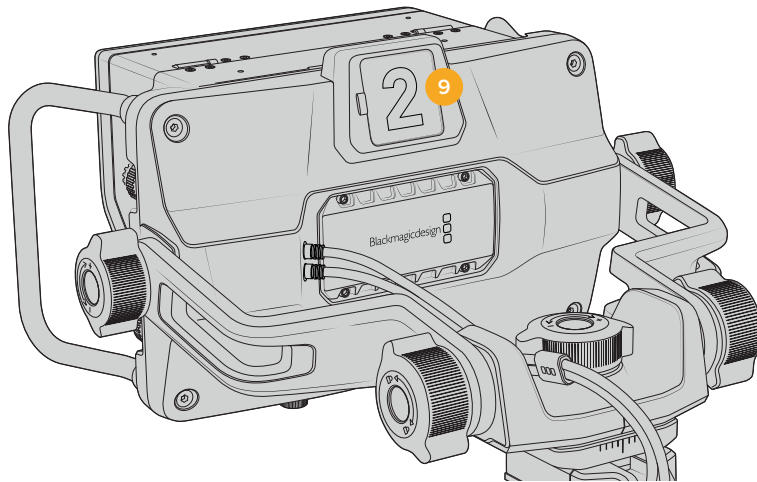
Switches the Blackmagic URSA Studio Viewfinder on and off.
- 5 Bright**

Adjusts the brightness of the image on screen. Overlays on screen will show the brightness level on a scale of -100 to +100.
- 6 Contrast**

Adjusts the contrast of the image on screen. Overlays on screen will show the contrast level on a scale of -100 to +100.
- 7 Peaking**

Adjusts the focus peaking level for the image on screen. Overlays on screen will show the peaking level on a scale of -100 to +100. In the setup menu you can select between various styles of peaking to suit your environment. There is the option for the traditional style of focus peaking that many will be familiar with from other broadcast systems, as well as the option to use colored lines for focus. As with URSA Mini you have the option of 'red', 'green', 'blue', 'black' and 'white' lines which gives you flexibility to make them easily viewable when shooting in environments that have a lot of a particular colour.
- 8 Handles**

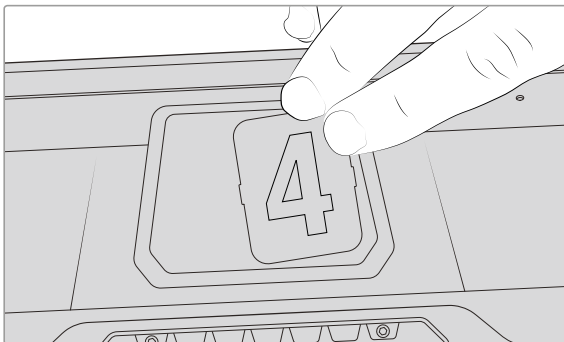
The built in handles are large and allow you to hold the Studio Viewfinder in place as you reposition the camera while shooting. They also provide protection for the screen when setting up and packing down.



## 9 Tally Light

The large tally light on the rear of the Blackmagic URSA Studio Viewfinder lets both the talent and operator know which camera is on the air, which camera is about to be on air, and if they are ISO recording. The tally illuminates red for on-air, green for preview and when used with URSA Mini will illuminate orange for ISO record.

As the director cuts between cameras on the ATEM switcher, tally information is sent back to the camera over SDI so the light is lit when the camera is being previewed to switch to, on the air or recording. In addition, the URSA Studio Viewfinder also includes clip-on transparent camera numbers that attach to the tally light, making it easy for talent to clearly see camera numbers from up to 20 feet away.



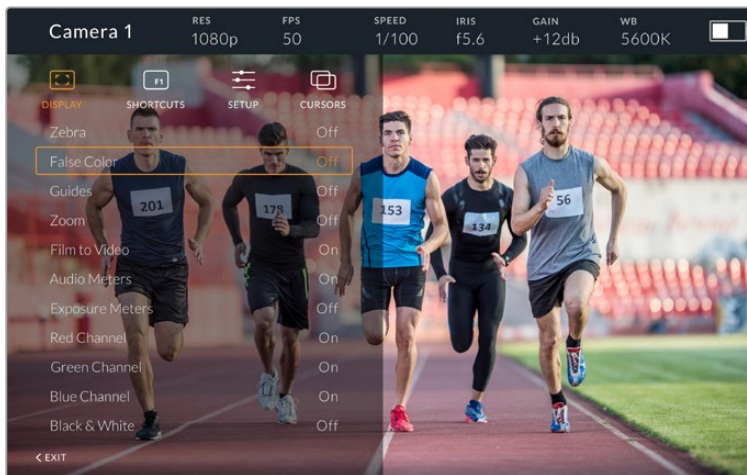
We have included editable PDF's in the software installer that allows you to edit and print out your own tally numbers to match the ones provided, and also to create your own custom tally number inserts. After installing Camera 4.1 software these can be found on a Mac in the Application > Blackmagic Cameras > Documents folder and on a PC in the Blackmagic Design > Documents folder.

The tally light will illuminate according to the ATEM switching operations, and when the camera is not connected to a switcher the tally light will illuminate red as a simple record tally indicator. Refer to the 'Understanding Studio Camera Control' section in this manual for more information.

**TIP** When using the Blackmagic URSA Studio Viewfinder with an ATEM switcher, it is important to select 'clean feed' on URSA Mini to ensure that you don't see overlays or the focus box on the SDI output to the ATEM switcher. Navigate to the 'monitor' menu on URSA and select 'clean feed' for 'Main SDI'.

## Menu Settings

The push button 'menu' dial allows you to enter the menu by pressing it, whilst rotating the dial navigates up and down through the menu options. Pressing the 'menu' dial whilst a menu heading is highlighted, will allow you to switch between the display, shortcuts, setup and cursor sub menus. Rotating the dial will scroll through the settings in each menu. Pressing the dial when a setting is highlighted allows you to adjust that setting by rotating the 'menu' dial. Confirm your selection by pressing the 'menu' dial once more. You can exit out of the menu by hitting the 'back' button or by navigating to and selecting exit.



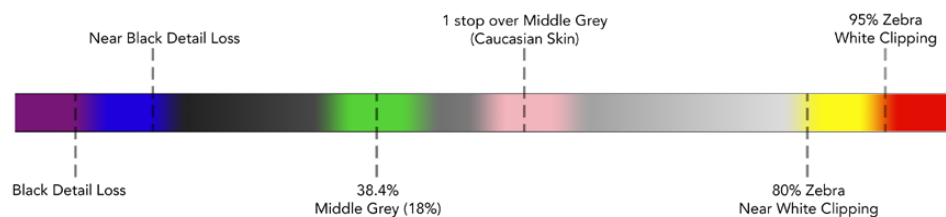
### Display

#### Zebra

Switches zebra levels on and off. The level of zebra will be determined by the setting on your URSA Mini, in the 'All' section of the 'Monitor' menu. When the Studio Viewfinder is not connected with URSA Mini, the zebra level will represent 95% of the luminance levels of a Rec 709 signal. For more information, refer to the 'settings' section in this manual.

#### False Color

Switches the false color feature on and off. False color overlays different colors onto your image that represent exposure values for different elements in your image. For example, pink represents optimum exposure for skin tones. By monitoring the pink false color when recording people, you can maintain consistent exposure for skin tones. Similarly, when elements in your image change from yellow to red, that means they are now over exposed. False color is a good feature to assign to one of the function buttons, as it provides quick and easy access to a commonly used reference tool for exposure.



False Color Chart



### **Guides**

This setting gives you the option to show or hide your guides. The guides will match the style of guides that have been set in the URSA Mini in the camera 'all' section of the 'monitor' menu.

The aspect ratio, frame guide opacity level, safe area percentage, and the type of grids shown will match what you have set in the camera. The 'setup' menu in the Studio Viewfinder then allows you to configure which type of guides you would like to see in the Studio Viewfinder when guides in the display menu are switched on. Guides then allows you to then switch these 'on' or 'off' with one command.

### **Zoom**

Turns the 'zoom' feature on and off. The 'zoom' feature helps you find sharp focus by zooming into your picture. When zoomed in, you can navigate to specific parts of the screen by rotating the menu dial left and right. The overlay will indicate which part of the picture you are zoomed into.

### **Film to Video**

When sending a 'film' dynamic range SDI signal from your URSA Mini, the 'film to video' setting allows you to apply a more colorful and contrasty LUT to the image. This setting will only be available when 'film' dynamic range is detected and will otherwise be greyed out to prevent the wrong LUT being applied to the image.

### **Audio Meters**

The audio meters display the audio level that is being input via SDI into the Blackmagic URSA Studio Viewfinder, therefore the meters will show you URSA Mini's audio input levels. If you have program input selected, the audio meter will display these audio levels.

### **Exposure Meters**

Switches the display of the histogram 'on' or 'off'.

### **Red Channel**

Allows you to switch on or off the red channel of your image.

### **Green Channel**

Allows you to switch on or off the green channel of your image.

### **Blue Channel**

Allows you to switch on or off the blue channel of your image.

### **Black and White**

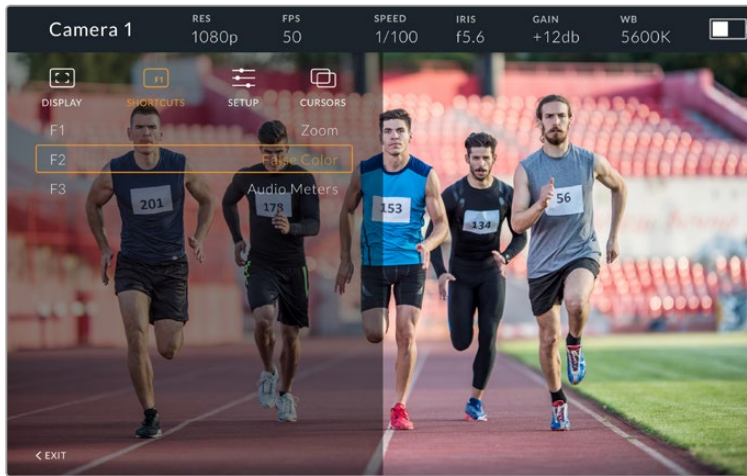
Switches between color and monochrome.

## **Shortcuts**

The shortcut function allows you to map specific functions to the F1, F2 and F3 buttons. These shortcut buttons allow you to quickly toggle 'on' and 'off' any of the settings in the display menu, or your cursors. This is extremely useful when you need to quickly access a particular setting for a frequently used feature.

To customize your shortcut buttons: In the 'shortcuts' menu, rotate the push button 'menu' dial to move up or down and select one of the 3 buttons. Press the 'menu' dial to confirm your selection and then rotate the 'menu' dial to scroll through the assignable features. You will have the option to select one of the following features: 'zoom', 'cursor 1', 'cursor 2', 'cursor 3', 'zebra', 'false color', 'guides', 'film to video', 'audio meters', 'exposure meters', 'red channel', 'green channel', 'blue channel', 'black and white'. Once chosen click the menu button to confirm that selection, and assign that function to the chosen shortcut button. Pressing the shortcut button will now switch this feature 'on' and 'off'.

Once you have set up your shortcuts as required you can either scroll to 'exit' and press the 'menu' dial to close the menu display view, or hit the back button to exit out of the menu.



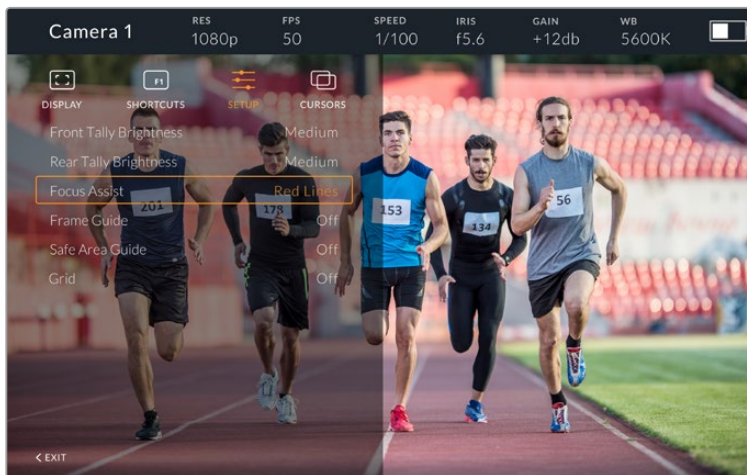
The 'shortcuts' submenu

## Setup

The 'setup' menu is where you choose your preferences for how the viewfinder is setup.

### Front Tally Brightness

Allows adjustments of tally LED brightness between 'off', 'low', 'medium' and 'high'. The tally light will illuminate whilst adjustments are being made so you can see what each brightness level represents.



The 'setup' submenu

### Rear Tally Brightness

Allows adjustments of tally LED brightness between 'low', 'medium' and 'high'. The tally light will illuminate whilst adjustments are being made so you can see what each brightness level represents.

**TIP** A high LED brightness setting is recommended for bright conditions, as it will provide greater visibility for talent and operators in the conditions. A low LED brightness is recommended when filming in darker environments where it is easier to see when the light is on.

### Focus Assist

The 'focus assist' setting toggles the appearance of peaking on the viewfinder. You have the choice of 'red', 'green', 'blue', 'black' and 'white' as well as traditional peaking.

### Frame Guide

Gives you the option to show 'frame guides' as part of your Studio Viewfinder's 'Guides'. When connected to URSA Mini they will match your camera's 'frame guides' aspect ratio. When connected to other systems they will default to the 14:9 aspect ratio.

### Safe Area Guide

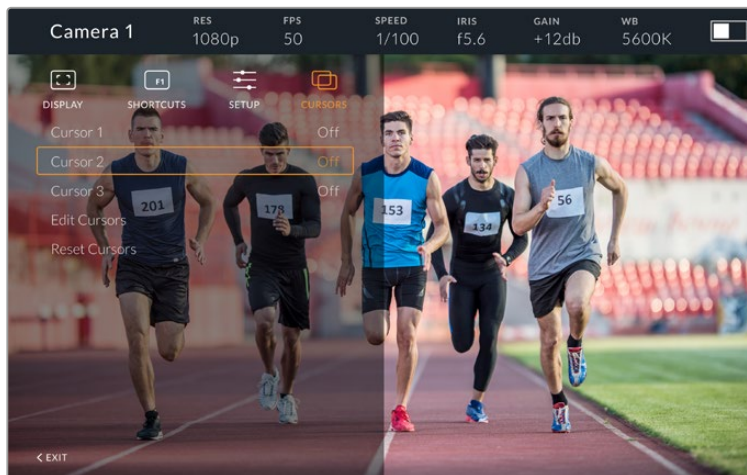
Gives you the option to show the 'safe area' indicator as part of your Studio Viewfinder's 'Guides'. When connected to URSA Mini these will match your camera's 'safe area guide' percentage. When connected to other systems they will default to 90%.

### Grid

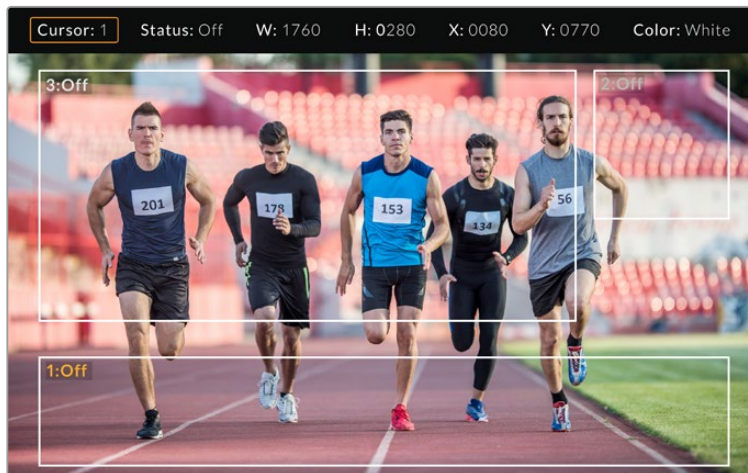
Gives you the option to show grids as part of your Studio Viewfinder's 'Guides'. When connected to URSA Mini these will match your camera's 'grids' settings. When not connected, this will switch your crosshairs on or off.

### Cursors

The cursors allow you to mark an area on screen where graphics like a lower third, graphic, logo or ticker will be overlaid. To adjust these cursors go to 'cursors' and select 'edit cursors'. This will bring up a page that shows you all three cursors and allows you to select each one individually and then dial in the width, height, x and y co-ordinates for positioning each one individually.



The cursors submenu



Cursors displayed on screen

Once you have set them up they can be switched on or off from the 'cursors' menu or assigned to your function keys for quick access. This is important for live production, as it allows the camera operator to take this into consideration and accurately compose and frame shots. You can create up to three black or white custom cursors that can have variable height, width and position, making it easy to match the size and location for all the graphics that will be added live or during later broadcast. You also have the option to reset the cursors to their default state.

### Using a headset with the Blackmagic URSA Studio Viewfinder

When using the Blackmagic URSA Studio Viewfinder with URSA Mini, the headphone connection on the camera will now become a talkback headset connection, allowing for direct communication with the director.

**TIP** Because URSA mini's headphone socket is iPhone headset compatible, you can use your iPhone headset to communicate with the director. Pushing the button on the built-in remote will allow you to talk back to the director.

### Updating URSA Viewfinder's Internal Software

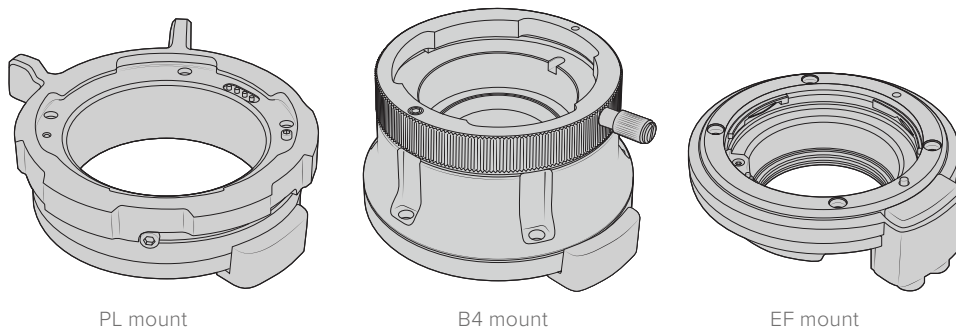
Update your viewfinder using the Blackmagic Camera Setup utility software. The viewfinder will need to be powered when updating, so we recommend keeping the viewfinder connected to your URSA during the update process. This also means your URSA will need to supply consistent power, so be sure to plug into external power.

Remove the sun hood to provide access to the small USB-C connection located on the bottom of the Blackmagic URSA Studio Viewfinder, and connect your computer to the USB-C port. When Blackmagic Camera Utility is launched and your viewfinder is connected to your computer, you will be prompted to update if your computer detects that your viewfinder is using an older version. Follow the on screen prompts to update your viewfinder's internal software. Refer to the 'Blackmagic Camera Setup Utility' section in this manual for more information.

We recommend updating all your Blackmagic URSA equipment at the same time for optimised performance.

# Interchangeable Lens Mount

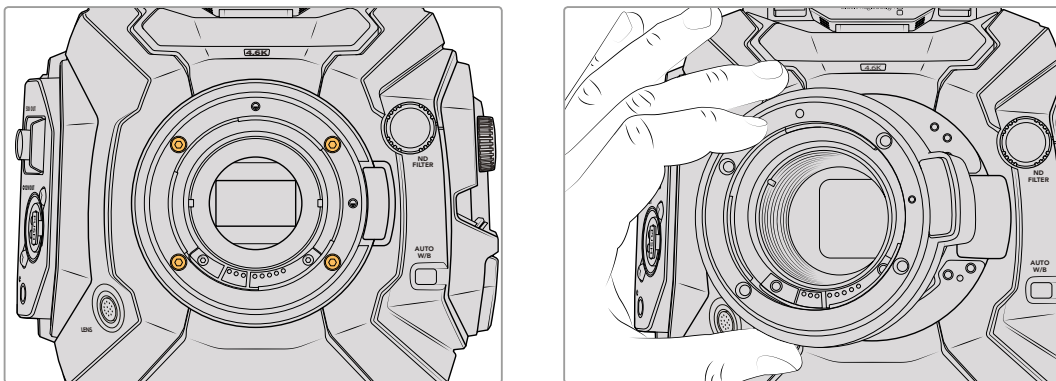
Blackmagic URSA Mini Pro 4.6K is shipped with an EF mount attached, however you are not locked into using EF lenses as the camera has an interchangeable lens mount. This means you can remove the original EF mount and attach an optional PL or B4 mount. Blackmagic Design PL and B4 lens mount kits are available from Blackmagic Design resellers, and the EF mount is also available if you ever need to replace your original mount.



With the ability to interchange three separate mounts, you have the freedom to use different lenses based on the type of assignments you're working on. For example, the EF mount lets you use high quality stills lenses, the B4 mount is perfect if you want to use par-focal zoom lenses for electronic news gathering or wedding shoots, and the PL mount lets you use high end, robust cinema lenses designed for absolute precision and repeatable control.

Attaching each mount is as simple as unscrewing the original EF mount and replacing it with the new mount. It's very easy!

To remove the EF mount, simply unscrew the four M3 Hex screws using a 2mm Hex driver.



The original EF mount is easily removed by unscrewing the four M3 Hex screws and gently lifting the mount from the camera body

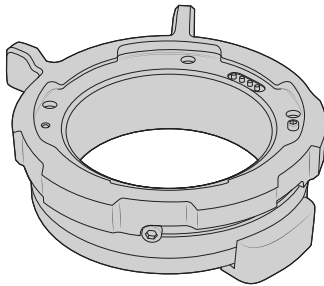
**NOTE** When removing the original EF mount, make sure the 0.10mm and 0.50mm shims underneath the mount always stay attached to your camera.

Keep reading this section for details about the PL, B4, and EF lens mount kits and how to install each mount to your URSA Mini Pro 4.6K.

## Blackmagic URSA Mini Pro PL Mount

Attaching the PL mount to your URSA Mini Pro 4.6K lets you use high end precision cinema lenses for feature film and television production.

### The PL mount kit includes:



#### 1x PL mount

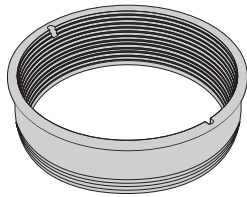
The PL mount is shipped with a protective dust cap.



#### 1 x Shim set

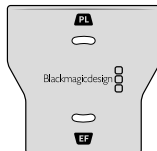
The shim set includes the following thicknesses:

|        |        |         |
|--------|--------|---------|
| 0.50mm | 0.18mm | 0.10mm  |
| 0.30mm | 0.15mm | 0.05mm  |
| 0.20mm | 0.12mm | 0.025mm |



#### 1x PL baffle

The PL mount baffle helps to control and direct the light entering the sensor.



#### 1x Baffle tool

Use the PL baffle tool to tighten the baffle in your camera.

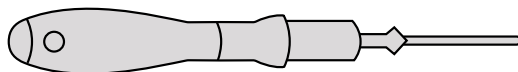


#### 5 x 2mm Hex M2.5 x 22mm mount screws

The five M2.5 x 22mm Hex screws are exclusive to the PL mount so you can keep the screws together with the respective mount.

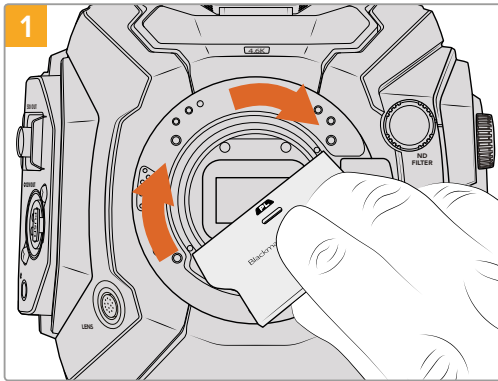
### Tools Required

When attaching the PL mount, you will need a 2mm Hex driver. While it's not absolutely required, we recommend using a torque wrench able to accurately set a maximum torque of 0.45Nm to reduce the potential of over tightening the screws.

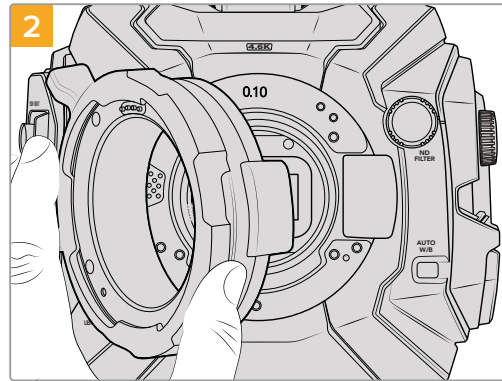


2mm Hex driver

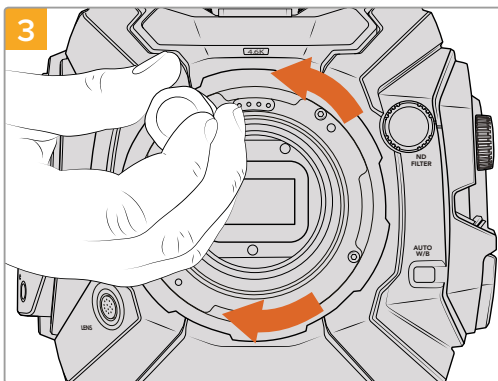
## Attaching the PL Mount



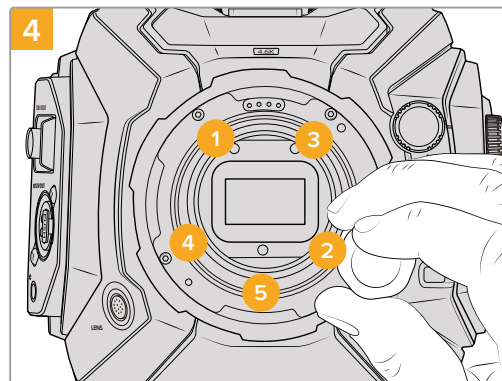
Gently insert the PL baffle into the center of the lens mount and turn until it is finger tight. Use the wide end of the baffle tool to tighten the baffle slightly. You need just enough pressure to keep it in place.



Add the 0.10mm shim to your camera, then place the Blackmagic URSA Mini Pro 4.6K PL lens mount onto the camera body. Ensure the pins on the PL mount for Cooke /i Technology are located at the 12 o'clock position.



Loosely turn the five mounting screws until initial contact is made with the shoulder of the lens mount. To access all five screws, you will need to rotate the PL locking ring, as some holes are obscured when the ring is either open or closed.



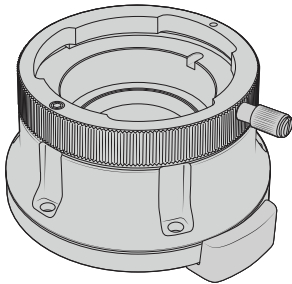
Using the 2mm Hex driver, or torque wrench with 2mm Hex key, apply one full turn of pressure to mounting screw 1, followed by one full turn to screw 2. Repeat for screws 3 and 4, then 5. Continue to apply one full turn to each screw in the sequence above until all screws have reached the maximum torque of 0.45Nm.

**NOTE** When removing the PL mount, simply follow the instructions in reverse order from step 4 to step 1. Don't forget to remove the PL baffle and store it securely with the PL mount.

## Blackmagic URSA Mini Pro B4 Mount

With the B4 mount attached to your URSA Mini Pro 4.6K, you can mount par-focal zoom lenses commonly used for electronic news gathering and wedding videos. These lenses maintain focus throughout large zoom ranges and typically have manual focus and iris control, plus a zoom rocker on the hand grip allowing you to smoothly ease in and out of the zoom. For single operators, using these lenses makes shooting very fast and efficient with exceptional control over the shot.

### The B4 mount kit includes:



#### 1x B4 mount

The B4 mount lets you use industry standard ENG lenses with your URSA Mini Pro 4.6K.



#### 1 x Shim set

The shim set includes the following thicknesses:

|        |        |         |
|--------|--------|---------|
| 0.50mm | 0.18mm | 0.10mm  |
| 0.30mm | 0.15mm | 0.05mm  |
| 0.20mm | 0.12mm | 0.025mm |

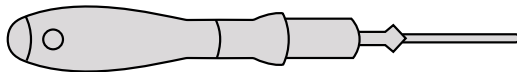


#### 5 x 2mm Hex M2.5 x 12mm mount screws

The five M2.5 x 12mm HEX screws are exclusive to the B4 so you can keep the screws together with the respective mount.

### Tools Required

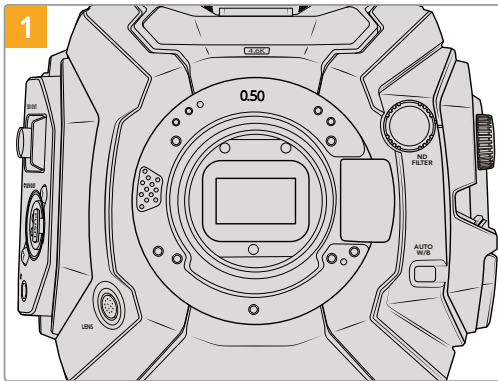
When attaching the B4 mount, you will need a 2mm Hex driver. While it's not absolutely required, we recommend using a torque wrench able to accurately set a maximum torque of 0.45Nm to reduce the potential of over tightening the screws.



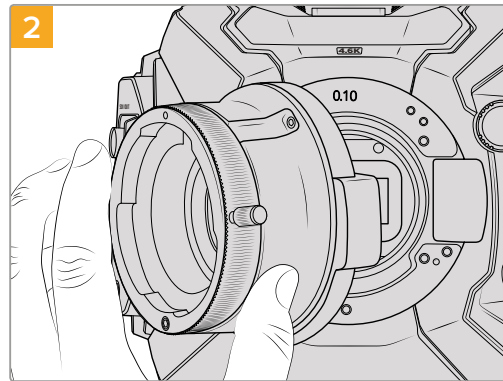
2mm Hex driver



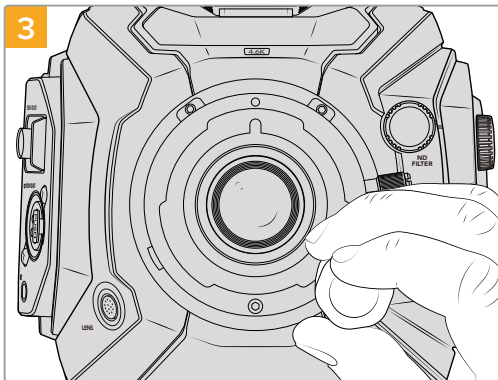
## Attaching the B4 Lens Mount



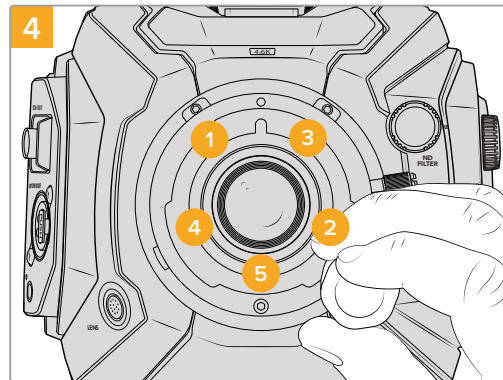
Place Blackmagic URSA Mini Pro 4.6K vertically on a solid, clean bench top to ensure that the mount can be inserted vertically.



Add the 0.10mm shim to the camera, then place the Blackmagic URSA Mini Pro 4.6K B4 lens mount onto the camera body ensuring the red dot is at the 12 o'clock position.



Loosely turn the five mounting screws until initial contact is made with the shoulder of the lens mount.



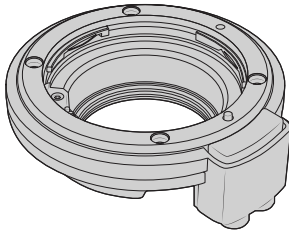
Using the 2mm Hex driver, or torque wrench with 2mm Hex key, apply one full turn of pressure to mounting screw 1, followed by one full turn to screw 2. Repeat for screws 3 and 4, then 5. Continue to apply one full turn to each screw in the sequence above until all screws have reached the maximum torque of 0.45Nm.

**NOTE** When removing the B4 mount, simply follow the instructions in reverse order from step 4 to step 1.

## Blackmagic URSA Mini Pro EF Mount

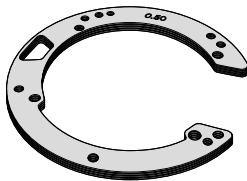
The EF mount can be purchased if you ever need to replace the original EF mount that is shipped with your camera.

### The EF mount kit includes:



#### 1x EF mount

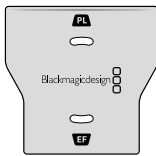
The EF mount lets you attach common EF stills lenses.



#### 1 x Shim set

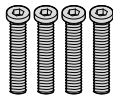
The shim set includes the following thicknesses:

|        |        |         |
|--------|--------|---------|
| 0.50mm | 0.18mm | 0.10mm  |
| 0.30mm | 0.15mm | 0.05mm  |
| 0.20mm | 0.12mm | 0.025mm |



#### 1x Baffle tool

The baffle in the EF mount is not removable, however we have included a baffle tool in the EF kit as a spare item you can use if you also have the PL mount.

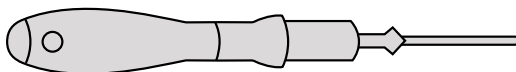


#### 4 x 2mm Hex M3 x 18mm mount screws

The four M3 x 18mm Hex screws are exclusive to the EF mount so you can keep the screws together with the respective mount.

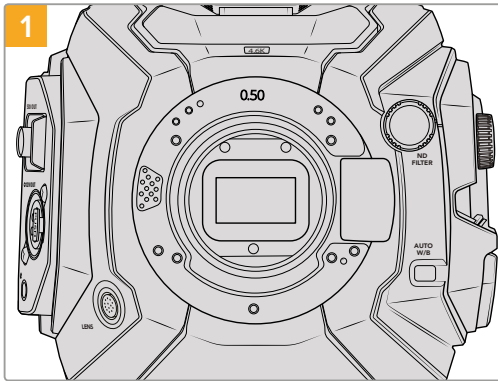
### Tools Required

When attaching the EF mount, you will need a 2mm Hex driver. While it's not absolutely required, we recommend using a torque wrench able to accurately set a maximum torque of 0.45Nm to reduce the potential of over tightening the screws.

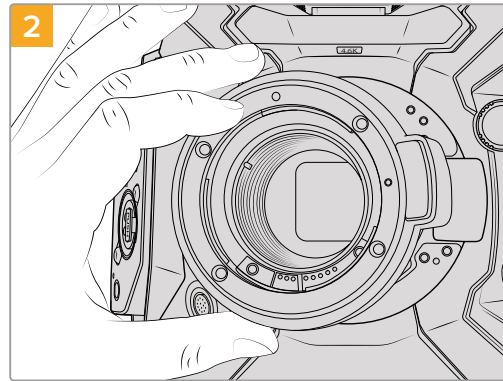


2mm Hex driver

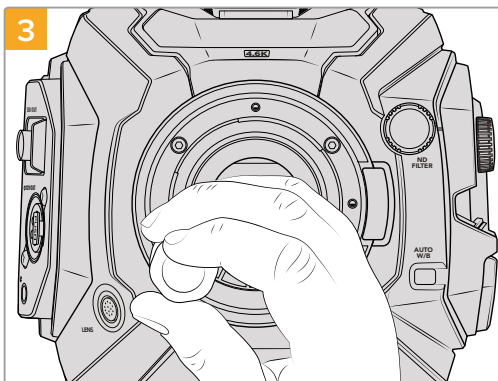
## Attaching the EF Mount



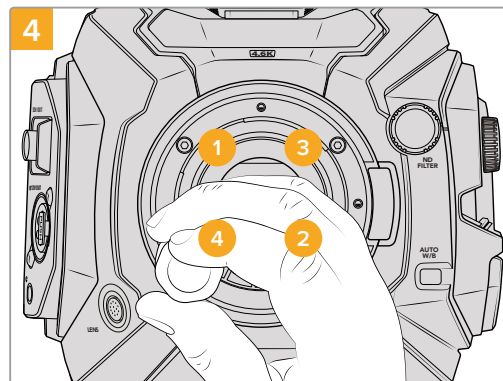
Place Blackmagic URSA Mini Pro 4.6K vertically on a solid, clean bench top to ensure that the mount can be inserted vertically. If changing from the PL to the EF mount, ensure that you have removed the PL baffle before inserting the EF mount.



Carefully place the Blackmagic URSA Mini Pro 4.6K EF lens mount onto the camera body ensuring the red dot is at the 12 o'clock position.



Loosely turn the four mounting screws until initial contact is made with the shoulder of the lens mount.



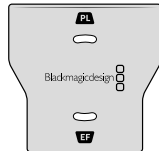
Using the 2mm Hex driver, or torque wrench with 2mm Hex key, apply one full turn of pressure to mounting screw 1, followed by one full turn to screw 2, and repeat for screw 3 and then 4. Continue to apply one full turn to each screw in the sequence above until all screws have reached the maximum torque of 0.45Nm.

**NOTE** When removing the EF mount, simply follow the instructions in reverse order from step 4 to step 1.

## Blackmagic URSA Mini Pro Shim Kit

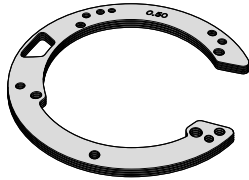
When attaching the PL or B4 mounts to URSA Mini Pro 4.6K, a 0.10mm shim is added to the original 0.50mm and 0.10mm shims underneath the original EF mount. This shim and others are included in the Blackmagic URSA Mini Pro Shim Kit. Other thicknesses are included in the kit in case you need to re-shim your camera to suit PL lenses that may require slightly different clearances to maintain accurate focus marks.

### The shim kit includes:



#### 1x Baffle tool

Use the baffle tool to loosen or tighten the PL baffle when removing or attaching the PL mount to your URSA Mini Pro 4.6K.



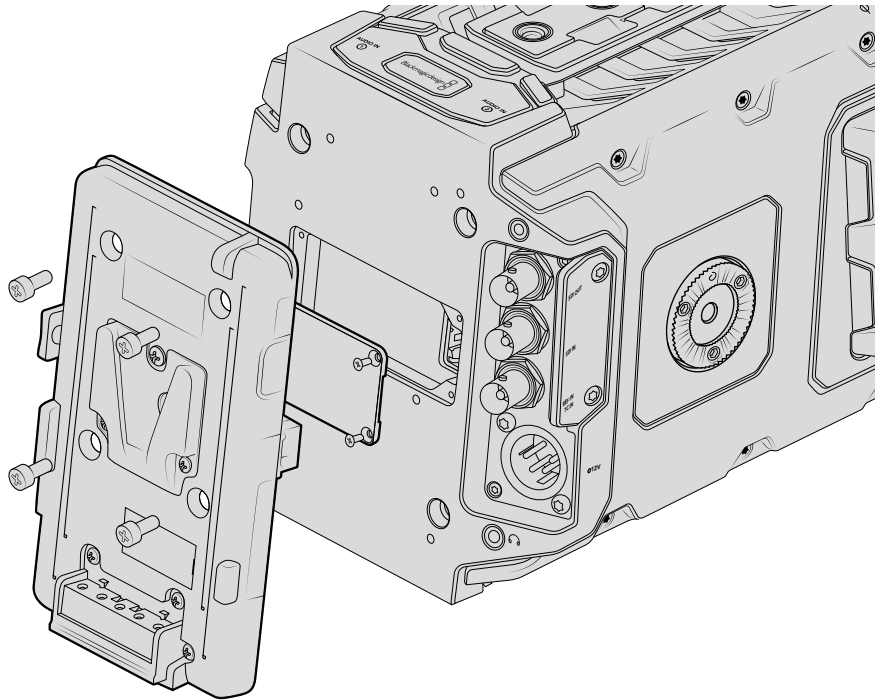
#### 1 x Shim set

The shim set includes the following thicknesses:

|        |        |         |
|--------|--------|---------|
| 0.50mm | 0.18mm | 0.10mm  |
| 0.30mm | 0.15mm | 0.05mm  |
| 0.20mm | 0.12mm | 0.025mm |

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# Mounting Batteries



Connecting a third party battery plate lets you mount V-mount or gold mount batteries

## Mounting V-mount or Gold Mount Batteries

You can easily mount industry standard V-mount or gold mount batteries to Blackmagic URSA Mini.

To mount a battery, you'll need to attach a Blackmagic V-mount battery plate, a third party V-mount or gold mount battery plate to your camera's plate mount.

**TIP** Some third party battery plates such as IDX's ET-PV2UR, Blueshape's MVURSA and Anton Bauer's QRC-BMURSA come pre-terminated with the correctly wired connector for plugging straight into URSA and URSA Mini's moxle power connector. IDX ENDURA batteries with Digi View functionality such as E-HL9 and ELITE models, Blueshape V-lock batteries and Anton Bauer DIGITAL and Logic Series® will all show accurate percentage power information with their corresponding plates on URSA and URSA Mini. The standard Blackmagic V-mount battery plate supports displaying percentage information with Switronix Hypercore batteries.

You can purchase V-mount battery plates from Blackmagic Design resellers, or V-mount and gold mount battery plates from suppliers of professional digital cinema and video equipment. If you don't have an off the shelf battery plate designed for Blackmagic URSA or URSA Mini and you want to modify your own battery plate, then you can use the supplied adapter cable and connector. Refer to the 'using your own battery plate' section for information about how any battery plate can be modified to use with URSA or URSA Mini.

### To mount your battery plate to the rear panel:

- 1 Remove Blackmagic URSA Mini's molex power cover from the rear panel by unscrewing the 4 corner screws with a phillips head PH1 screwdriver. You'll now see Blackmagic URSA Mini's 12 way molex 55959-1230 power connector.
- 2 Connect Blackmagic URSA Mini's 12 way molex 55959-1230 power connector to your third party battery plate.
- 3 Screw the third party battery plate onto your Blackmagic URSA Mini's plate mounting points using 4 x M3 screws. Make sure the connector cable is tucked safely into the cable slot and not crushed between the plates when tightening.

With the third party plate connected to your camera, you can now mount a V-mount or gold mount battery.

## Using your own Battery Plate

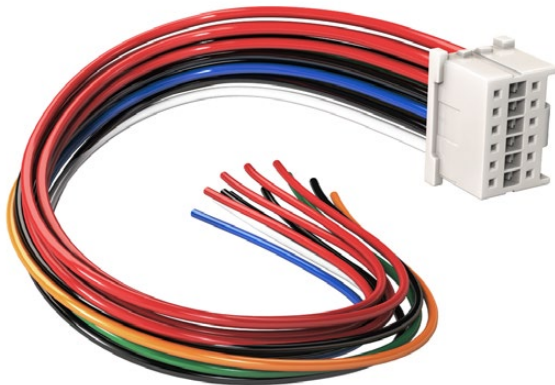
### Adapter Cable and Connector

If you don't have an off the shelf battery plate designed to plug into URSA Mini and want to modify your own battery plate, you can use the supplied adapter cable and connector, which is also available at your local Blackmagic Design support office.

To wire the adapter cable and connector to your battery plate:

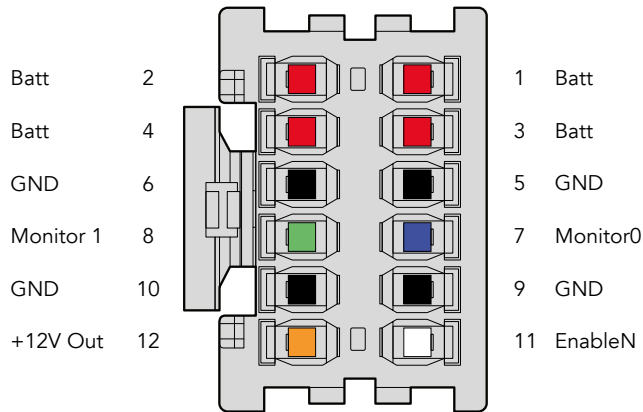
- 1 Strip approximately half an inch of insulation from the end of each red and black wire.
- 2 Solder all 4 x red 'Batt' wires to the corresponding 'positive' wire from your battery plate.
- 3 Solder all 4 x black 'GND' wires to the corresponding 'negative' wire from your battery plate.

Ensure the joins are well insulated.



If you need to modify any battery plate to plug into URSA, use the supplied adapter cable and connector, which is also available from your local Blackmagic Design support office

This enables battery power to your camera. You can also connect additional wires for features such as 12 V output and battery status. Refer to your battery plate information, plus the diagram and tables on this page for help connecting the wires. If you require further assistance visit the Blackmagic Design support center at [www.blackmagicdesign.com/support](http://www.blackmagicdesign.com/support).



The rear view of the adapter's connector housing.  
Refer to the wire configuration table for a description of each pin

#### Wire Configuration Table

| Pins        | Signal    | Color  | Direction | Description  |
|-------------|-----------|--------|-----------|--|
| 1, 2, 3, 4  | Batt      | Red    | To URSA   | 12 V to 20 V   |
| 5, 6, 9, 10 | GND       | Black  | –         | –  |
| 7           | Monitor0  | Blue   | To URSA   | Analog battery level or open drain data line (20 V max)                          |
| 8           | Monitor1  | Green  | To URSA   | Open drain clock line (3.4 V max)  |
| 12          | +12 V out | Orange | From URSA | 12 V regulated output 1.5 A max (18 W)   |
| 11          | EnableN   | White  | To URSA   | Connect to GND to enable +12 V out. Leave floating if +12 V out is not required. |

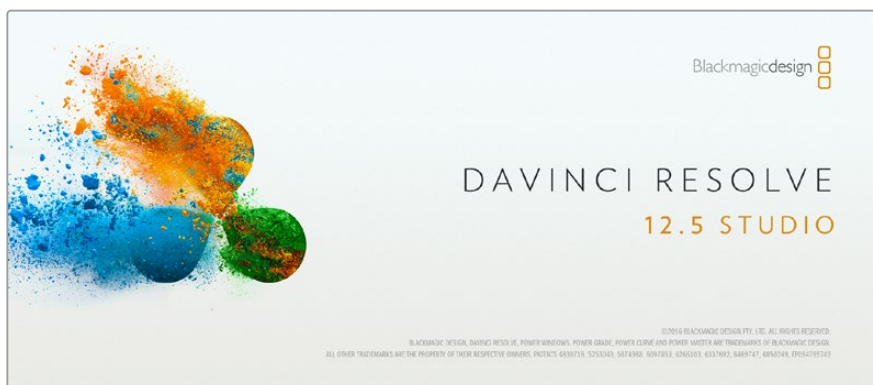
Each Batt and GND pin supports 3 amps. Make sure all Batt and GND pins are connected. To monitor the battery status using Anton Bauer, IDX, or Blueshape plates, follow the connection table below:

|                    |   |
|--------------------|---|
| <b>Anton Bauer</b> | Connect the blue/white striped wire to the housing blue wire at pin 7.  |
| <b>IDX</b>         | Connect the green wire to the housing green wire at pin 8, and the grey wire to the housing blue wire at pin 7.                                     |
| <b>Blueshape</b>   | Connect the blue wire labelled "SMBC" to the housing green wire at pin 8. Connect the brown wire labelled "SMBD" to the housing blue wire at pin 7. |

Secure any unused wires by cutting them as close as possible to the rear of the adapter connector.

## Using DaVinci Resolve

Shooting with your Blackmagic URSA Mini is only part of the process of creating film and television content, and just as important is the process of media backup and management as well as editing, color correction and encoding final master files. Your Blackmagic URSA Mini includes a version of DaVinci Resolve Studio for Mac OS and Windows so you have a complete solution for shooting and post production!



**NOTE** We recommend using the latest version of DaVinci Resolve for accurate color treatment of clips shot using URSA Mini cameras. For example, version 12.5.5 or later will ensure accurate color for all URSA Mini cameras.

After connecting your CFast card to your computer, you can use DaVinci Resolve's 'clone' tool, in the 'media' page, to create running backups as you shoot. This is recommended as any type of media is susceptible to becoming damaged or developing a fault so creating backups ensures your shots will be immune to loss. Once you have used DaVinci Resolve to back up your media, you can then add your clips to the DaVinci media pool, then edit, color correct, and finish your production without ever having to leave DaVinci Resolve.

Because Blackmagic URSA Mini shoots a much wider dynamic range than regular video cameras, DaVinci Resolve will help you adjust your shots to get any kind of look you are after. DaVinci Resolve is the same tool used on most major blockbuster movies, so it's much more than a simple NLE software tool, as it has extremely advanced technology built in for high end digital film. You get the advantage of this technology when you use DaVinci Resolve to edit and color correct your work.

Included here is information on how to get started using DaVinci Resolve with your camera files. Of course, DaVinci Resolve is extremely advanced and includes a lot more features than you immediately see when first looking at its user interface. To learn more about how to use DaVinci Resolve, please check for the DaVinci Resolve instruction manual pdf file on the DaVinci Resolve software disk, or check online for the many training courses and tutorial videos available.



## Importing your Clips

To start editing your clips, you'll first need to import them into the media pool:

- 1 Launch DaVinci Resolve. If this is the first time you've opened DaVinci Resolve, wait for the Project Manager to appear, and double click the 'untitled project' icon in the project manager window. If the log in window appears, that means you have the Resolve multi-user environment enabled. In this case, click Add New at the bottom left of the log in window and create a new user by entering a user name and clicking Setup New User. Then double-click the user icon to proceed to the Project Manager. Now click 'new project', enter a title for your project and click 'create'. This will add your new project to the project manager. Double click on your project to open it.
- 2 You'll now see the 'media' page with a 'media storage' browser at the top left. The 'media storage' browser displays all your linked media folders from where you'll drag your clips and drop them into the media pool.
- 3 If your clip folder doesn't appear in the library, you'll need to add it. This is easily done by clicking on preferences in the DaVinci Resolve title bar and clicking on the 'add' button in the 'media storage' tab. Browse to and select a drive or folder path, click 'open', restart DaVinci Resolve and reopen your project to refresh the 'media storage' settings.
- 4 In the 'media storage' browser, click on your newly added clip folder. Now simply drag your clips from your storage folder and drop them into the media pool. If the untitled project settings are different to your clip settings, you'll be prompted to either change the project settings to match your clips, or leave the settings as they are. To get started quickly, click 'change'. Now your project settings match your clips.



To import your clips, simply drag them from the 'media storage' browser and drop them into the media pool. You can also drag and drop files from your desktop

## Working with RAW files

When you first import RAW files, DaVinci Resolve will decode the sensor data contained in the files using the ISO, white balance and tint settings used on the camera at the time of shooting. If you're happy with the look of these settings, you can start editing right away.

The great thing about shooting RAW is that you're not tied to these settings at all!

The breadth of available post processing options when working with RAW files mean that you'll develop your own workflow over time. Experimenting with the 'clip RAW' settings for each clip will show you just how powerful and flexible working with RAW can be.

RAW clips give you maximum flexibility in post production. While ProRes and DNx files, for example, convert your camera's sensor data into their respective codecs, RAW clips keep the original sensor data without conversion. This lets you make adjustments to clips, such as white balance and ISO settings, as if you were changing the original camera settings. Working with the original sensor data also retains more tonal information within shadows and highlights, which is useful for recovering details, for example in blown out skies and dark areas of the picture.

It's worth shooting in RAW if you are after the highest possible quality, or for shots where there is an extreme variance between highlights and shadows and you may need to push and pull those regions as much as possible in the grade.

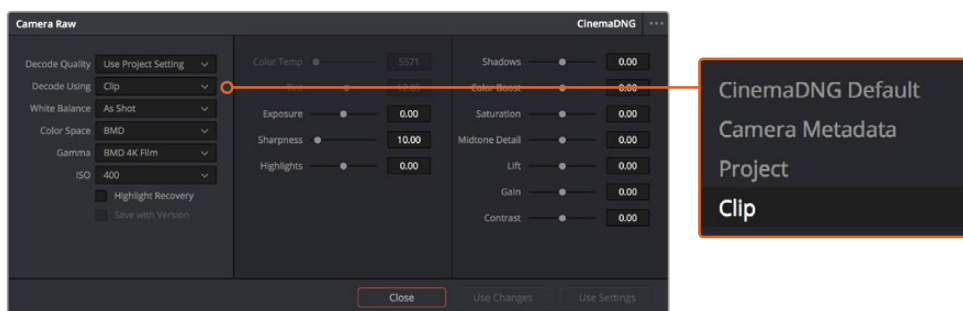
RAW files can be large and processor intensive, but you can set DaVinci to automatically create proxy files to help your computer with real time playback. For more details on how to get the most out of your RAW files in your grade and how to set up a real time workflow, refer to the DaVinci Resolve manual.

### Clip Raw Settings

Once your RAW clips are loaded into the media pool, you can drop them on a timeline in the edit page and then make adjustments to each clip in the color page.

**To make individual adjustments to RAW settings on a per clip basis:**

- 1 Open the 'edit' page, then drag and drop your selected clips into a new timeline.
- 2 Open the color page. Right click on the clip you want to adjust and choose 'edit cinemaDNG codec settings' from the 'camera RAW codec settings' menu.
- 3 Select 'clip' from the 'decode using' dropdown menu.



Use the 'edit cinemaDNG codec settings' menu to change RAW settings for individual clips

## Project Raw Settings

If you need to make a setting change that is common to all the clips, for example a global change to the white balance or ISO setting, you can set the clips to use the project RAW settings and make global changes from there.

### To set project RAW settings:

- 1 Enter the project settings menu by clicking 'file,' and selecting 'project settings.'
- 2 In the 'Camera RAW' tab, you'll see a small arrow in the top right corner with one of several RAW formats next to it. This should be set to CinemaDNG. When you first drop a RAW clip shot on your URSA Mini into a new timeline, this setting will be set to CinemaDNG automatically.
- 3 Select 'project' in the 'Decode Using' drop down menu.
- 4 Set the white balance setting to 'custom'.
- 5 Set the color space to 'Blackmagic Design'. This will also set the gamma setting to Blackmagic Design Film.

Now you can adjust the camera settings for your clips such as white balance, ISO, sharpening, and more. This will affect all clips on your timeline.

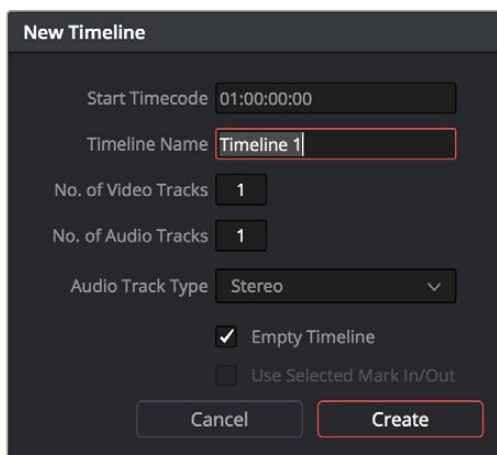
For a full description of all of the RAW settings available, refer to the DaVinci Resolve manual.

## Editing your Clips

With your clips in the media pool, click on the 'edit' tab to open the edit page.

Now you can start building your edit!

- 1 You'll first need to create a new timeline. Right click anywhere within the media pool and choose Timelines > New Timeline. When the dialog box appears, click the 'create' button.



To start editing your clips, you'll need to create a new timeline. The timeline is the stage upon which all your editing will take place

- 2 Double click a clip in the media pool to open the clip in the source viewer. Use the mouse pointer to scrub the play head in the source viewer left and right until you find the start frame you want for the clip. Mark the in point with the 'I' shortcut. Do the same for the end frame using the 'O' shortcut.

- 3 Go to the timeline and position the timeline play head where you want your clip to be inserted.
- 4 To insert the clip onto the timeline, click inside the source viewer then drag the mouse pointer across to the timeline viewer. A list of edit options will appear. Select the type of edit you want.

Your clip will be placed onto the timeline using the edit type you selected. You'll find a description of each edit type and how to use them in the DaVinci Resolve manual.

A faster way to add clips to your edit is by dragging them from the media pool and dropping them directly onto the timeline where you can adjust your in and out points, position your clips, try different plug in effects, titles, and more. This particular workflow is like using the timeline as an artist's palette.



The 'edit' page. You can trim your clips, change their order, move them around and add transitions between them using the timeline editor

## Trimming Clips

When editing clips you'll want to trim them to include only the specific actions you want in each shot. There are various ways, but the easiest is to adjust the clips' in and out points on the timeline:

- 1 After adding clips to your timeline, hover your mouse pointer over the start of a clip until the pointer becomes a 'trim' icon.
- 2 When the 'trim' icon appears, click on the start of your clip and drag it forwards or backwards to trim the in point. Watch the timeline monitor as you trim to find the edit point.
- 3 Now click and drag the end of your clip to adjust the out point.

The zoom slider is located above the timeline, to the right of the tools that are centered in the toolbar. By dragging the slider left and right you can zoom in and out of your timeline to make fine adjustments.

Turning the 'snapping' feature off is handy when fine tuning edits, but it's a helpful feature to keep your clips held tightly against each other, so it's worth turning back on once you're done. Press the 'N' key to quickly turn snapping on or off.



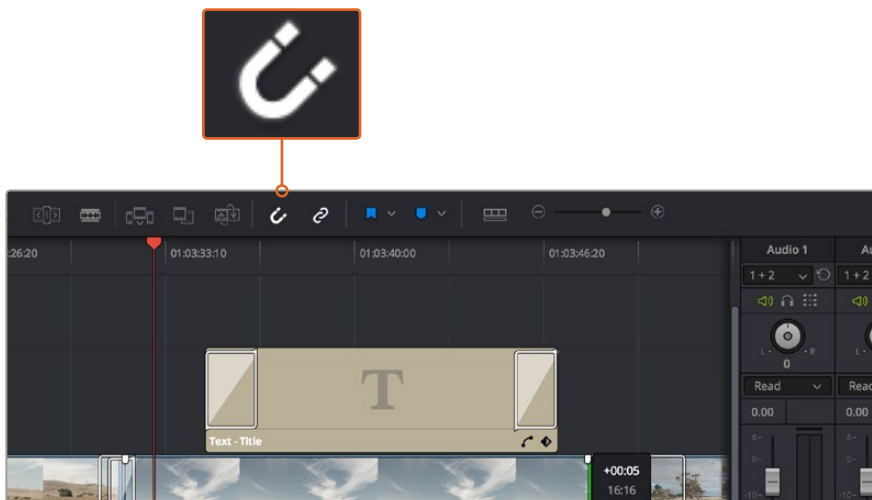
The 'edit' page. You can trim your clips, change their order, move them around and add transitions between them using the timeline editor

## Mapping Keyboard Shortcuts

If you are familiar with keyboard shortcuts using other editing software, you can easily map your own in DaVinci Resolve to increase speed and optimise your workflow.

To map your own keyboard shortcuts:

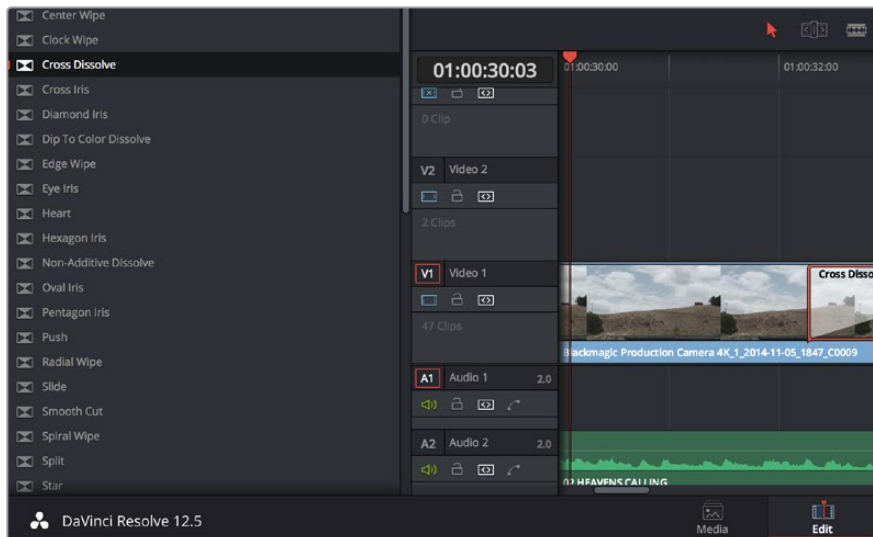
- 1 Click on the project setting 'gear' icon at the bottom right of your DaVinci workspace, then select 'keyboard mapping' from the settings list.
- 2 Select the shortcut you want to change from the categories provided, for example timeline cut and paste shortcuts will be in the 'edit' category.
- 3 Click on the shortcut once to highlight the setting. Double click on the shortcut to enable the change.
- 4 Press your new shortcut keys on the keyboard. If you make a mistake you can easily undo the change by clicking the 'undo' icon next to the setting.
- 5 Click 'save' to confirm your new shortcut setting.



Trim your clips by dragging their start and end points left or right.  
The 'snapping' feature can be turned off when making fine adjustments

## Adding Transitions

A transition is a visual effect used to bridge one clip to another in a pleasing way, for example dissolves, wipes, dips to color, and more. These can add a layer of excitement to your edit. Transitions don't always have to be joining two clips, for example you can apply a dissolve transition to the end of one clip to create a quick and easy fade to black.

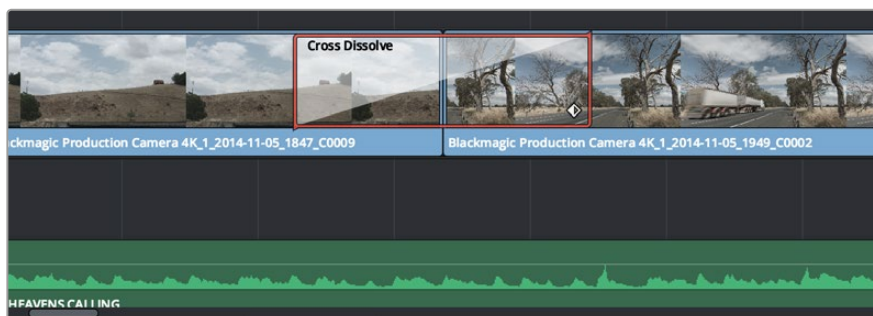


The transitions palette contains many types of transition effects

### To add a dissolve transition between two clips:

- 1 Make sure there are two clips edited right next to one another on the timeline. Click the 'effects library' button in the UI toolbar at the top of the 'edit' page, and make sure the 'toolbox' panel is open.
- 2 Click on the 'cross dissolve' transition, drag it to your timeline and hover it over the edit point between two clips. You'll see the mouse pointer highlight both the end section of the first clip, and the start of the second. Drop the transition onto the clips. It's important both clips have enough length before and after their edit points to make room for the dissolve.

You now have a smooth transition mixing from one clip to the other. If you want to adjust the length of the transition you can lengthen or shorten its start and end point using a similar approach to trimming a clip. Hover your mouse pointer over the start or end of the transition until the transition 'trim' icon appears, then drag it left or right.



Simply drag and drop transitions between adjoining clips

## Adding Titles

It's easy to create titles for your edit. You can place a title on any video track just as you would a clip. If you run out of tracks you can easily add new ones by right clicking next to an existing track name and selecting 'add track'.

To create a title:

- 1 Scroll down towards the middle of the toolbox in the 'effects library' located underneath the media pool and you'll see the 'titles' generators. Use the scroll bar to reveal more 'titles' options.
- 2 Drag and drop a text title on the empty video track above the clip you want the title to appear. You can even drop your title next to a clip on Video 1 if you just want it to appear over black. To see the title, make sure the timeline playhead is on the title.
- 3 Double click on the title clip. The 'inspector' will appear showing you the settings for your title. Type your title into the 'text' field.

You can choose from a variety of fonts and adjust the appearance of your title by changing settings such as color, size, alignment, position, and more. Transitions can be added to titles, just like they can for clips.



Drag a title type from the 'titles' palette and drop it on an empty track

## Adding Audio Tracks

If you want to mix a large sound edit with lots of sound effects and music, you can easily add more audio tracks when you need them.

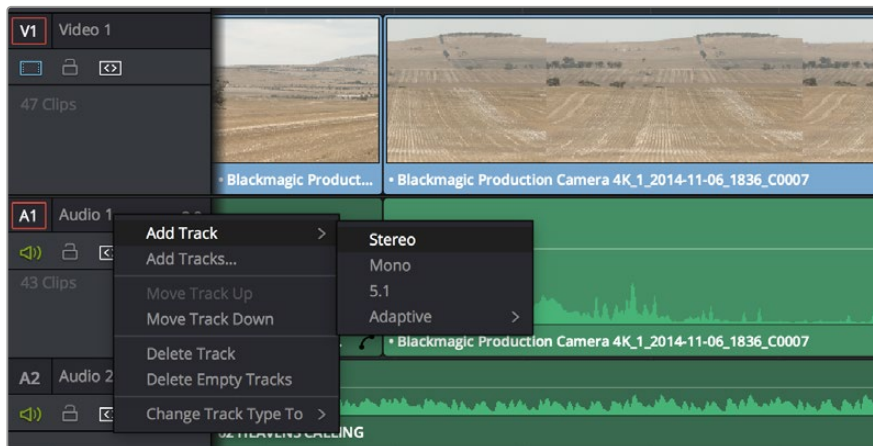
**To add an audio track:**

- 1 Right click next to the name of the last audio track on your timeline and select 'add track'.
- 2 Select the type of audio track you want, such as stereo, mono, 5.1 or adaptive.

Your new audio track will appear on the timeline.

This can be handy when you want to separate your audio elements into individual tracks for a sound mix, for example voice, sound effects, and music.

Refer to the DaVinci Resolve manual for more information on how you can use all the powerful editing tools.



To add a new audio or video track, right click next to a track name and select 'add track'. For audio, select the track type you want

## Color Correcting your Clips

Once you have edited your sequence of clips, you can start color correcting. This is best begun after you have finished editing your sequence so you can maintain a consistent look, but part of the fun of DaVinci Resolve is being able to move between the edit and color page to make fine adjustments and discover new creative choices.



With the 'color' page you get absolute control over the look of your clips

First, click on the 'color' tab to open the 'color' page.

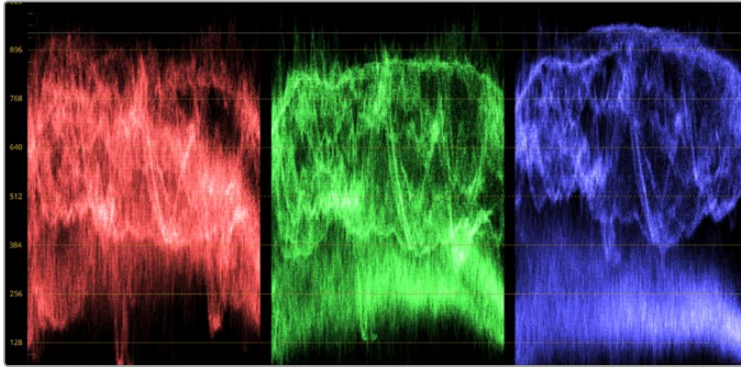
You'll see the color wheels, curves palettes and general color correction tools as well as the preview and nodes window. Don't feel overwhelmed by the vast array of features in front of you, they are all there to help you get the most amazing looking pictures. The DaVinci Resolve manual will show you exactly what the tools are for and how to use them in easy to follow steps. You'll learn the same techniques the professionals use in high end color correction facilities.

Generally, the first thing you'll want do is optimize the shadows, mid tones and highlights in your clips. In other words adjust the 'lift', 'gamma' and 'gain' settings. This will help get your pictures looking their brightest and best with a clean, uniform starting point from where you can begin grading the 'look' of your film.



## Using Scopes

Most colorists make creative color choices by focusing on the emotion and the look they want their program to have and then simply work using the monitor to achieve that look. You can look at everyday objects and how different types of light interact with them to generate ideas on what you can do with your images and a little practice.



The parade scope helps you optimize highlights, mid tones and shadows



The 'lift', 'gamma', 'gain' and 'offset' color wheels give you total control over the color and tonal balance of your clips. To make a uniform adjustment to all colors for each tonal region, drag the dial underneath the color wheels back and forth

Another way to color grade is to use the built in scopes to help you balance shots. You can open a single video scope by clicking the 'scope' button, which is the second from the right on the palette toolbar. You can choose to display a waveform, parade, vectorscope and histogram. Using these scopes you can monitor your tonal balance, check the levels of your video to avoid crushing your blacks and clipping the highlights, plus monitor any color cast in your clips.

The 'color wheels' palette contains the 'lift', 'gamma' and 'gain' controls which will generally constitute your first adjustment. These should resemble controls you've seen in other applications for doing color and contrast adjustments. For more accurate control of each color using a mouse, you can change the color wheels to 'primaries bars' which let you adjust each color and luminance channel for the lift, gamma and gain controls separately. Simply select 'primaries bars' from the drop down menu near the top right of the color wheels.

### 1 Adjusting the 'lift'

With your first clip selected on the color timeline, click on the 'lift' dial underneath the first color wheel. Slide it back and forth and watch how it affects your image. You'll see the brightness of the dark regions of your picture increase and decrease. Set it to where you want the dark areas to look their best. If you decrease the lift too much, you'll lose details in the blacks and you can use the parade scope to help avoid this. The optimal position for blacks on the waveform is just above the bottom line of the parade scope.

## 2 Adjusting the 'gain'

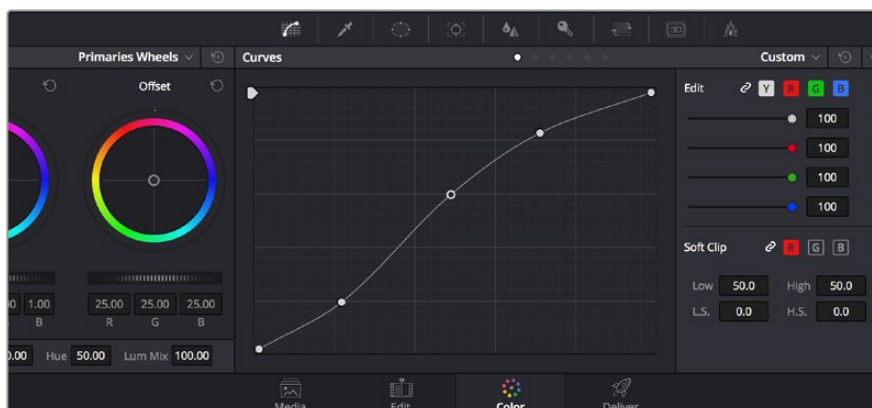
Click on the 'gain' dial and slide it back and forth. This adjusts the highlights which are the brightest areas of your clip. The highlights are shown on the top section of the waveform on the parade scope. For a brightly lit shot, these are best positioned just below the top line of the waveform scope. If the highlights rise above the top line of the waveform scope, they will clip and you will lose details in the brightest regions of your image.

## 3 Adjusting the 'gamma'

Click on the 'gamma' dial underneath the color wheel and slide it back and forth. As you increase the gamma you'll see the brightness of the image increase. Notice the middle section of the waveform will also move as you adjust the gamma. This represents the mid tones of your clip. The optimal position for mid tones generally falls between 50 to 70% on the waveform scope. However, this can be subjective based on the look you are creating and the lighting conditions in the clip.

You can also use the curves palette to make primary color corrections. Simply click to create control points on the diagonal line inside the curve graph, and drag them up or down to adjust the master RGB contrast at different areas of image tonality. The optimum points to adjust are the bottom third, mid, and top third of the curve line.

There are many more ways of doing primary color correction in DaVinci Resolve. Check the DaVinci Resolve manual to learn how to use them all.



The curves palette is another tool you can use to make primary color corrections, or enhance specific areas of your clip when using a power window

## Secondary Color Correction

If you want to adjust a specific part of your image then you need to use secondary corrections. The adjustments you have been doing up until now using the color wheels and lift, gamma and gain adjustments affect the whole image at the same time and so they are called primary color corrections.

However if you need to adjust specific parts of your image, say for example you wanted to improve the color in the grass in a scene, or you wanted to deepen the blue in a sky, then you can use secondary corrections. Secondary color corrections are where you select a part of the image and then adjust just that part. With nodes, you can stack multiple secondary corrections so you can keep working parts of your image until everything is just right! You can even use windows and tracking to allow the selections to follow movement in your images.

## Qualifying a Color

Often you'll find a specific color in your clip can be enhanced, for example grass by the side of a road, or the blue in a sky, or you may need to adjust color on a specific object to focus the audience's attention on it. You can easily do this by using the HSL qualifier tool.



Use the HSL qualifier feature to select specific colors in your image. This is handy when you want to make areas of your image 'pop', to add contrast, or to help draw the audience's attention to certain areas of your shot.

### To qualify a color:

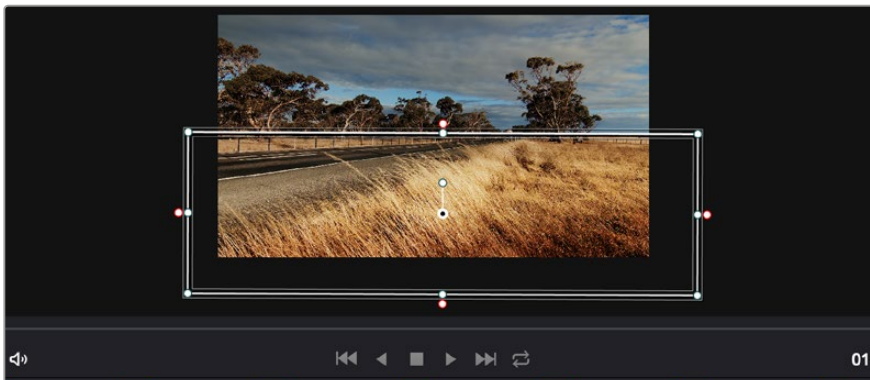
- 1 Add a new serial node.
- 2 Open the 'qualifier' palette and make sure the 'color range' sample eyedropper tool is selected.
- 3 Click on the color in your clip you want to affect.
- 4 Usually you'll need to make some adjustments to soften the edges of your selection and limit the region to only the desired color. Click on the 'highlight' button to see your selection.
- 5 Adjust the 'width' control in the 'hue' window to broaden or narrow your selection.

Experiment with the high, low and softness controls to see how to refine your selection. Now you can make corrections to your selected color using the color wheels or custom curves.

Sometimes your selection can spill into areas of the shot you don't want to affect. You can easily mask out the unwanted areas using a power window. Simply create a new window and shape it to select only the area of color you want. If your selected color moves in the shot, you can use the tracking feature to track your power window.

## Adding a Power Window

Power windows are an extremely effective secondary color correction tool that can be used to isolate specific regions of your clips. These regions don't have to be static, but can be tracked to move with a camera pan, tilt or rotation, plus the movement of the region itself.



Use power windows to mask out areas you don't want to be affected by the HSL qualifier secondary adjustments

For example, you can track a window on a person in order to make color and contrast changes just to that person without affecting his/her surroundings. By making corrections like this you can influence the audience's attention on areas you want them to look at.

#### To add a power window to your clip:

- 1 Add a new serial node.
- 2 Open the 'window' palette and select a window shape by clicking on a shape icon. Your selected window shape will appear on the node.
- 3 Resize the shape by clicking and dragging the blue points around the shape. The pink points adjust the edge softness. You can position the shape by clicking the center point and moving it to the area you want to isolate. Rotate the window using the point connected to the center.

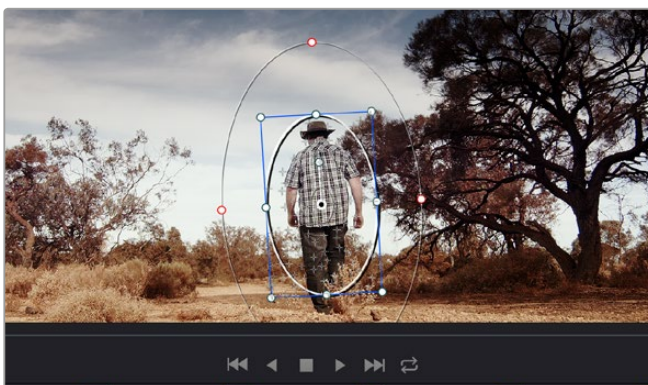
Now you can make color corrections to your image in just the area you want.



Power windows let you make secondary corrections to specific parts of your image

## Tracking a Window

The camera, object or area in your shot may be moving, so to make sure your window stays on your selected object or area, you'll need to use DaVinci Resolve's powerful tracking feature. The tracker analyzes the pan, tilt, zoom and rotation of the camera or object in your clip so you can match your windows to that movement. If this isn't done, your correction can move off the selected target and call attention to itself, which you probably don't want.



You can track objects or areas in your clip using the tracker feature so power windows can follow the action

### To track a window to a moving object:

- 1 Create a new serial node and add a power window.
- 2 Go to the start of your clip and position and size the window to highlight just the object or area you want.
- 3 Open the 'tracker' palette. Select the pan, tilt, zoom, rotate, and perspective 3D settings appropriate for the movement in your clip by checking or unchecking the relevant 'analyse' checkboxes.
- 4 Click on the 'forward' arrow to the left of the checkboxes. DaVinci Resolve will now apply a cluster of tracking points on your clip and then step through the frames to analyze the movement. When the tracking is done, your power window will follow the path of the movement in your clip.

Most of the time automatic tracking is successful, but scenes can be complex and sometimes an object can pass in front of your selected area, interrupting or affecting your track. This can be solved manually using the keyframe editor. Refer to the DaVinci Resolve manual to find out more.

## Using Plugins

While making secondary color corrections you can also add OpenFX plugins to create fast, interesting looks and effects using the 'color' page, or imaginative transitions and effects on your clips on the 'edit' page. OFX plugins can be purchased and downloaded from third party suppliers.

After installing a set of plugins, you can access them on the color page by opening the OpenFX inspector to the right of the 'node editor' Simply click the 'OpenFX' button to open the OpenFX inspector, create a new serial node and drag and drop a plugin onto the new node. If the plugin has editable settings, you can adjust these in the adjoining 'settings' panel.

In the 'edit' page you can add plugin generators and transitions to clips by opening the 'OpenFX' panel in the 'effects library' and dragging your selected plugin onto the video track above your clip on the timeline.



OFX plugins are a quick and easy way to create imaginative and interesting look

## Mastering your Edit

So now you've edited, color corrected and graded your clips you'll want to export a render of your edit in the 'deliver' page. This page lets you select the range of clips you want to export, plus the format, codec and resolution you want. You can export in many types of formats such as QuickTime, AVI, MXF and DPX using codecs such as 8-bit or 10-bit uncompressed RGB/YUV, ProRes, DNxHD, H.264 and more.



The 'deliver' page is where you export your edit. You can select from many different video formats and codecs

### To export a single clip of your edit:

- 1 Click on the 'deliver' tab to open the deliver page.
- 2 Go to the 'render settings' window on the top left of the page. In the 'format' settings, select 'single clip'. You can now choose from a number of export presets, for example YouTube, Vimeo and audio presets, or you can set your own export settings manually by leaving it set to the default 'custom' preset and entering your own parameters. For this example, select YouTube, then click on the arrow next to the preset and select the 1080p video format.  
The frame rate will be locked to your project frame rate setting.
- 3 Underneath the presets you will see the timeline filename and the target location for your exported video. Click the 'browse' button and choose the location where you want to save your exported file.
- 4 Immediately above the timeline, you'll see an options box with 'entire timeline' selected. This will export the entire timeline, however you can select a range of the timeline if you want to. Simply choose 'in/out range' and then use the 'i' and 'o' hot key shortcuts to choose the in and out points in your timeline.
- 5 Go to the bottom of the 'render settings' and click on the 'add to render queue' button.

Your render settings will be added to the render queue on the right side of the page. Now all you have to do is click 'start render' and monitor the progress of your render in the render queue.

When your render is complete you can open the folder location, double click on your new rendered clip and watch your finished edit.

# Understanding Studio Camera Control

Blackmagic URSA Mini can be used as a studio camera and controlled from an ATEM switcher using the Camera Control feature in ATEM Software Control. This lets you add a camera with large sensor picture quality and amazing dynamic range to your broadcast studio and control it just as you would any studio camera.



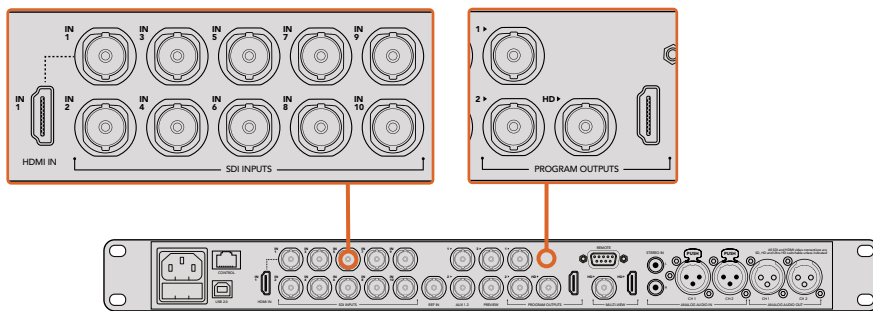
ATEM Camera Control

Clicking on the camera button opens the camera control feature. Settings such as iris, gain, focus and zoom control are easily adjusted using compatible lenses, plus you can color balance cameras and create unique looks using the DaVinci Resolve primary color corrector.

The ATEM switcher control works by broadcasting camera control packets via all the non down converted SDI outputs of an ATEM switcher. So this means you can connect an SDI output of an ATEM switcher to URSA Mini's 12G SDI input, your camera will detect the control packets in the SDI link and allow you to control features in the camera itself.

## Connecting your URSA Mini

- 1 Connect your Blackmagic URSA Mini's 12G-SDI Out to any SDI In on the ATEM switcher.
- 2 Connect any one of the ATEM switcher's SDI outputs, except down converted or multi view outputs, to your URSA Mini's 12G-SDI input. Camera control signals are not sent via the multi view and down converted SDI outputs.
- 3 On your URSA Mini, navigate to 'ATEM Camera ID' in the 'setup' menu and set your camera's ATEM ID to match the switcher input. For example, if URSA Mini 1 is connected to Cam 1 on the ATEM switcher, the camera number must also be set to 1. This ensures tally is sent to the correct camera.
- 4 In the 'setup' menu select your 'reference source'. Unless you have a genlock signal being sent to all of your cameras and your switcher, we recommend setting 'reference source' to 'program' when attached to ATEM.
- 5 Navigate to the 'monitor' menu and ensure that you have selected 'clean feed' for 'Main SDI' to ensure that you don't see overlays or the focus box on the SDI output to the ATEM switcher.



Connect your URSA Mini to any of the ATEM switcher's SDI inputs

## Using Camera Control

Launch ATEM Software Control and click on the camera button located at the bottom of the software window. You'll see a row of labeled camera controllers containing tools to adjust and refine each camera's image. The controllers are easy to use. Simply click the buttons using your mouse, or click and drag to adjust.

### Camera Control Selection

The button row at the top of the camera control page lets you select the camera number you would like to control. If you have more cameras that fit onto the window size, or you are running the color corrector window, then you can use these buttons to select between which camera you would like to control. If you are using an Aux output for monitoring your camera control, pushing these buttons to change the camera to control will also send that camera's video output to the Aux output setup in the switcher preferences.



Click on the settings icon to select the Aux output for camera control

### Channel Status

The channel status at the top of each camera controller displays the camera label, On Air indicator and lock button. Press the lock button to lock all the controls for a specific camera. When on air, the channel status illuminates red and displays the On Air alert.



Each camera controller displays the channel status so you know which camera is on air. Use the color wheels to adjust each YRGB channel's lift, gamma and gain settings



## Color Wheel

The color wheel is a powerful feature of the DaVinci Resolve color corrector and used to make color adjustments to each YRGB channel's lift, gamma and gain settings. You can select which setting to adjust by clicking on the three selection buttons above the color wheel.

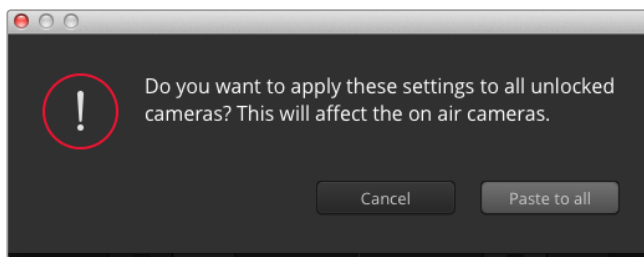
## Master Wheel

Use the master wheel below the color wheel to make contrast adjustments to all YRGB channels at once, or luminance only for each lift, gamma or gain setting.

## Reset Buttons

The reset button near the top right of each camera controller lets you easily choose color correction settings to reset, copy or paste. Each color wheel also has its own reset button. Press to restore a setting to its default state, or copy/paste a setting. Locked controllers are not affected by the Paste feature.

The master reset button on the top right corner of the color corrector panel lets you reset lift, gamma and gain color wheels plus Contrast, Hue, Saturation and Lum Mix settings. You can paste color correction settings to camera controllers individually, or all cameras at once for a unified look. Iris, focus, coarse and pedestal settings are not affected by the Paste feature. When applying Paste to all, a warning message will appear asking you to confirm your action. This is so you don't accidentally paste new settings to any unlocked cameras that are currently on air.



When applying Paste to all, a warning message will appear asking you to confirm your action. This is so you don't accidentally paste new settings to any unlocked cameras that are currently on air

## Iris/Pedestal Control

The iris/pedestal control is located within the cross hairs of each camera controller. The control illuminates red when its camera is on air.

To open or close the iris, drag the control up or down. Holding the shift key allows only iris adjustments.

**NOTE** When connected to ATEM ensure that you have Auto Exposure switched off. If you require Iris, zoom or focus control ensure that you have a lens that can be controlled electronically by the camera.

When using a compatible lens, set the auto exposure setting to 'manual trigger' as detailed in the 'camera settings' section of this manual.

If you're using a B4 or PL lens connected via the broadcast 12 pin connector on URSA Mini, make sure the lens iris switch on the handgrip is set to 'A' or 'auto'.

To darken or lift the pedestal, drag the control left or right. Holding the command key on a Mac, or the Control key on Windows, allows only pedestal adjustments.



The iris/pedestal control illuminates red when its respective camera is on air

## Zoom Control

When using compatible lenses with an electronic zoom feature, you can zoom your lens in and out using the zoom control. The controller works just like the zoom rocker on a lens, with telephoto on one end, and wide angle on the other. Click on the zoom control, located above the coarse slider, and drag up to zoom in, or drag down to zoom out.

If your lens does not have active lens control or your camera does not support zoom control via the SDI camera control protocol then these settings will have no effect. For example, EF lenses do not have built in servos that can zoom the lens electronically so will not be zoomable with ATEM camera control.

**NOTE** Analogue B4 lenses do not support ATEM zoom control. For more information on analogue B4 lenses refer to the 'URSA Mini B4 Lens' section

## Coarse Setting

The coarse setting is located to the left of the iris/pedestal control and is used to limit the iris range. This feature helps you prevent over exposed images from going to air.

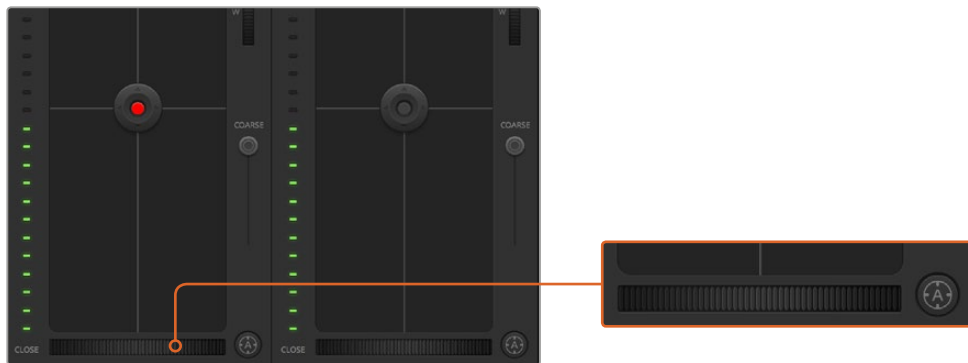
To set your coarse threshold, completely open the iris using the iris control, then drag the coarse setting up or down to set optimum exposure. Now when you adjust the iris, the coarse threshold will prevent it from going above optimum exposure.

## Iris Indicator

The iris indicator is located to the left of the iris/pedestal control and displays a visual reference so you can easily see how open or closed the lens aperture is. The iris indicator is affected by the coarse setting.

## Auto Focus Button

The auto focus button is located at the bottom left corner of each camera controller. Press to automatically set the focus when you have an active lens that supports electronic focus adjustments. It's important to know that while most lenses support electronic focus, some lenses can be set to manual or auto focus modes, and so you need to ensure your lens is set to auto focus mode. Sometimes this is set by sliding the focus ring on the lens forward or backward. On B4 lenses with servo zoom control, you will need to set the switch at the bottom of the handgrip to 'servo'.



Click on the auto focus button or drag the manual focus adjustment left or right to focus a compatible lens

## Manual Focus Adjustment

When you want to manually focus your lens using ATEM Camera Control, you can use the focus adjustment located at the bottom of each camera controller. Drag the wheel control left or right to manually adjust focus while viewing the video feed from the camera to ensure your image is nice and sharp.

Manual focus control is only available from your switcher when using B4 and PL lenses with servo focus controls. As EF lenses do not have servo focus this option is not available when using URSA Mini EF.

## Camera Gain

The name for some settings, such as 'gain' and 'shutter speed', differs between ATEM Switchers and URSA Mini. For example, instead of a film ISO rating, ATEM Switchers use "gain" to describe a camera's sensitivity to light.

**TIP** The difference between the terms 'gain' and 'ISO' are primarily due to differences between studio broadcast equipment and traditional film equipment. Exposure on television studio cameras, for example, could be monitored live from the camera. Light sensitivity adjustments could be made electronically inside the camera. This is different to film cameras, which are mechanical in nature and rely upon traditional light measurement techniques combined with photochemical ISO ratings.

When operating in varying light conditions, you might want to increase or decrease your camera's gain to avoid under exposing your images. To do this click the left arrow to decrease gain and the right arrow to increase gain.

Your ATEM Switcher will display gain in dB. This corresponds to the ISO settings on your camera in the following way:

| Gain | ISO  |
|------|------|
| 0    | 200  |
| 6    | 400  |
| 12   | 800  |
| 18   | 1600 |

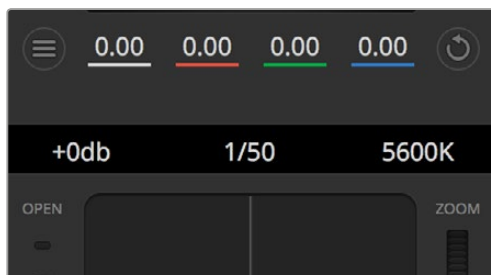
Please note that while URSA Mini 4.6K can be set to 18dB of gain, URSA Mini 4K's maximum gain is 12dB

## Shutter Speed Control

Shutter speed control is used to change your URSA Mini's shutter angle.

As with gain control, this setting is named differently due to the terminology differences between film cameras and broadcast cameras. Functionally, however, increasing shutter speed is exactly the same as decreasing shutter angle.

The shutter speed control is located between the color wheel and the iris/pedestal control. Decrease or increase the shutter speed by hovering your mouse pointer over the shutter speed indicator and clicking the left or right arrow.



Hovering your mouse pointer over the gain, shutter speed and white balance indicators reveal arrows you can click on to adjust their respective settings

**NOTE** As ATEM shutter speed control takes priority over the shutter angle selected on your URSA Mini, your camera's shutter angle controls are disabled when connected to an ATEM switcher.

The table below shows the available shutter speeds in shutter speed control and their equivalent shutter angles. It's worth noting that some shutter speeds fall outside of URSA Mini's minimum and maximum shutter angles of 11.25 and 360 degrees, respectively. If this happens, the closest available shutter angle is used.

It's worth mentioning that when your URSA Mini is connected to an ATEM switcher, the shutter speed setting will not be visible in your camera's touchscreen status display, but will be visible in an URSA Viewfinder, if attached. The status display setting will be implemented in a future software update.

| Shutter Speed | Shutter Angle at 23.98 fps | Shutter Angle at 24 fps | Shutter Angle at 25 fps | Shutter Angle at 29.97 fps | Shutter Angle at 50 fps | Shutter Angle at 59.94 fps |
|---------------|----------------------------|-------------------------|-------------------------|----------------------------|-------------------------|----------------------------|
| 1/50          | 172.7                      | 172.8                   | 180                     | 215.8                      | 360                     | 360*                       |
| 1/60          | 143.9                      | 144                     | 150                     | 179.8                      | 300                     | 359.6                      |
| 1/75          | 115.1                      | 115.2                   | 120                     | 143.9                      | 240                     | 287.7                      |
| 1/90          | 95.9                       | 96                      | 100                     | 120                        | 200                     | 239.8                      |
| 1/100         | 86.3                       | 86.4                    | 90                      | 107.9                      | 180                     | 215.8                      |
| 1/120         | 71.9                       | 72                      | 75                      | 89.9                       | 150                     | 179.8                      |
| 1/150         | 57.5                       | 57.6                    | 60                      | 71.9                       | 120                     | 143.9                      |
| 1/180         | 48                         | 48                      | 50                      | 59.9                       | 100                     | 119.9                      |
| 1/250         | 34.5                       | 34.6                    | 36                      | 43.2                       | 72                      | 86.3                       |
| 1/360         | 24                         | 24                      | 25                      | 29.97                      | 50                      | 59.94                      |
| 1/500         | 17.3                       | 17.3                    | 18                      | 21.6                       | 36                      | 43.2                       |
| 1/725         | 11.9                       | 11.9                    | 12.4                    | 14.9                       | 24.8                    | 29.8                       |
| 1/1450        | 11.25*                     | 11.25*                  | 11.25*                  | 11.25*                     | 12.4                    | 14.9                       |
| 1/2000        | 11.25*                     | 11.25*                  | 11.25*                  | 11.25*                     | 11.25*                  | 11.25*                     |

\*Shutter speeds outside URSA Mini's shutter angle range will use its closest available minimum or maximum shutter angle

**TIP** Decreasing shutter speed is a good way to brighten your images without using camera gain because you are increasing the exposure time of the image sensor. This can also reduce or eliminate light flicker when shooting under fluorescent lights. Increasing shutter speed reduces motion blur and is best used for action shots when you want your images to be clean and sharp.

## White Balance

The white balance setting next to the shutter speed control can be adjusted by clicking on the left or right arrows on each side of the color temperature indicator. Different light sources emit warm or cool colors, so you can compensate by adjusting the white balance. This ensures the whites in your image stay white.

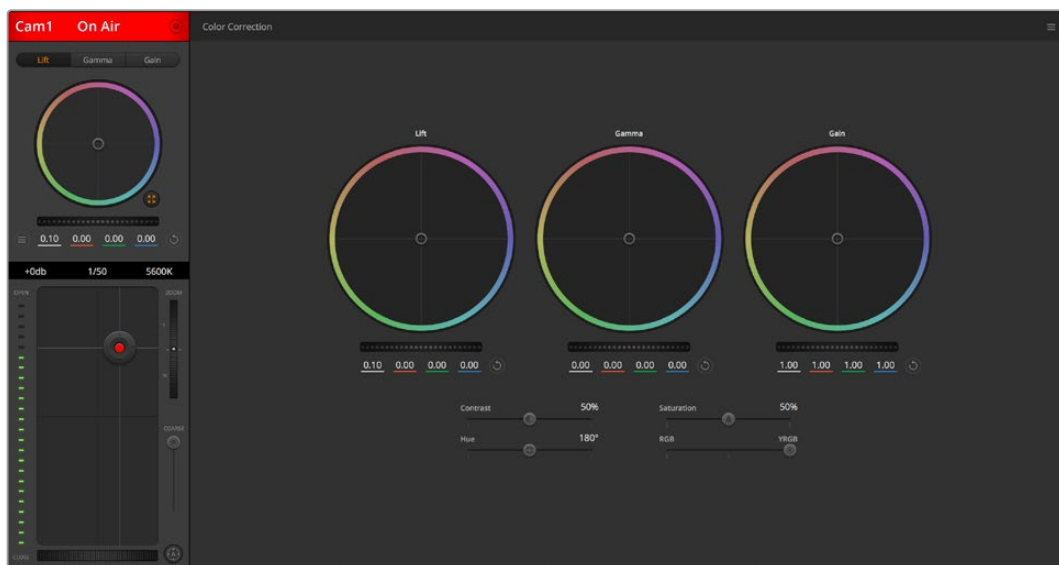
## DaVinci Resolve Primary Color Corrector

If you have a color correction background, then you can change the camera control from a switcher style CCU interface to a user interface that's more like a primary color corrector on a post production color grading system.

Your Blackmagic URSA Mini features a DaVinci Resolve primary color corrector built in. If you have used DaVinci Resolve, then creatively, grading in your URSA Mini will be identical so you can use your color grading experience for live production. The color corrector panel can be expanded out of any camera controller and provides expanded color correction control with extra settings and a full primary color corrector interface.

You have color wheels and settings such as saturation available and you can see shadows, mid tones and highlight settings all at the same time. Simply switch between cameras using the camera selection controls at the top of the window as you need.

**TIP** DaVinci Resolve color correction is applied to your URSA Mini's SDI Output and ProRes video recorded on camera. As RAW video is intended for extensive post processing, color correction is not applied to RAW video. When recording RAW video, however, color correction can still be applied to URSA Mini's SDI output.



Click on the DaVinci Resolve primary color corrector button to expand the color correction window and adjust settings

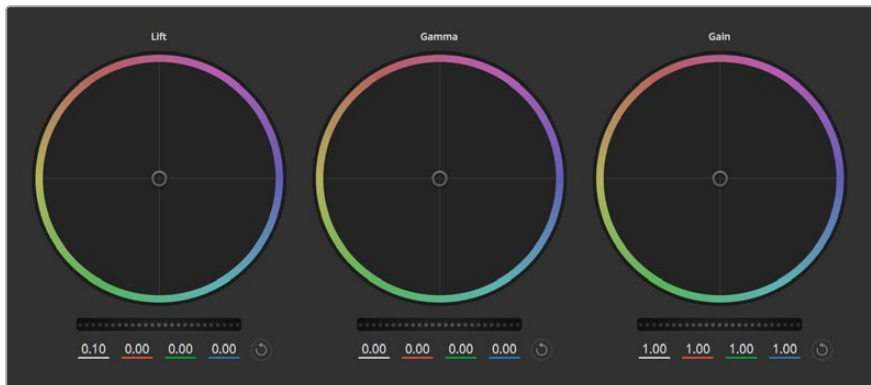
### Color Wheels

The Lift/Gamma/Gain controls allow tonally specific yet overlapping regions of adjustment. In photographic terms lift, gamma and gain corresponds to shadows, mid tones and highlights.

Use the color wheels in the following ways to make fine or aggressive adjustments:

- **Click and drag anywhere within the color ring:**  
Note that you don't need to drag the color balance indicator itself. As the color balance indicator moves, the RGB parameters underneath change to reflect the adjustments being made to each channel.

- **Shift-Click and drag within the color ring:**  
Jumps the color balance indicator to the absolute position of the pointer, letting you make faster and more extreme adjustments.
- **Double-click within the color ring:**  
Resets the color adjustment without resetting the master wheel adjustment for that control.
- **Click the reset control at the upper-right of a color ring:**  
Resets both the color balance control and its corresponding master wheel.



Lift, gamma and gain color wheels in the color corrector panel

## Master Wheels

Use the master wheels below the color wheels to adjust each YRGB channels' lift, gamma and gain controls.

To make adjustments using the master wheel:

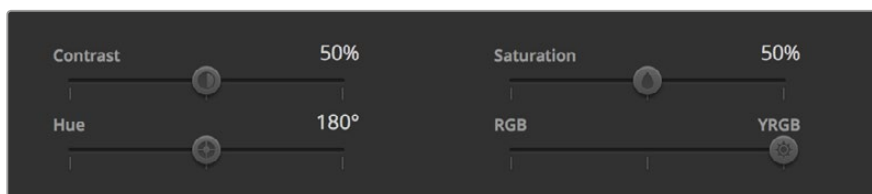
- **Drag the master wheel left or right:** Dragging to the left darkens the selected parameter of the image, dragging to the right lightens that parameter. As you make an adjustment, the YRGB parameters underneath change to reflect the adjustment you're making. To make a Y-only adjustment, hold down the ALT or Command key and drag left or right. Because the color corrector uses YRGB processing, you can get quite creative and create unique affects by adjusting the Y channel only. Y channel adjustments work best when the Lum Mix setting is set to the right side to use YRGB processing vs the left side to use regular RGB processing. Normally, most DaVinci Resolve colorists use the YRGB color corrector as you get a lot more control of color balance without affecting overall gain, so you spend less time getting the look you want.



Adjust the master wheels by dragging the wheel control left or right

## Contrast Setting

The Contrast setting gives you control over the distance between the darkest and lightest values of an image. The effect is similar to making opposing adjustments using the lift and gain master wheels. The default setting is 50%.



Drag the sliders left or right to adjust Contrast, Saturation, Hue and Lum Mix settings

## Saturation Setting

The Saturation setting increases or decreases the amount of color in the image. The default setting is 50%.

## Hue Setting

The Hue setting rotates all hues of the image around the full perimeter of the color wheel. The default setting of 180 degrees shows the original distribution of hues. Raising or lowering this value rotates all hues forward or backward along the hue distribution as seen on a color wheel.

## Lum Mix Setting

The color corrector built into your Blackmagic URSA Mini is based on the DaVinci Resolve primary color corrector. DaVinci has been building color correctors since the early 1980's and most Hollywood films are color graded on DaVinci Resolve than any other method.

This means the color corrector built into your URSA Mini has some unique and creatively powerful features. The YRGB processing is one of those features.

When color grading, you can choose to use RGB processing, or YRGB processing. High end colorists use YRGB processing because you have more precise control over color and you can independently adjust the channels with better separation and more creative options.

When the Lum Mix control is set to the right side, you have the 100% output of the YRGB color corrector. When you have the Lum Mix control set to the left side, you get 100% output of the RGB corrector. You can set the Lum Mix to any position between the left and right to get a blend of output from both the RGB and YRGB correctors.

Which is the correct setting to use? That's up to you, as color correction is a pure creative process and there is no right and wrong, and the best setting is what you like the most and what you think looks good!

## Synchronizing Settings

When connected, camera control signals are sent from the ATEM switcher to your Blackmagic URSA Mini. If a setting is accidentally adjusted from your URSA Mini, camera control will automatically reset that setting to maintain synchronization.

**TIP** Even if you disconnect its 12G-SDI input, your URSA Mini will keep using any image adjustments made with DaVinci Resolve color correction. This lets you change camera angles without needing to dial in your image settings again. To return your URSA Mini to its default color settings, simply power cycle your URSA Mini after disconnecting its 12G-SDI input.

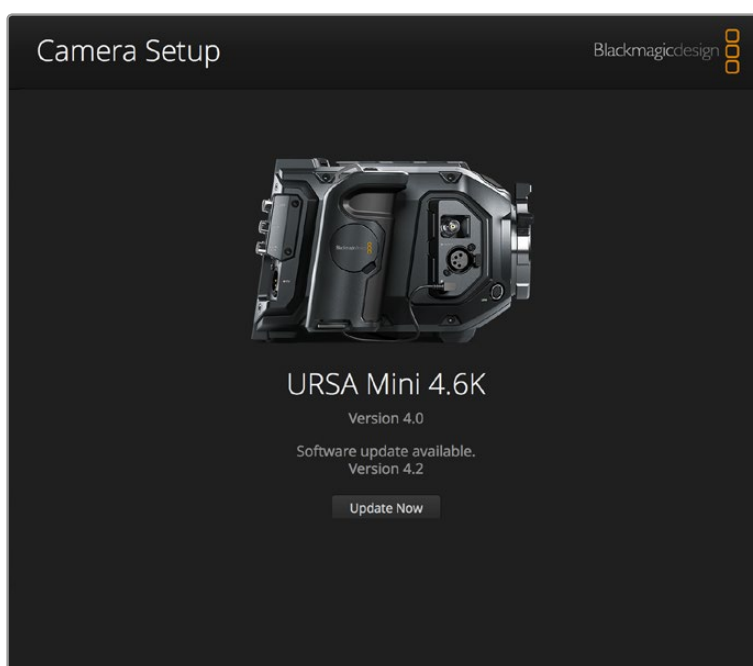


# Blackmagic Camera Setup Utility

## Updating Camera Software – Mac

After downloading the Blackmagic Camera Setup utility software and unzipping the downloaded file, open the resulting disk image to reveal the Blackmagic Camera Setup Installer.

Launch the installer and follow the on screen instructions. After the installation has finished, go to your applications folder and open the Blackmagic Cameras folder, where you'll find this manual, the Blackmagic Camera setup utility, plus a documents folder containing readme files and information. You'll also find an uninstaller for when updating to later versions of Blackmagic Camera Setup.



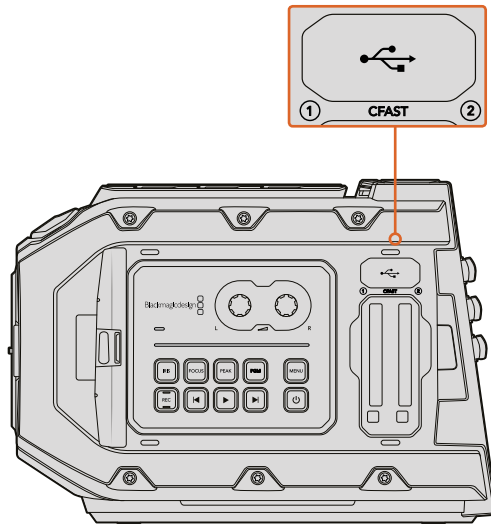
## Updating Camera Software – Windows

After downloading the Blackmagic Camera Setup utility software and unzipping the downloaded file, you should see a Blackmagic Camera Setup folder containing this PDF manual and the Blackmagic Camera Setup Installer. Double-click the installer and follow the on screen prompts to complete the installation.

In Windows 8, select 'apps' from the 'start' screen and navigate to the Blackmagic Design folder. From here you can launch Blackmagic Camera Setup.

In Windows 7, click on the 'start' menu, select 'all programs>Blackmagic Design'. From here you can launch Blackmagic Camera Setup.

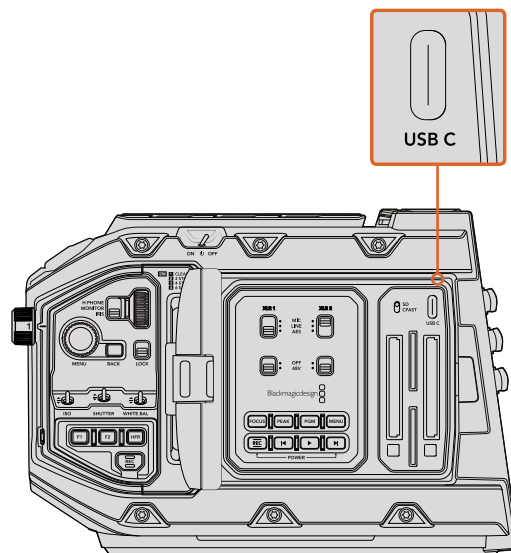
## How to Update the Camera Software



The Mini-B USB 2.0 port is used to update the camera software and can be found above the memory card slots on Blackmagic URSA Mini

After installing the latest Blackmagic Camera Setup utility on your computer, connect a USB cable between the computer and your Blackmagic URSA Mini. On Blackmagic URSA Mini, the USB port is located on the left side panel above the memory card slots. Simply open the rubber cap to access the port.

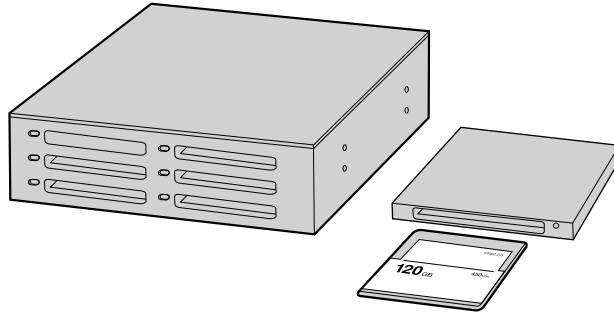
Launch the Blackmagic Camera Setup utility and follow any on screen prompt to update the camera software.



The USB C port is used to update the camera software and can be found above the memory card slots, next to the media selection switch on Blackmagic URSA Mini Pro 4.6K

# Post Production Workflow

## Working with Files from CFast 2.0 and SD cards



Edit directly from your CFast card by removing it from your camera and mounting it on your computer using a CFast 2.0 reader/writer or CFast drive

To import your clips from a CFast 2.0 or SD card:

- 1** Remove the CFast card from your Blackmagic URSA or URSA Mini.  
Mount the CFast card to your Mac or Windows computer using a CFast 2.0 reader/writer or CFast drive.
- 2** Double click on the CFast card to open it and you should see folders that contain your CinemaDNG RAW image files or a list of QuickTime movie files. Depending on the format you chose to record in, you might have a mixture of files, but they will all use the same naming convention.
- 3** Now you can simply drag the files you want from the CFast card onto your desktop or another hard drive, or you can access the files straight from the CFast card using your editing software. CinemaDNG RAW files are saved to the CFast card as separate DNG images for each frame. This is an open format and you can use many software applications to view your RAW 4K images as a video sequence.
- 4** Before you unplug the CFast card from your computer, it's always a good idea to eject safely using either Mac OS or Windows first.

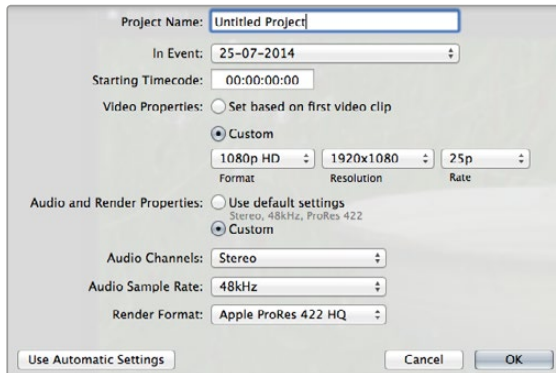
With dual card mode recordings, simply transfer your CinemaDNG clip folders from both cards to the same folder on your storage drive. Make sure the clips from both cards are contained in the same folder.

## Working with 3rd Party Software

To edit your clips using your favorite editing software, you can copy your clips to an internal/ external drive or RAID and then import your clips into the software. Or import your clips directly from your CFast card using a CFast 2.0 reader/writer or CFast drive.

## Using Final Cut Pro X

To edit Apple ProRes 422 HQ clips using Final Cut Pro X, you need to create a new project and set a suitable video format and frame rate. This example uses ProRes 422 HQ 1080p25.



Final Cut Pro X project settings

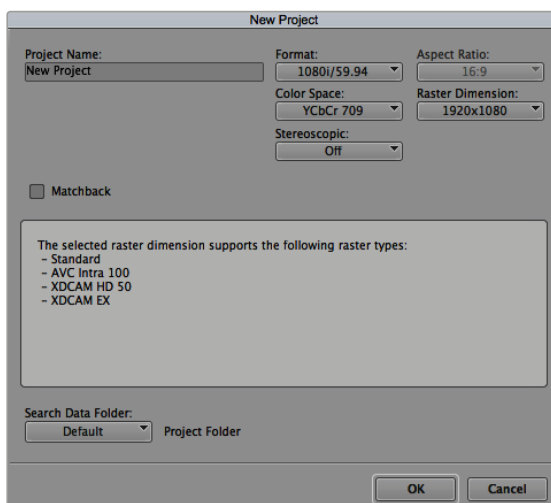
- 1 Launch Final Cut Pro X, go to the 'menu' bar and select 'file/new project'. A window will open containing project settings.
- 2 Name your project and select the 'custom' checkbox.
- 3 Set the 'video properties' settings to 1080p HD, 1920x1080 and 25p.
- 4 Set your 'audio' and 'render properties' settings to 'stereo, 48kHz, and Apple ProRes 422 HQ'
- 5 Click OK.

To import your clips into your project, go to the 'menu' bar and select 'file/import/media'. Choose your clips from your CFast card.

You can now drag your clips onto the timeline for editing.

## Using Avid Media Composer

To edit your DNxHD clips using Avid Media Composer 8, create a new project and set a suitable video format and frame rate. For this example, clips are set using DNxHD 1080i59.94.



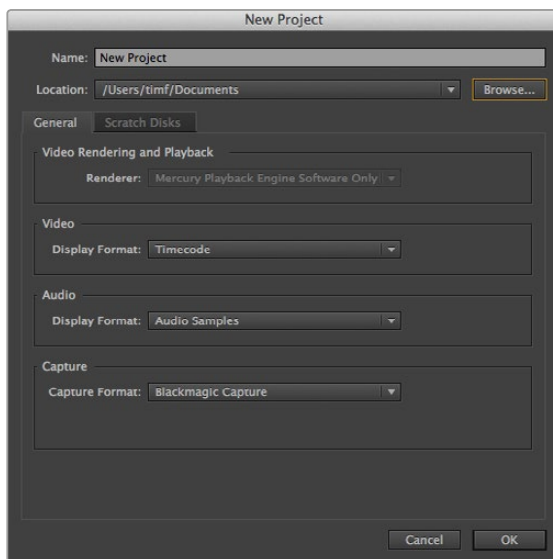
Setting the project name and project options in Avid Media Composer 8

- 1 Launch Media Composer and the 'select project' window will appear.
- 2 Click the 'new project' button.
- 3 In the 'new project' window name your project.
- 4 Go to the 'format' drop down menu and select 1080i/59.94.
- 5 Go to the 'color space' drop down menu and select YCbCr 709.
- 6 Go to the 'raster dimension' drop down menu and select 1920x1080. Click OK.
- 7 Select 'tools>background services' and click the 'start' button if background services are not already running and then click 'OK.'
- 8 Select the media bin where you wish to import your files.
- 9 Select 'file>AMA link... ' and select the files that you wish to import and then click 'OK.'

When the clips appear within the media bin you can drag your clips onto the timeline and begin editing.

## Using Adobe Premiere Pro CC

To edit your Apple ProRes 422 HQ clips using Adobe Premiere Pro CC, you need to create a new project and set a suitable video format and frame rate. For this example, clips are set using ProRes 422 HQ 1080p25.



Setting the project name and project options in Adobe Premiere Pro CC, (2014)

- 1 Launch Adobe Premiere Pro CC. In the 'welcome' window select 'create new/new project'. A window will open containing project settings.
- 2 Name your project. Choose the location for your project by clicking 'browse' and selecting your desired folder. Once you've selected your location folder click OK in the welcome window.
- 3 Go to the Adobe Premiere Pro CC 'menu' bar, select 'file/import' and choose the clips you want to edit. Your clips will appear in the project window.
- 4 Drag the first clip you wish to edit onto the 'new item' icon at the bottom right of the project window. A new sequence will be created matching your clip settings.

You can now drag your clips onto the sequence timeline for editing.

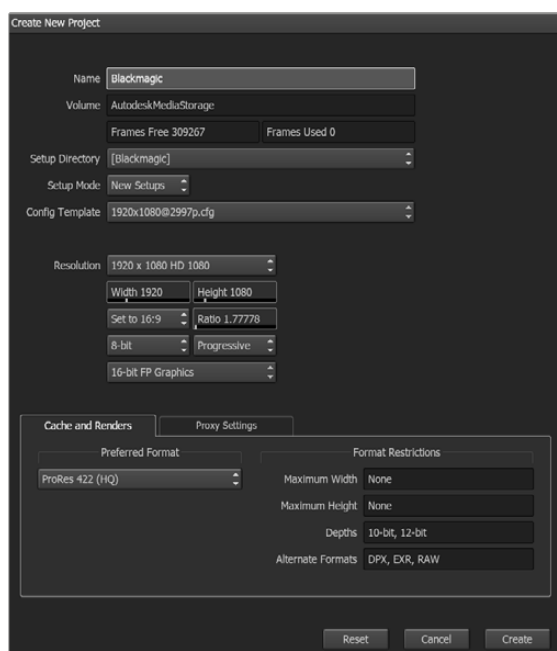
## Using Autodesk Smoke 2013

To edit your clips using Autodesk Smoke 2013, create a new project and set a suitable video format, bit depth, frame type and frame rate. This example uses ProRes 422 HQ 1080p25.



Autodesk Smoke 2013

- 1 Launch Smoke and the 'project and user settings' window will appear. Click on the 'new' button under the project heading.
- 2 The 'create new project' window will open. Name your project.
- 3 From the resolution dropdown menu, select 1920x1080 HD 1080.
- 4 Make sure bit depth is set to 10-bit and frame type is 'progressive'.
- 5 From the 'config template' dropdown menu select 1920x1080@25000p.cfg.
- 6 Leave the 'preferred format' set to ProRes 422 HQ and click 'create'.
- 7 Click on the 'new' button under the 'user' heading.
- 8 When the 'create new user profile' window opens, type your user name and click 'create'.
- 9 When the 'project and user settings' window reopens, click the 'start' button.
- 10 From the menu bar, select 'file>import>file' and select your clips to import.
- 11 Once the clips appear in the media library you can drag your clips onto the timeline and begin editing.



Setting the project name and project options in Autodesk Smoke 2013

# Blackmagic URSA Mini B4 Mount

The PL mount on Blackmagic URSA Mini PL can be removed and replaced with an optional B4 mount. This mount differs slightly to the B4 mount on URSA Mini Pro 4.6K. For example, the screw holes are in a different position to allow for the EF button release housing on URSA Mini Pro 4.6K. The shim thicknesses required are also different, so if you want to use B4 lenses with your URSA Mini PL it's important you choose the correct mount.

The B4 mount for URSA Mini PL can be purchased from Blackmagic Design resellers.

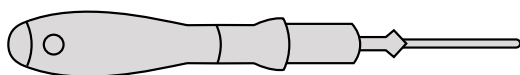
Using the B4 mount, you can shoot ENG style HD coverage with URSA Mini PL using common par-focal zoom lenses. Par-focal lenses provide constant focus throughout the zoom range for quick and efficient focussing techniques. By zooming into maximum telephoto and setting focus on a target, you can be sure your focus will stay set to that target all the way from maximum zoom to maximum wide. It's important to note that the B4 lens back focus, or flange focal distance, also needs to be correctly set.

## Attaching the B4 Lens Mount

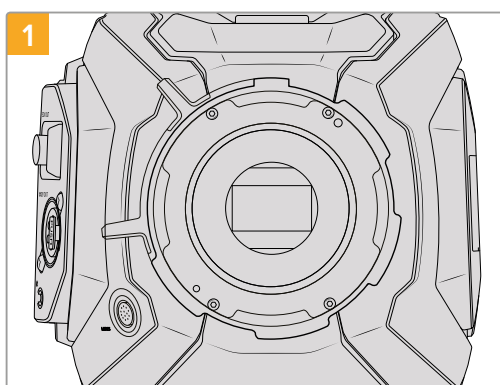
The B4 mount is supplied with two additional 0.50mm shims designed to be installed together with the existing 0.50mm shim already mounted behind your URSA Mini PL lens mount. This will give you a total of three 0.50mm shims to provide the clearance needed so you can achieve the optimum back focus, which can be refined further by adjusting the back focus ring at the mount end of B4 zoom lenses.

Using B4 lenses, you can achieve a greater variety of shots with your URSA Mini that are impossible to get using stills lenses.

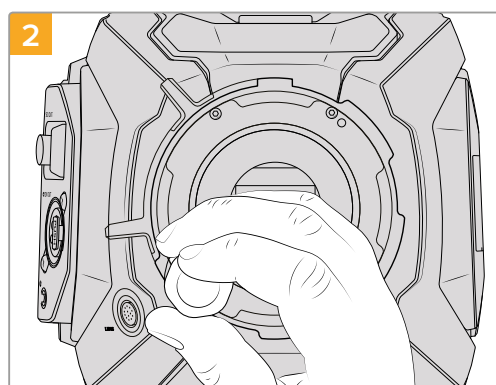
To connect your URSA Mini B4 lens mount you'll need a torque wrench able to accurately set a maximum torque of 0.45Nm, plus a 2.0mm Hex key driver.



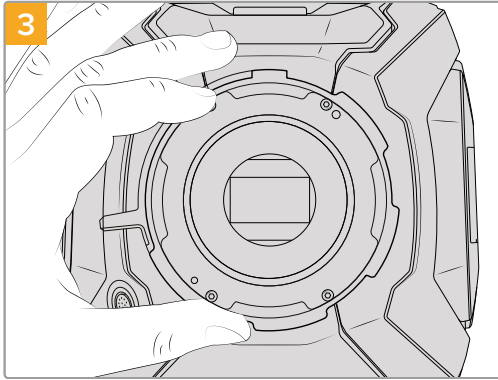
To attach the Blackmagic URSA Mini B4 Mount, you will need a torque wrench able to accurately set a maximum torque of 0.45Nm, together with a 2.0mm Hex key driver



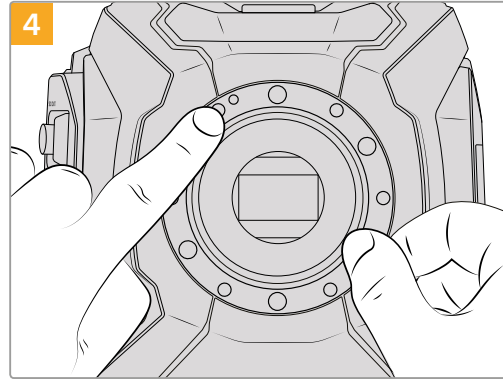
Place Blackmagic URSA Mini PL on a solid, clean bench top and remove your lens or dust cap. The glass filter covering the sensor will be exposed for the duration of the shimming process, so it's important to keep the filter as clean as possible. Be careful not to touch the filter while attaching the B4 mount.



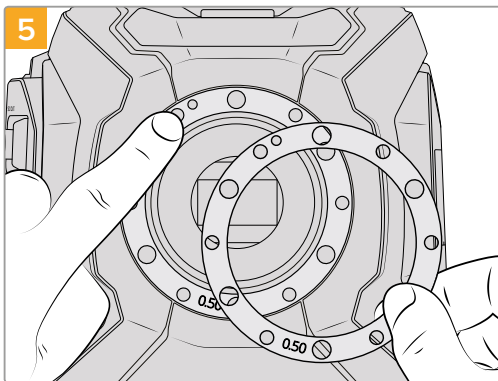
Remove the six PL mount screws using the 2.0mm Hex driver. You may need to occasionally rotate the PL locking ring clockwise or counterclockwise to access the screws.



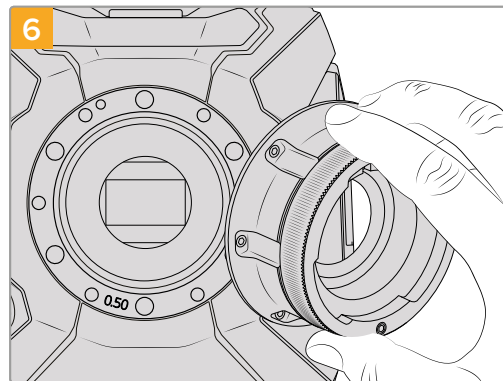
Carefully lift the lens mount away from the camera body. Keep the screws safely located close to the lens mount.



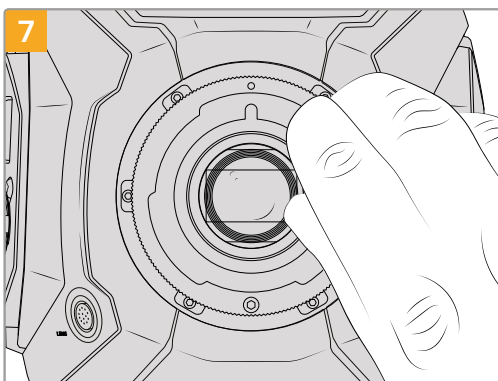
Note the alignment of the existing 0.50mm shim with the alignment pin at the 11 o'clock position.



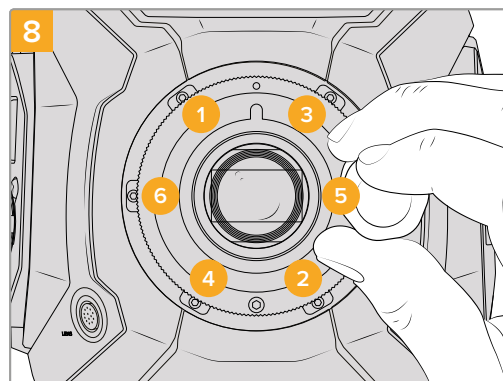
Place the 2 x 0.50mm shims supplied with your Blackmagic URSA Mini B4 lens mount onto the original 0.50mm shim. This creates the clearance needed to optimize the flange focal distance.



Place the Blackmagic URSA Mini B4 lens mount onto the camera body ensuring the registration slot is aligned with the alignment pin at the 11 o'clock position.



Loosely turn the six mounting screws until initial contact is made with the shoulder of the lens mount.



Using the torque wrench and 2.0mm Hex key, apply one full turn of pressure to mounting screw 1, followed by one full turn to screw 2, repeat for screws 3 and 4, then 5 and 6. Continue to apply one full turn to each screw in the sequence above until all screws have reached the maximum torque of 0.45Nm.



## Using B4 Lenses

Using B4 lenses with your URSA Mini camera is a powerful combination. Manual iris and focus rings on the lens barrel, plus a built in hand grip and zoom rocker makes shooting very efficient and gives you a range of dynamic techniques that are difficult, if not impossible, to achieve using other lens types.

For electronic control of your lens aperture, make sure the iris on the lens is set to 'auto'.

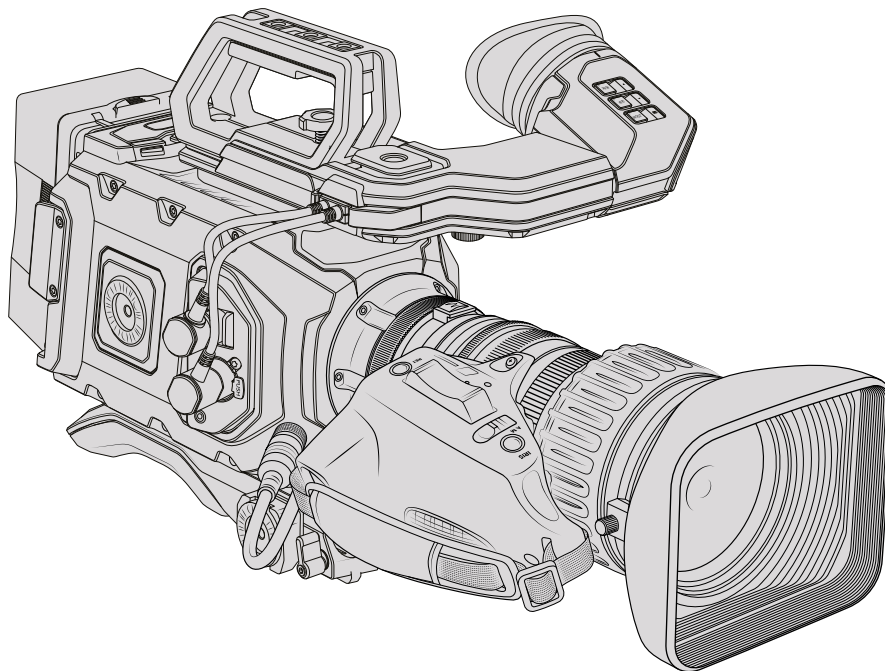
URSA Mini PL and URSA Mini Pro 4.6K models currently support lens control for digital B4 lenses via the 12 pin broadcast connector.

These include:

- Canon B4 lens models with HJ, KJ..ex and CJ prefixes
- Fujinon B4 lens models with HA, ZA and UA prefixes

When using compatible B4 lenses you can power the zoom rocker, start and stop recording using the record button, and control the iris. Most B4 lenses also have a Ret button, which can be used, in the same way as the PGM button on the camera, to switch the feed on LCD and HD monitoring output between camera view and program return view. Compatible lenses that also have motorized focus control, or servo focus, can even utilize the 'focus' button on your URSA Mini to activate auto focus, and these features can be controlled by an ATEM switcher via ATEM Software Control.

B4 Lenses with analog servo control are also supported. If you are going to use an analog B4 lens, it's important to make sure it is compatible with your camera first. It's also worth visiting the Blackmagic Forum on our website where other camera operators may have helpful information.



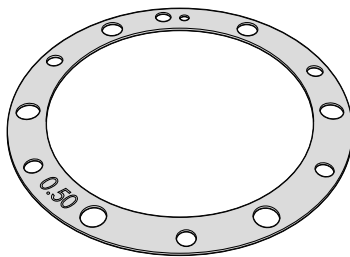
**TIP** PL 35mm lenses with servo handgrips are also supported, such as Fujinon Cabrio lenses, Canon CN7x17KAS S and Canon CN20x50 IAS H 50-1000mm lenses. For these lenses you will require the appropriate cable to plug from the lens into our 12-pin broadcast connector.

# Shimming Lens Mounts

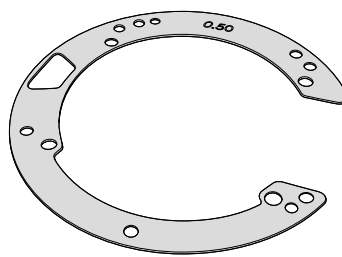
## What is a Shim?

Shims are thin disks of varying thickness that let you make fine adjustments to the distance between your lens and URSA Mini's sensor. This distance is commonly known as the flange focal distance, or back focus, and can change slightly due to variables such as lens age and the environmental conditions of your shoot. The following URSA Mini models are designed so you can easily adjust back focus using shims.

- URSA Mini PL 4K
- URSA Mini PL 4.6K
- URSA Mini Pro 4.6K



URSA Mini Shim



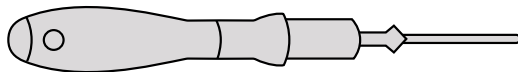
URSA Mini Pro 4.6K Shim

Shims are placed between the lens mount and the camera body so the distance from your subject to the sensor matches the focus marks on your lens. These are most commonly used for PL lenses. These cine lenses are manually focused and have very accurate focal distance markings on their barrels. Shims are also used for URSA Mini Pro 4.6K's interchangeable lens mount.

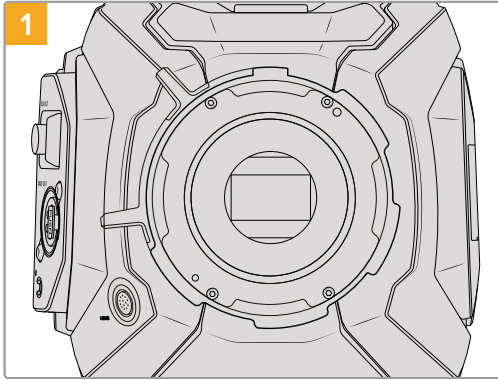
Your Blackmagic URSA Mini is supplied with a 0.50mm shim already installed. The Blackmagic URSA Mini Pro 4.6K Shim Kit contains additional shim sets of various thicknesses, and can be purchased from your local Blackmagic Design reseller. A set of shims is also included with all mount kits for URSA Mini Pro 4.6K. Use shim thicknesses depending on your back focus requirements.

## Shimming URSA Mini PL

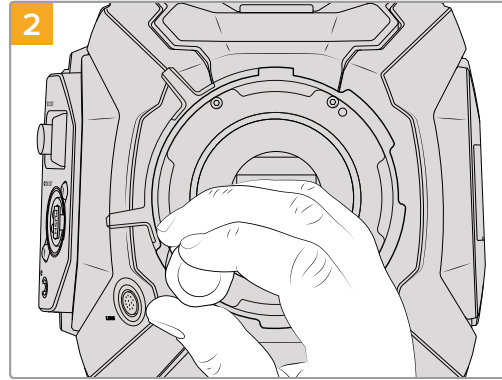
To shim your camera's PL mount you'll need a torque wrench able to accurately set a maximum torque of 0.45Nm, with a 2.0mm Hex key and driver.



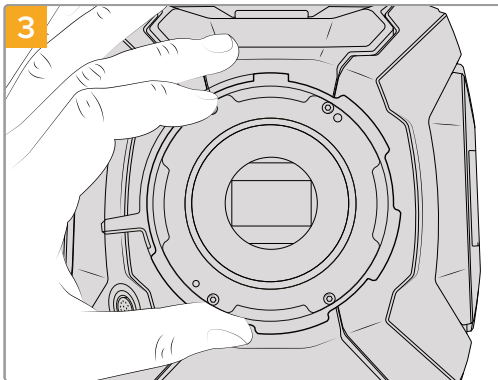
Torque wrench



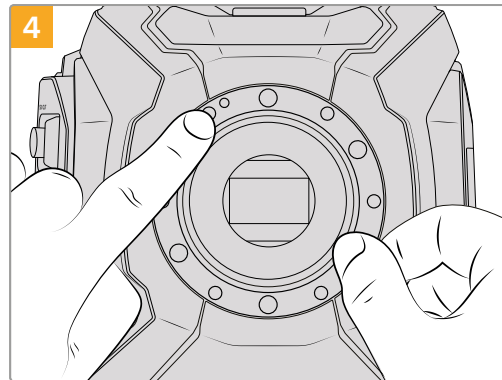
Place URSA Mini PL vertically on a solid, clean bench top and remove your lens or dust cap. The glass filter covering the sensor will be exposed for the duration of the shimming process, so it's important to keep the filter as clean as possible. Be careful not to touch the filter while shimming the PL mount.



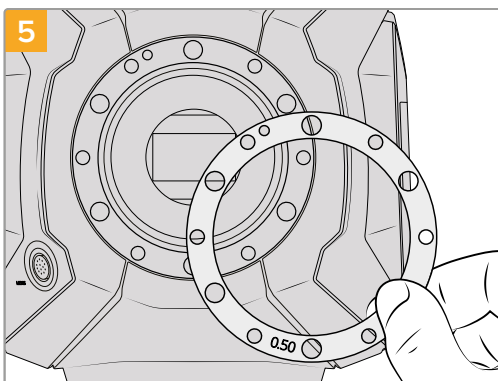
Remove the six PL mount screws using the 2.0mm Hex driver. You may need to occasionally rotate the PL locking ring clockwise or counterclockwise to access the screws.



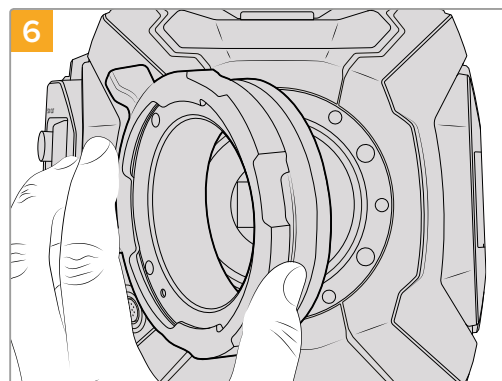
Carefully lift the lens mount away from the camera body. Keep the screws safely located close to the lens mount.



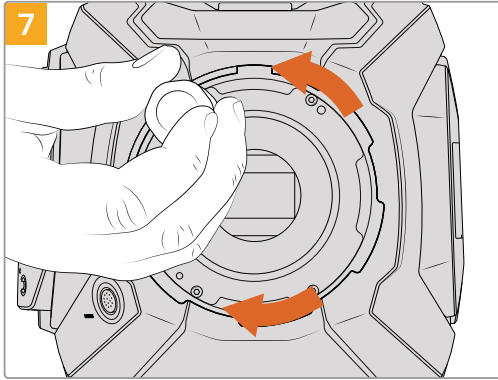
Note the alignment of the existing 0.50mm shim with the alignment pin at the 11 o'clock position.



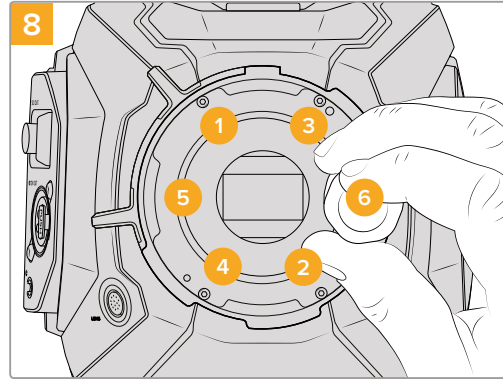
Remove the existing 0.50mm shim and replace with the appropriate shim thickness needed to bring your lens focus marks into alignment with the focal distance.



Add the 0.10mm shim to your camera, then place the Blackmagic URSA Mini Pro 4.6K PL lens mount onto the camera body. Ensure the pins on the PL mount for Cooke /i Technology are located at the 12 o'clock position.



Loosely turn the five mounting screws until initial contact is made with the shoulder of the lens mount. To access all five screws, you will need to rotate the PL locking ring, as some holes are obscured when the ring is either open or closed.

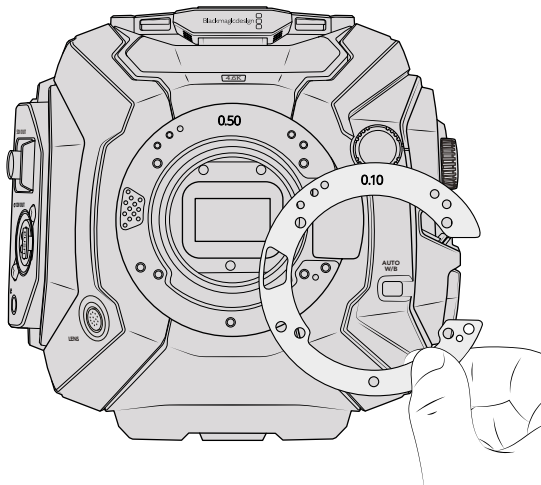


Using the torque wrench and 2.0mm Hex key, apply one full turn of pressure to mounting screw 1, followed by one full turn to screw 2, repeat for screws 3 and 4, then 5 and 6. Continue to apply one full turn to each screw in the sequence above until all screws have reached the maximum torque of 0.45Nm.

## Shimming URSA Mini Pro 4.6K

Shimming URSA Mini Pro 4.6K is almost the same as URSA Mini PL. The only difference is the shape of the shims themselves. To shim your URSA Mini Pro 4.6K, simply remove the attached lens mount, and add or remove shims as you would for URSA Mini PL, then replace the mount.

See the 'Interchangeable lens mount' section for more information on attaching lens mounts to URSA Mini Pro 4.6K.



URSA Mini Pro 4.6K's shims are C shaped to accommodate the lens release mechanism in the EF mount. This makes them easier to align as they can only fit one way. Installation is otherwise identical to URSA Mini PL

# Help

The fastest way to obtain help is to go to the Blackmagic Design online support pages and check the latest support material available for your camera.

## Blackmagic Design Online Support Pages

The latest manual, software and support notes can be found at the Blackmagic Design support center at [www.blackmagicdesign.com/support](http://www.blackmagicdesign.com/support).

## Contacting Blackmagic Design Support

If you can't find the help you need in our support material, please use the "Send us an email" button on the support page to email a support request. Alternatively, click on the "Find your local support team" button on the support page and call your nearest Blackmagic Design support office.

## Checking the Software Version Currently Installed

To check which version of Blackmagic Camera Utility software is installed on your computer, open the About Blackmagic Camera Utility window.

- On Mac OS, open Blackmagic Camera Utility from the Applications folder. Select About Blackmagic Camera Utility from the application menu to reveal the version number.
- On Windows, open Blackmagic Camera Utility from your Start menu or Start Screen. Click on the Help menu and select About Blackmagic Camera Utility to reveal the version number.

## How to Get the Latest Software Updates

After checking the version of Blackmagic Camera Utility software installed on your computer, please visit the Blackmagic Design support center at [www.blackmagicdesign.com/support](http://www.blackmagicdesign.com/support) to check for the latest updates. While it is usually a good idea to run the latest updates, it is wise to avoid updating any software if you are in the middle of an important project.

# Regulatory Notices and Safety Information

## Regulatory Notices



### **Disposal of waste of electrical and electronic equipment within the European union.**

The symbol on the product indicates that this equipment must not be disposed of with other waste materials. In order to dispose of your waste equipment, it must be handed over to a designated collection point for recycling. The separate collection and recycling of your waste equipment at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city recycling office or the dealer from whom you purchased the product.



This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this product in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at personal expense.

Operation is subject to the following two conditions:

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

## Safety Information

The supplied AC to 12V DC power supply must be connected to a mains socket outlet with a protective earth connection.

This equipment is suitable for use in tropical locations with an ambient temperature of up to 40°C. During sunny conditions, consider shading of the camera to prevent exposure of the camera or Lithium battery to extended periods of sunlight. Keep Lithium batteries away from all sources of heat.

The 12V DC output connector is suitable to provide power to the Blackmagic URSA Viewfinder or Blackmagic URSA Studio Viewfinder. When connecting other accessories to this connector, ensure that the power consumption is less than 18W.

No operator serviceable parts inside. Refer servicing to your local Blackmagic Design service centre.

# Warranty

## Limited Warranty

Blackmagic Design warrants that this product will be free from defects in materials and workmanship for a period of 12 months from the date of purchase. If a product proves to be defective during this warranty period, Blackmagic Design, at its option, either will repair the defective product without charge for parts and labor, or will provide a replacement in exchange for the defective product.

In order to obtain service under this warranty, you the Customer, must notify Blackmagic Design of the defect before the expiration of the warranty period and make suitable arrangements for the performance of service. The Customer shall be responsible for packaging and shipping the defective product to a designated service center nominated by Blackmagic Design, with shipping charges pre paid. Customer shall be responsible for paying all shipping charges, insurance, duties, taxes, and any other charges for products returned to us for any reason.

This warranty shall not apply to any defect, failure or damage caused by improper use or improper or inadequate maintenance and care. Blackmagic Design shall not be obliged under this warranty: a) to repair damage resulting from attempts by personnel other than Blackmagic Design representatives to install, repair or service the product, b) to repair damage resulting from improper use or connection to incompatible equipment, c) to repair any damage or malfunction caused by the use of non Blackmagic Design parts or supplies, or d) to service a product that has been modified or integrated with other products when the effect of such a modification or integration increases the time or difficulty of servicing the product.

Exposing URSA Viewfinder to direct sunlight could damage the viewfinder display as the viewfinder optics act as a magnifying glass. Image retention or burn-in could happen on OLED panels when static or high contrast images, such as frame guides, are displayed on the panels for extended periods. To avoid this, ensure the IR sensor for face detection is not covered deliberately and disconnect the viewfinder when not in use for prolonged periods. Image retention is not covered by this product warranty.

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