

Installation and Operation Manual
Blackmagic URSA
Blackmagic URSA Mini

Blackmagicdesign 



Mac OS X™

Windows™

September 2015



Welcome

Thank you for purchasing Blackmagic URSA!

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!

All those exciting conversations have been put into the new camera you have just purchased. We think it takes care of the needs of large film crews as well as having all the features you need if you're operating in single person shooting. Blackmagic URSA's unique design allows you to replace the sensor, adding new imaging capability to it over time. What this also means is we could put more value into the screens, processing and cooling systems your camera has, because it does not need to be thrown away every time we develop a new sensor for it!

With URSA, you get a built in large 10 inch on set monitor built in, dual CFast recorders that alternate recording so you can keep recording for as long as you want, as well as scopes, super strong metal design and much more.

Our new URSA Mini camera offers similar capabilities. You get a super strong metal chassis, dual CFast recorders, a 5 inch touchscreen and the same amazing sensor all in a smaller, lighter package perfect for single operators. 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 hope you use your URSA or URSA Mini 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!

Grant Petty

Grant Petty
CEO Blackmagic Design

Blackmagic URSA

Blackmagic URSA Mini

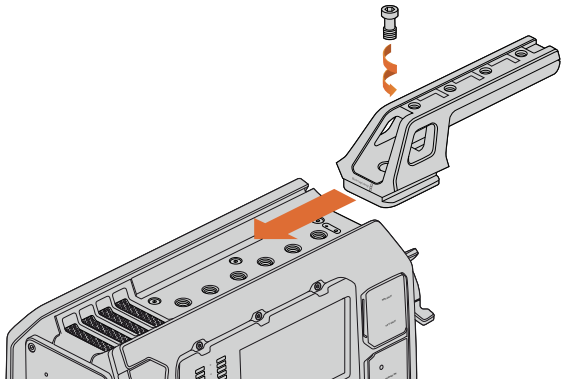
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Blackmagic URSA

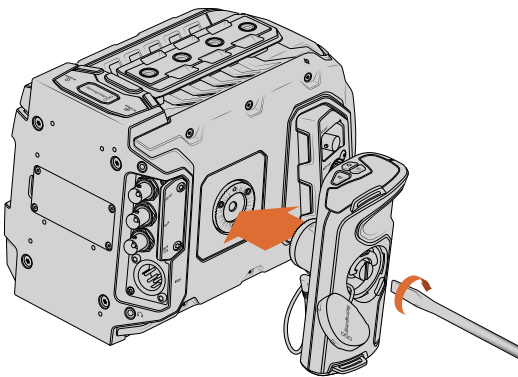
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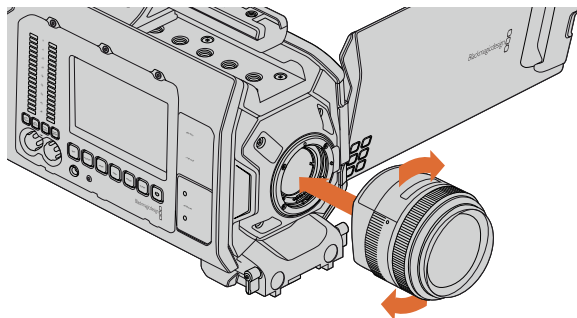
6 Getting Started



Attaching the top handle to Blackmagic URSA.



Attaching the side handle to Blackmagic URSA Mini.



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

Attaching the Handle

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

To attach Blackmagic URSA's handle to the camera body, simply slide the base of the handle along Blackmagic URSA's handle ridges and screw the handle to one of the 3/8" mounting points. Choose a mounting point that provides the best weight balance for your camera.

Attaching URSA Mini's side handle is easy.

- Step 1.** Open the plastic cap on the right side of the handle to access the tightening screw.
- Step 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.
- Step 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 to the camera's LANC input.

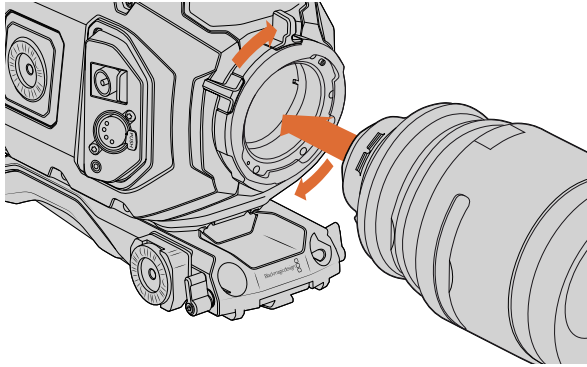
Attaching a Lens

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. We recommend always turning off your camera prior to attaching or removing a lens.

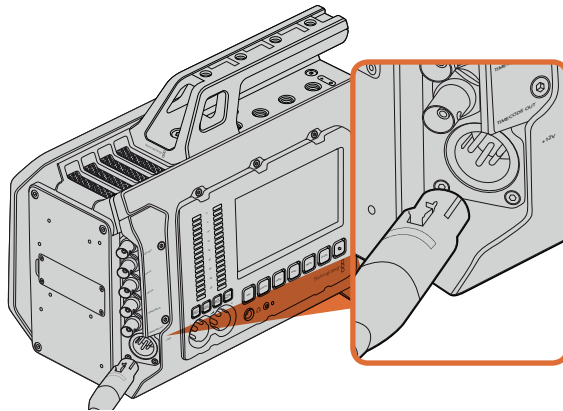
To attach an EF mount lens:

- Step 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.
- Step 2.** Twist the lens clockwise until it locks into place.
- Step 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.

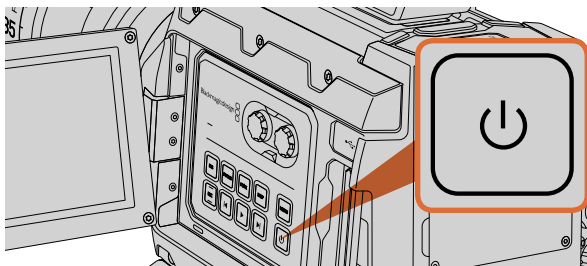
7 Getting Started



Attaching and removing a PL lens on Blackmagic URSA Mini PL.



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



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.

To attach a PL mount lens:

- Step 1.** Open your camera's PL locking ring by rotating it counterclockwise until it stops.
- Step 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.
- Step 3.** Tighten the PL locking ring by rotating it clockwise.
- Step 4.** To remove the lens, rotate the locking ring counterclockwise until it stops, then gently remove the lens.

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

Turning Your Camera On

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

To plug in external power:

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

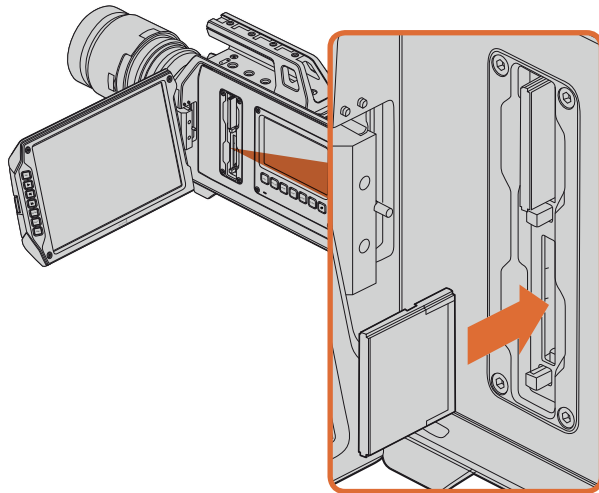
You can use industry standard third party external batteries such as V-mount or gold mount batteries with your URSA. Refer to the 'Mounting Batteries' section for more information about mounting the different types of battery plates to support different batteries.

To turn your camera on:

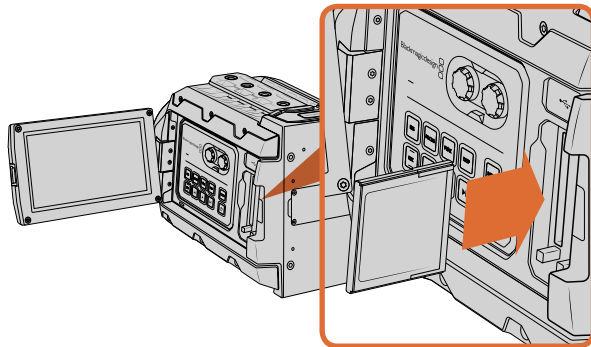
- Step 1.** Press and release the 'power' button. On Blackmagic URSA the power button is located on the DOP or camera assist and audio stations. On Blackmagic URSA Mini, the power button is located on the control panel behind the fold out LCD. Simply open the LCD to access the control panel.
- Step 2.**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

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

8 CFast Cards



Inserting a CFast 2.0 card into one of Blackmagic URSA's two CFast slots.



Blackmagic URSA Mini has two CFast slots for continuous recording.

Inserting a CFast Card

Blackmagic URSA and URSA Mini use CFast 2.0 cards to record 4K, Ultra HD or HD video. To insert a CFast card.

- Step 1.** Open the fold out monitor to access the CFast slots.
- Step 2.** With the label on the CFast card facing the touchscreen, insert the card until you feel it lock into place. Push on the CFast card ejector button to eject the card.
- Step 3.** The status strip will display a moving dot while the camera checks the CFast card and then it will say 'ready'. Additionally, on URSA, the touchscreen media timeline will display a time remaining indicator. On URSA Mini, the CFast indicator at the top right of the screen will show the time remaining on detected cards.

Preparing a CFast Card for Recording

CFast cards must be formatted as either HFS+ or exFAT. HFS+ is also known as Mac OS extended. It is the recommended format as it supports "journaling". Data on a journaled CFast card is more likely to be recovered in the rare event that your media card becomes corrupted. HFS+ is natively supported by Mac OS X.

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

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 4K RAW video, and some are suited to compressed recording up to ProRes 422 HQ or 4K RAW 3:1.

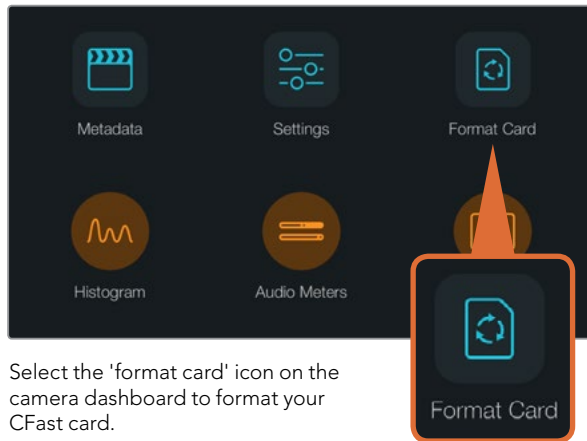
Below is a list of recommended CFast 2.0 cards for recording compressed formats. For supported frame rates, refer to the Blackmagic Design support center at www.blackmagicdesign.com/support.

- Lexar Professional 3400x 32GB, 64GB, 128GB, 256GB
- Wise CFast 2.0 3400x 128GB
- Transcend 128GB, 256GB

We recommend the following CFast 2.0 cards for recording 4K RAW video up to 30 fps.

- Lexar Professional 3400x 64GB, 128GB, 256GB
- Wise CFast 2.0 3400x 128GB
- Transcend 128GB, 256GB

9 CFast Cards



Select the 'format card' icon on the camera dashboard to format your CFast card.



Choose between HFS+ and exFAT formats. Confirm your selection by tapping 'yes, format my card' to continue, or 'cancel' to cancel the format.

Preparing Media for Recording

CFast cards must be formatted as either HFS+ or exFAT and can be formatted using the 'format card' feature on the dashboard, or via a Mac or Windows computer. We recommend formatting your CFast 2.0 cards using Blackmagic URSA or URSA Mini for best performance.

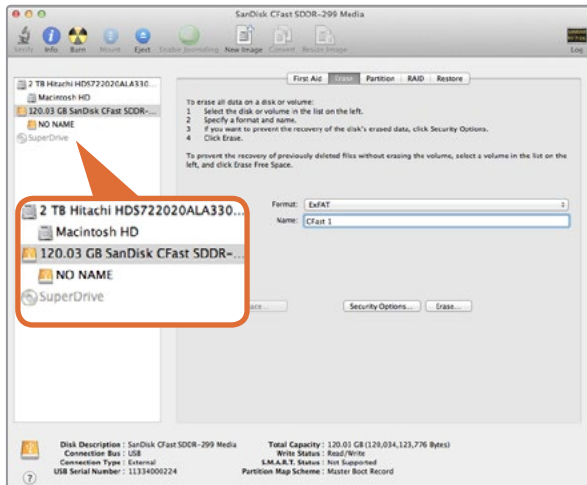
HFS+ is also known as Mac OS extended and is the recommended format as it supports "journaling". Data on journaled media is more likely to be recovered in the rare event that your CFast card becomes corrupted. HFS+ is natively supported by Mac OS X.

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

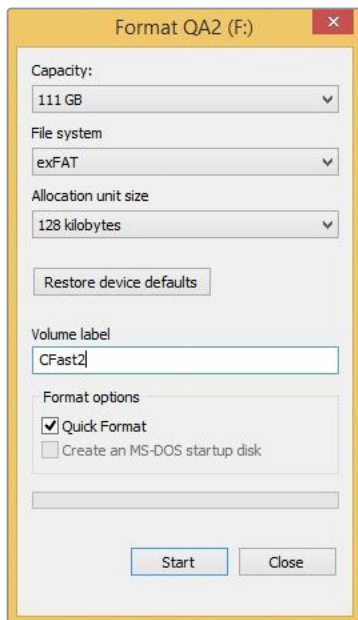
To format your CFast card using the dashboard 'format card' feature:

- Step 1.** Press the 'display' button marked DISP on URSA's control panel to cycle between the touchscreen displays until the dashboard appears. On URSA Mini, press the 'menu' button to display the dashboard.
- Step 2.** Tap on the 'format card' icon with your finger.
- Step 3.** Tap on the CFast slot you want to use, then tap 'continue' to proceed, or 'cancel' to select a different slot.
- Step 4.** Choose your format by tapping the HFS+ or exFAT icon.
- Step 5.** A warning will appear asking you to confirm the format. Tap 'yes, format my card' to continue, or 'cancel' to cancel the format.
- Step 6.** A progress bar shows you the status of the format. 'Complete' will appear when the format is done.
- Step 7.** Tap the 'done' icon to return to the dashboard.
- Step 8.** Press the 'display' button to exit the dashboard.

10 CFast Cards



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



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

Preparing CFast Cards on a Mac OS X Computer

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

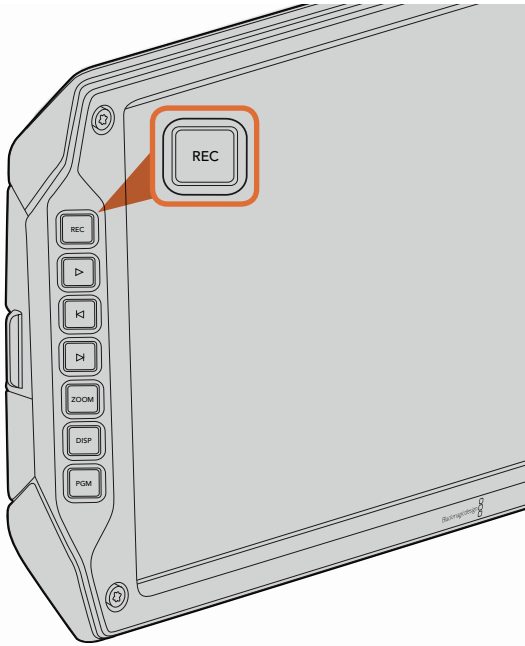
- Step 1.** Connect the CFast card to your computer using a CFast 2.0 reader/writer or CFast drive, and dismiss any message offering to use your card for Time Machine backups.
- Step 2.** Go to applications/utilities and launch Disk Utility.
- Step 3.** Click on the disk icon of your CFast card and then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

Preparing CFast Cards on a Windows Computer

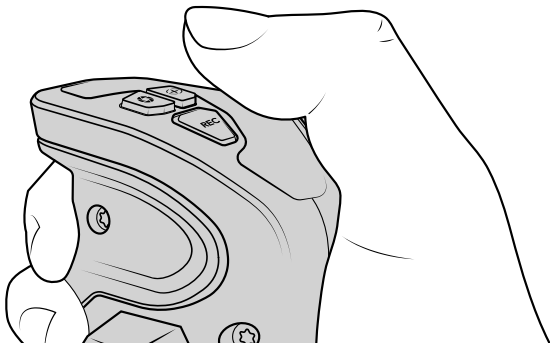
The 'format' dialog box can format a drive in the exFAT format on a Windows PC. Remember to back up anything important from your CFast card as all data will be lost when it is formatted.

- Step 1.** Connect the CFast card to your computer using a CFast 2.0 reader/writer or CFast drive.
- Step 2.** Open the 'start' menu or 'start' screen and choose 'computer'. Right-click on your CFast card.
- Step 3.** From the contextual menu, choose 'format'.
- Step 4.** Set the file system to "exFAT" and the allocation unit size to 128 kilobytes.
- Step 5.** Type a volume label, select 'quick format' and click 'start'.
- Step 6.** Your CFast card will quickly be formatted and made ready for use.

11 Recording



To record a clip, press the 'record' button marked REC on the fold out monitor.



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

Recording Clips

Press the 'record' button marked REC on Blackmagic URSA's monitor controls. A 'record' button is also on the outside of the monitor when using Blackmagic URSA Viewfinder with URSA's fold out monitor closed.

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

Choosing the Codec, Resolution and Sensor Area

Your Blackmagic URSA or URSA Mini records using CinemaDNG RAW codecs with a choice of lossless 4K RAW or 4K RAW compression, as well as various Apple ProRes compressed codecs. Sensor frame rate options will vary depending on the codec and resolution you choose, plus the sensor turret you're using on Blackmagic URSA.

It's worth noting that clips recorded using RAW 3:1 compression are compatible with DaVinci Resolve, but may be incompatible with other software applications which may not open the files or display them correctly.

We have provided a table for your reference containing available codecs and resolutions, plus their maximum sensor frame rates.

Maximum Sensor Frame Rates

Codec	Resolution	Maximum Frame Rate Blackmagic URSA	Maximum Frame Rate Blackmagic URSA Mini
RAW	4000 x 2160	120 (Dual card mode)	60 (Dual card mode)
RAW 3:1		120 (Dual card mode)	60
ProRes 444 XQ	3840 x 2160	30	Available in a later software update
ProRes 444		50	Available in a later software update
ProRes HQ		80	60
ProRes 422		120	60
ProRes LT		120	60
ProRes Proxy		120	60

Maximum Sensor Frame Rates Continued

Codec	Resolution	Maximum Frame Rate Blackmagic URSA	Maximum Frame Rate Blackmagic URSA Mini
ProRes 444 XQ	1920 x 1080 (full sensor area)	120	Available in a later software update
ProRes 444		120	Available in a later software update
ProRes HQ		120	60
ProRes 422		120	60
ProRes LT		120	60
ProRes Proxy		120	60
ProRes 444 XQ	1920 x 1080 (windowed sensor area)	150	Available in a later software update
ProRes 444		150	Available in a later software update
ProRes HQ		150	120
ProRes 422		150	120
ProRes LT		150	120
ProRes Proxy		150	120

To select your desired codec and resolution:

- Step 1.** Press the 'menu' button on the control panel.
- Step 2.** Navigate to the 'recording' menu and select your desired 'codec' by tapping the codec selection arrows on the touchscreen.
- Step 3.** Tap the relevant selection arrows for your desired resolution.
- Step 4.** If you want to record in HD using a windowed sensor area, so you can take advantage of the higher frame rates, tap on the selection arrows to select 'window'. If you want to record using the full sensor area, select 'full'.
- Step 5.** Press the 'menu' button to exit.

13 Recording

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.

A table is provided showing the supported 'project' frame rates for each recording format and codec. You can create dynamic speed effects by using a sensor frame rate that is slower or faster than your project frame rate. For standard playback, match the sensor frame rate to your project frame rate.

Recording Formats and Project Frame Rates

4000 x 2160 4K RAW	23.98, 24, 25, 29.97, 30, 50, 59.94 and 60 frames per second using dual card mode.
4000 x 2160 4K RAW 3:1	23.98, 24, 25, 29.97, 30, 50, 59.94, 60.
3840 x 2160 Apple ProRes 444 XQ	23.98, 24, 25, 29.97, 30, 50, 59.94, 60.
3840 x 2160 Apple ProRes 444	23.98, 24, 25, 29.97, 30, 50, 59.94, 60.
3840 x 2160 Apple ProRes 422 HQ, ProRes 422, ProRes 422 LT and ProRes 422 Proxy	23.98, 24, 25, 29.97, 30, 50, 59.94, 60.
1920 x 1080 Apple ProRes 444 XQ	23.98, 24, 25, 29.97, 30, 50, 59.94, 60.
1920 x 1080 Apple ProRes 444	23.98, 24, 25, 29.97, 30, 50, 59.94, 60.
1920 x 1080 Apple ProRes 444	23.98, 24, 25, 29.97, 30, 50, 59.94, 60.
1920 x 1080 Apple ProRes 422 HQ, ProRes 422, ProRes 422 LT and ProRes 422 Proxy	23.98, 24, 25, 29.97, 30, 50, 59.94, 60.

14 Recording

Recording Duration Table

Tables are provided showing approximate recording durations in minutes and seconds compared to format, project frame rate and media size. The maximum recording time for a CFast card will vary depending on the data size of the card and the recording format and frame rate you choose. For example, the

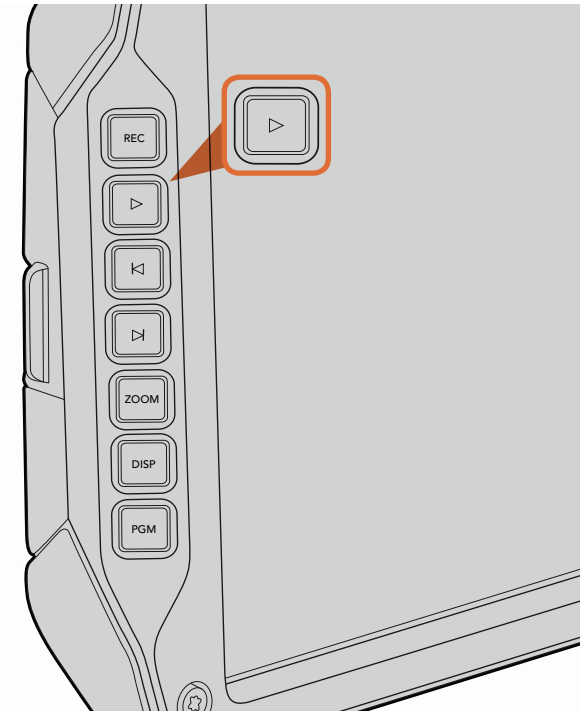
storage rate for Apple ProRes 422 HQ at 3840 x 2160 is approximately 880 Mbps. At 24 frames per second, you can record approximately 48 minutes of video on a 256GB CFast 2.0 card.

Format	CFast Card	Frame Rate	CinemaDNG RAW	ProRes 444 XQ	ProRes 444	ProRes 422 HQ	ProRes 422	ProRes 422 LT	ProRes 422 Proxy
			Duration	Duration	Duration	Duration	Duration	Duration	Duration
Ultra HD 4K	256GB	23.98	19 mins 4K RAW 41 mins 4K RAW 3:1	22 mins	32 mins	48 mins	73 mins	104 mins	237 mins
		24	19 mins 4K RAW 41 mins 4K RAW 3:1	22 mins	32 mins	48 mins	73 mins	104 mins	237 mins
		25	18 mins 4K RAW 40 mins 4K RAW 3:1	21 mins	30 mins	46 mins	69 mins	100 mins	224 mins
		30	16 mins 4K RAW 33 mins 4K RAW 3:1	17 mins	25 mins	38 mins	58 mins	83 mins	189 mins
		50	9 mins 4K RAW 20 mins 4K RAW 3:1	10 mins	15 mins	23 mins	34 mins	50 mins	112 mins
		60	8 mins 4K RAW 16 mins 4K RAW 3:1	9 mins	12 mins	19 mins	29 mins	41 mins	94 mins
HD	256GB	23.98		86 mins	129 mins	194 mins	291 mins	416 mins	948 mins
		24		86 mins	129 mins	193 mins	291 mins	416 mins	948 mins
		25		82 mins	124 mins	185 mins	279 mins	401 mins	898 mins
		30		69 mins	103 mins	155 mins	232 mins	334 mins	758 mins
		50		41 mins	61 mins	93 mins	139 mins	200 mins	449 mins
		60		35 mins	51 mins	77 mins	116 mins	167 mins	379 mins

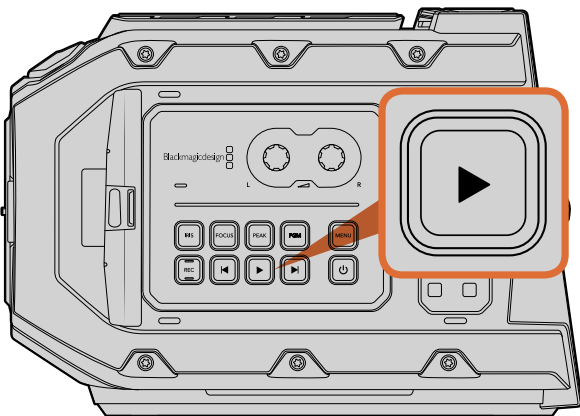
15 Recording

Format	CFast Card	Frame Rate	CinemaDNG RAW	ProRes 444 XQ	ProRes 444	ProRes 422 HQ	ProRes 422	ProRes 422 LT	ProRes 422 Proxy
			Duration	Duration	Duration	Duration	Duration	Duration	Duration
Ultra HD 4K	128GB	23.98	10 mins 4K RAW 21 mins 4K RAW 3:1	11 mins	16 mins	24 mins	36 mins	52 mins	118 mins
		24	10 mins 4K RAW 21 mins 4K RAW 3:1	11 mins	16 mins	24 mins	36 mins	52 mins	118 mins
		25	9 mins 4K RAW 20 mins 4K RAW 3:1	11 mins	15 mins	23 mins	34 mins	50 mins	112 mins
		30	8 mins 4K RAW 17 mins 4K RAW 3:1	9 mins	12 mins	19 mins	29 mins	41 mins	94 mins
		50	5 mins 4K RAW 10 mins 4K RAW 3:1	5 mins	7 mins	11 mins	17 mins	25 mins	56 mins
		60	4 mins 4K RAW 8 mins 4K RAW 3:1	4 mins	6 mins	9 mins	14 mins	20 mins	47 mins
HD	128GB	23.98		43 mins	64 mins	97 mins	145 mins	208 mins	474 mins
		24		43 mins	64 mins	96 mins	145 mins	208 mins	474 mins
		25		41 mins	62 mins	92 mins	139 mins	200 mins	449 mins
		30		35 mins	51 mins	77 mins	116 mins	167 mins	379 mins
		50		20 mins	30 mins	46 mins	69 mins	100 mins	224 mins
		60		18 mins	25 mins	38 mins	58 mins	83 mins	189 mins

16 Playback



Use the 'play' button on the side or outside of the fold out monitor to view your recorded clips.



Playing Back Clips

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

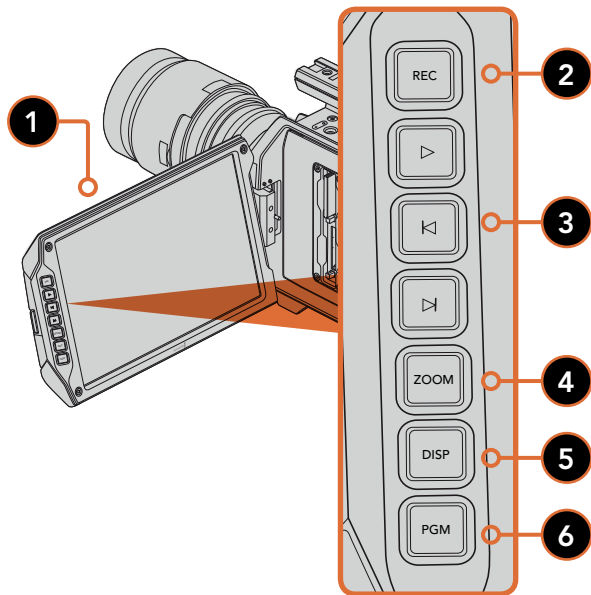
Press the 'play' button once for instant playback and you'll see your recorded video on the fold out monitor. Your clips can also be viewed on the touchscreens and any display connected to the SDI outputs. Playback will continually play through all your recorded clips.

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. On Blackmagic URSA EF, 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 80 frames per second, your clips will play back in slow motion on both the camera and on your post production timeline.

To ensure your clips play back at normal speed, select 'match' from the 'sensor frame rate' settings in the 'recording' settings touchscreen menu. Refer to the 'recording settings' section of this manual for more information about frame rates.

17 Blackmagic URSA Overview



DOP Station

Monitor Controls

1. 10" LCD VIEWFINDER

Large fold out on screen monitor, pivots for viewing at different camera heights. Pages 41 and 42.

2. RECORD BUTTON

Press to start recording and press again to stop recording. Page 11.

3. PLAYBACK CONTROL BUTTONS

Buttons for playback start and stop and skipping for the next or previous clip. On Blackmagic URSA EF, the forward and reverse skip buttons can also be used to open or close the iris when using compatible lenses. Page 16.

4. ZOOM BUTTON

The 'zoom' button on the fold out monitor helps you find sharp focus by zooming into your picture. In Ultra HD 4K mode, the monitor will show a 1:1 pixel view. Press the 'zoom' button on the fold out monitor to activate the focus zoom feature. Press again to zoom out to the standard view.

5. DISP BUTTON

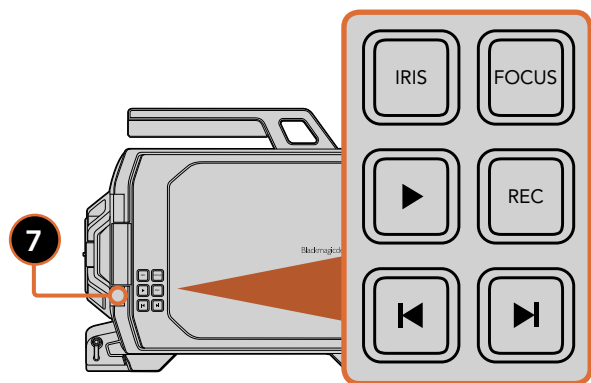
Turns on and off overlays, focus peaking and other on screen displays via the 10 inch fold out monitor. Page 42.

6. PGM BUTTON

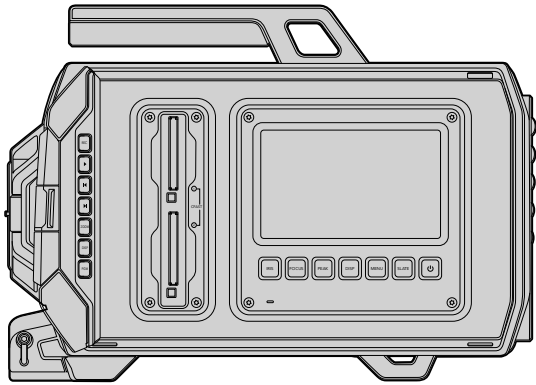
Switches the monitor between the camera and the 'program' video from the SDI input. Pages 22 and 46.

7. IRIS, FOCUS, REC AND TRANSPORT BUTTONS

These controls allow camera operation when the monitor is folded closed, such as when shoulder mounted.



18 Blackmagic URSA Overview



DOP Station

Work Station Features

1. MEMORY CARD SLOTS

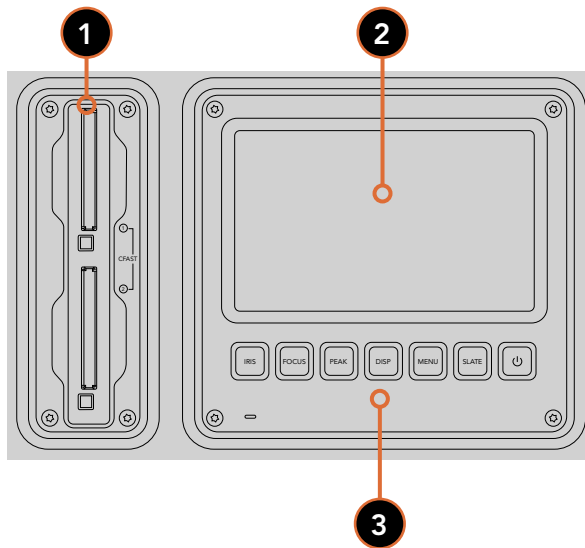
Insert CFast 2.0 type cards into the slots for record and playback. Page 8.

2. TOUCHSCREEN

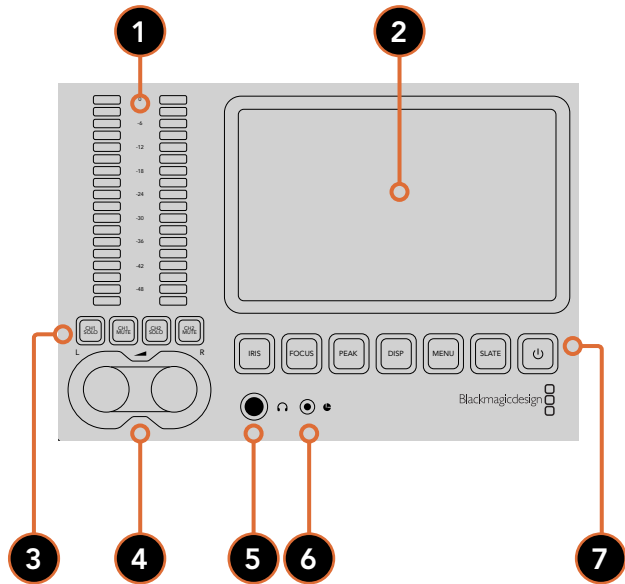
The 5" touchscreen display is used for monitoring, scopes and changing camera settings. Page 25.

3. WORKSTATION BUTTONS

Activates various camera controls and the touchscreen menu for adjusting settings. Page 23.



19 Blackmagic URSA Overview



Camera Assist and Audio Station

Work Station Features

1. AUDIO METERS

Monitor your audio levels using the ch 1 and ch 2 audio meters. Page 24.

2. TOUCHSCREEN

The 5" touchscreen display is used for monitoring your camera image and scopes, and applying camera settings. Page 25.

3. AUDIO MONITORING MUTE AND SOLO

Press these buttons to mute and monitor selected audio channels. Page 24.

4. AUDIO LEVEL ADJUSTMENT KNOBS

Adjustment knobs to set the recording levels for the left and right audio channels. Page 24.

5. HEADPHONES

1/4" jack output for headphones monitoring. Page 21.

6. LANC REMOTE

2.5mm stereo jack for LANC remote control. LANC supports record start and stop, iris and focus control. Page 21.

7. WORK STATION BUTTONS

Activates various camera controls and the touchscreen menu for adjusting settings. Page 23.

8. HD-SDI MONITORING OUT

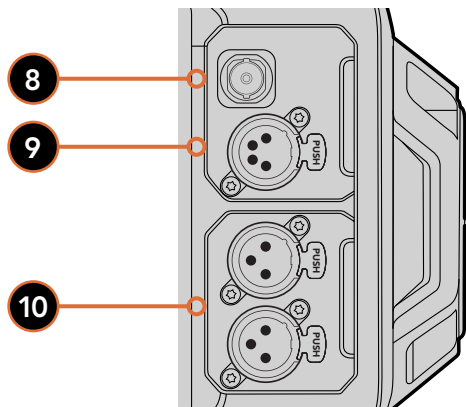
3G-SDI connector for down converted 1080 HD output. Pages 21 and 46.

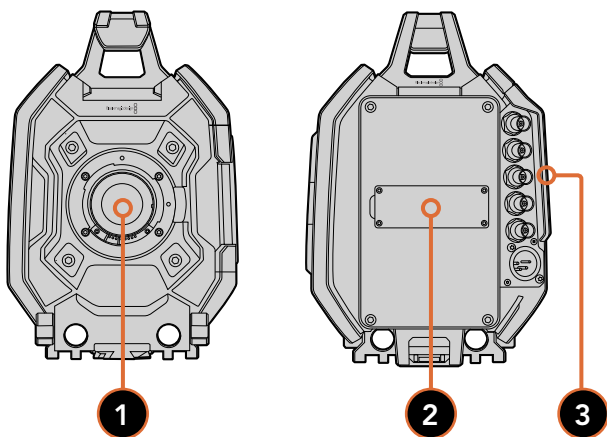
9. +12 V POWER OUTPUT

4 pin XLR connector for powering accessories, such as the Blackmagic URSA viewfinder. Page 21.

10. XLR AUDIO IN

XLR inputs for plugging in external balanced analog audio with selectable 48 V phantom power. Page 21.





Front Panel

1. LENS MOUNT

Lens mount for attaching lenses. EF mount shown in illustration.

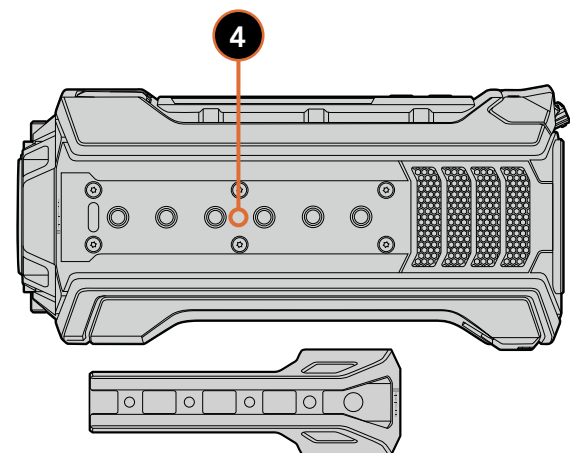
Rear Panel

2. BATTERY PLATE MOUNT

Mounting points and connector for attaching a third party V-mount or gold mount plate. Page 52.

3. REAR PANEL CONNECTORS

Rear panel connectors such as SDI output, SDI input, reference input, timecode input, timecode output and 12V power input. Refer to the 'Blackmagic URSA connectors' section for more information.



Top Panel

4. 3/8" MOUNTING POINTS and TOP HANDLE

Mounting points for attaching top handle and accessories.

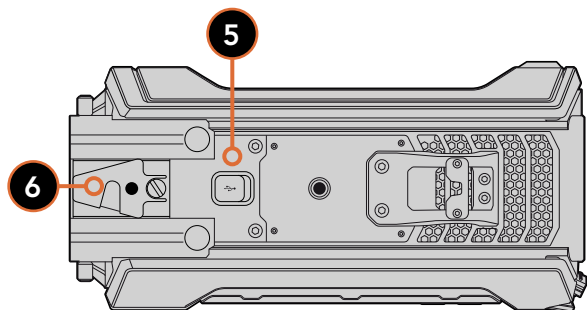
Bottom Panel

5. USB 2.0

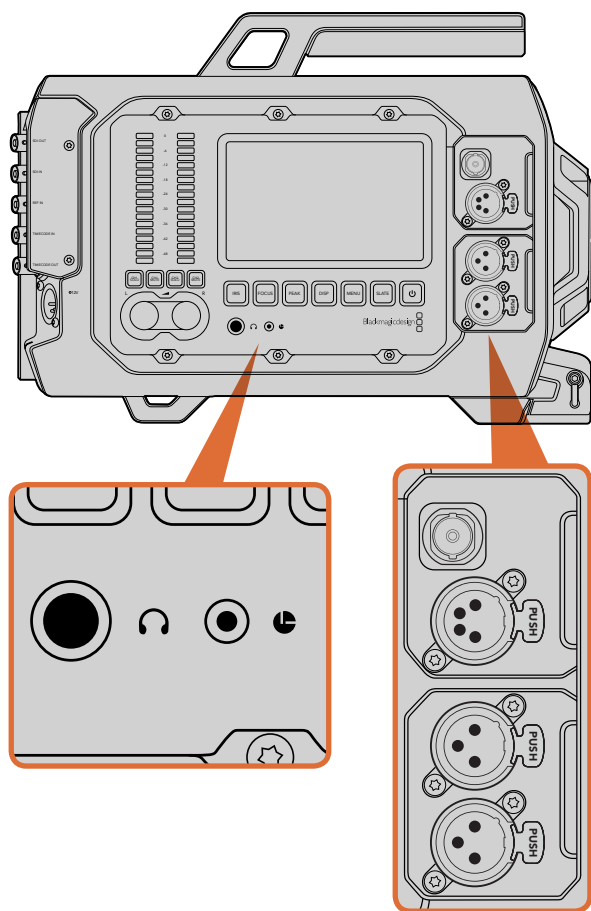
USB 2.0 Mini-B port for updating internal software. Pages 22 and 64.

6. 15mm LIGHTWEIGHT ROD and VCT-14 BASE PLATE SUPPORT

15mm LWS standard mounts for attaching rods, and mounting points for a VCT-14 quick release plate.



21 Blackmagic URSA Connectors



The camera assist and audio station features headphones, LANC remote control, 3G-SDI out, +12 V power out and XLR 'audio in' connectors.

Camera Assist and Audio Station Connectors

Blackmagic URSA's connectors, such as headphones, LANC, +12 V power, 3G-SDI out and external XLR audio are conveniently located on the camera assist and audio station. The rear panel provides SDI in, SDI out, reference BNC, and timecode BNC in and out connectors. Use the USB 2.0 connector located on the bottom panel for updating the internal software.

Headphones

Monitor audio while recording or playing back clips by plugging your headphones into the 1/4" TRS stereo headphones jack.

LANC Remote Control

The remote port on your camera is used to remotely control record starting and stopping, iris and focus adjustments when using a compatible lens.

The port is a 2.5 mm stereo jack using the standard LANC protocol.

3G-SDI Out

Use Blackmagic URSA's down converted 3G-SDI output to send 1080 HD video to an external viewfinder such as the Blackmagic URSA Viewfinder. This output can also be connected to routers, monitors, SDI capture devices, broadcast switchers and other SDI video equipment.

+12 V Power Output

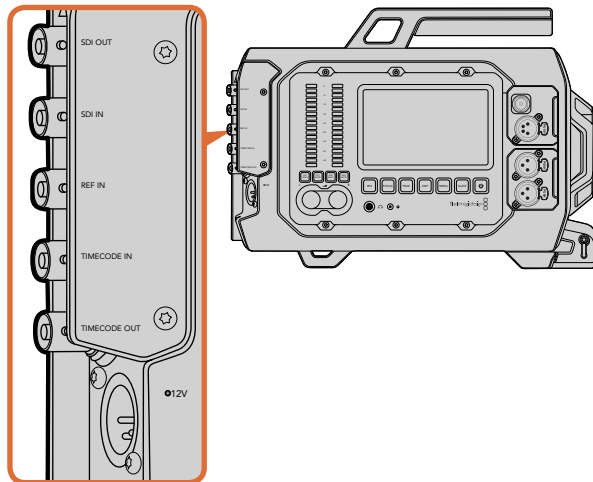
Use the 4 pin 12 Volt XLR connector for powering accessories, such as an external viewfinder.

XLR Audio In

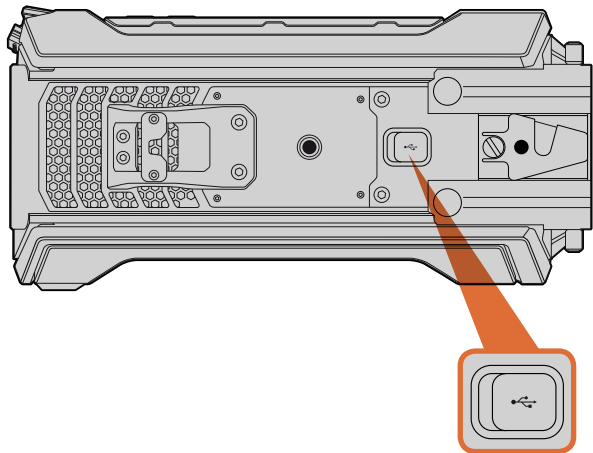
Use the balanced XLR inputs to plug in external analog audio from professional equipment such as audio mixers, PA systems or even external microphones. The XLR connectors supply phantom power so you can use microphones that aren't self powered. To enable phantom power select 'input levels/mic low' or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

Phantom power is active when 'audio input/inputs' is selected.

22 Blackmagic URSA Connectors



Use the rear panel BNC connectors to input or output timecode, sync to an external reference signal, input or output 12G-SDI video. Connect external power via the 4 pin XLR connector.



Connect Blackmagic URSA to your Mac or Windows computer via the Mini-B USB 2.0 port to update the internal software. Lift the rubber cover to access the USB port.

Rear Panel Connectors

SDI In

When connecting Blackmagic URSA to a switcher for live production, connect the switcher's program output to Blackmagic URSA's 12G-SDI input. Now you can view the switcher's program feed by pressing the PGM button on the fold out monitor. This input can also be used to connect to the playback output of an external recorder if used. You can then select between the camera and the external recorder by pressing the PGM button

SDI Out

Blackmagic URSA's 12G-SDI output is used to send HD and Ultra HD 4K video to SDI equipment such as routers, monitors, SDI capture devices, and broadcast switchers.

REF In

Synchronize Blackmagic URSA to a common reference signal, such as black burst or tri-level sync, by connecting to the 'ref in' BNC connector. This lets you sync Blackmagic URSA to other SDI video equipment, for example, when using multiple cameras connected to a switcher.

Timecode In

Record timecode from other professional audio and video equipment, such as audio mixers and clapper boards by connecting them to Blackmagic URSA's 'timecode in' BNC connector. This ensures audio and picture can be easily synchronized during post production.

Timecode Out

Send timecode from Blackmagic URSA to other professional video equipment by connecting to the 'timecode out' BNC connector.

Power Input +12-20 V

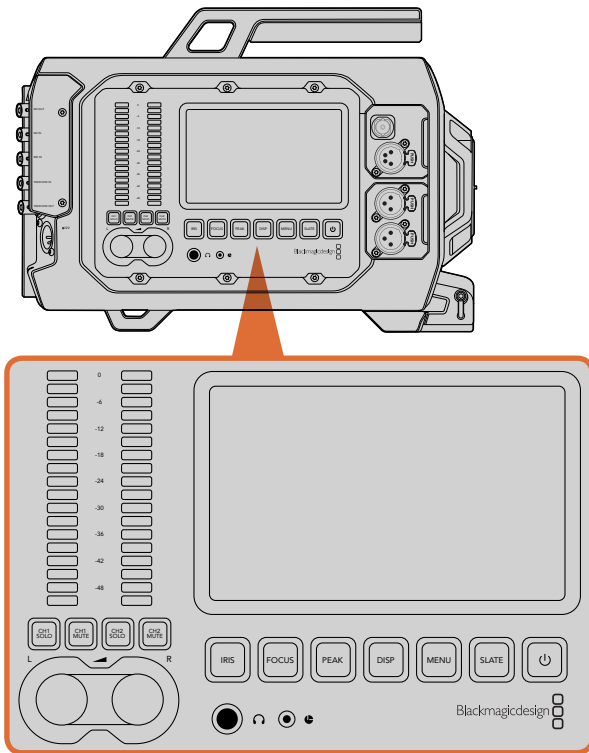
Use the 4 pin 12-20 Volt XLR connector to plug in power from external sources, such as power outlets, portable batteries and generators.

Bottom Panel Connector

USB 2.0

Use the Mini-B USB 2.0 port to connect your Blackmagic URSA to your computer and update the internal software. Lift the rubber cover with your finger nail to access the USB port.

23 Blackmagic URSA Features



Adjust camera settings using the work station buttons on each side of Blackmagic URSA. Each station can be operated independently.

Blackmagic URSA Work Station Buttons

All of Blackmagic URSA's settings are easily adjusted using the work station buttons and touchscreens. The buttons and touchscreens on each station perform the same functions, but work independently. For example, a camera assistant can adjust settings from the camera assist and audio station, while the camera operator is setting a feature from the DOP station.

IRIS Button

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

To set your aperture manually, press the forward and reverse skip transport buttons on the fold out monitor.

FOCUS Button

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 focussed. When the lens is focussed, the square will disappear. 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.

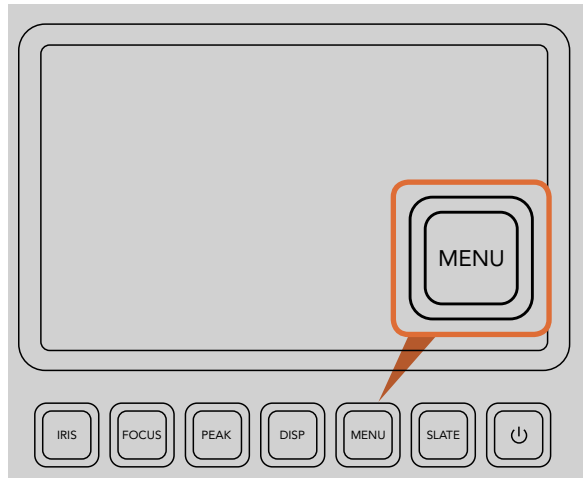
PEAK Button

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 monitoring SDI output, and on URSA's fold out monitor, by activating overlays using touchscreen menu.

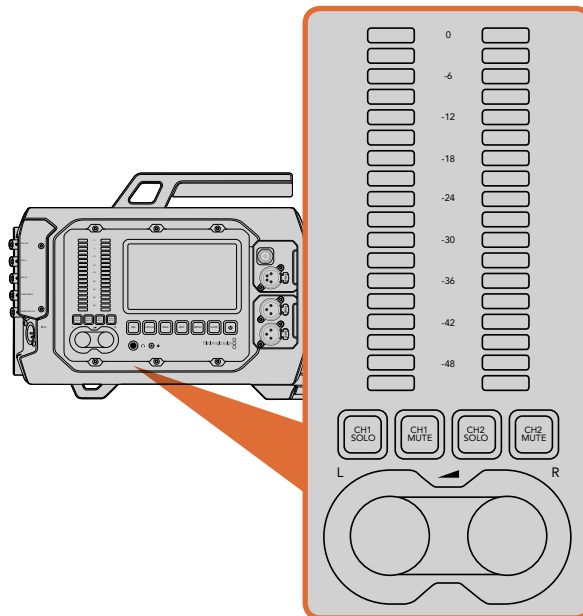
DISP Button

Press the 'disp' button to cycle through the display modes on each touchscreen. For example, pressing the disp button lets you view the camera's status and scopes, view your clips during recording and playback, and access camera features and settings via the dashboard.

24 Blackmagic URSA Features



The 'menu' button opens the touchscreen menu for access to many of the camera settings.



Set and monitor levels of left and right audio channels using the adjustment knobs and audio meters.

MENU Button

Press the 'menu' button to activate the settings menu on the touchscreen. Press menu again to close.

SLATE Button

Press the 'slate' button to activate the slate feature on the touchscreen. Press slate again to close. The slate feature lets you enter metadata for your clips and set your camera ID. See the 'entering metadata' section of this manual for more information.

POWER Button

Press and release the 'power' button to turn on your Blackmagic URSA. Press and hold to turn your camera off.

CH SOLO and MUTE Buttons

During recording and playback, these buttons let you monitor your ch 1 and ch 2 stereo audio channels independently via headphones. For example, to monitor only ch 1 audio, press the 'ch 1 solo' button or the 'ch 2 mute' button. Press the button again to monitor both channels.

CH 1 SOLO Button

To monitor ch 1 only, press the 'ch 1 solo' button.

CH 1 MUTE Button

To mute the audio on channel 1 and monitor only channel 2, press the 'ch 1 mute' button.

CH 2 SOLO Button

To monitor ch 2 only, press the 'ch 2 solo' button.

CH 2 MUTE Button

To mute the audio on channel 2 and monitor only channel 1, press the 'ch 2 mute' button.

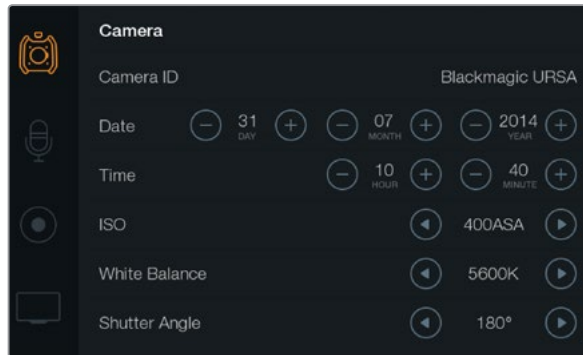
Audio Level Adjustment Knobs

Turn each knob clockwise or counterclockwise to increase or decrease the recording level for each channel of audio. As you adjust each knob you'll see the corresponding audio meters respond.

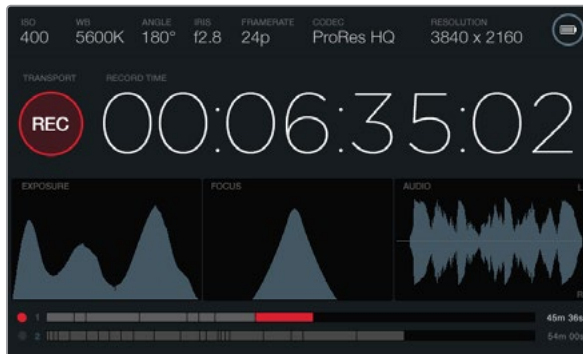
Audio Meters

The audio meters display the strength of your recorded audio. If your audio levels rise too high, your audio peaks can be clipped and you will hear distortion in your audio.

25 Blackmagic URSA Features



Settings can be accessed using the touchscreen menus. Press the 'menu' button to open the touchscreen settings. Navigate the settings by tapping the icons on the left side of the screen. Scroll down through the menu to reveal any additional settings. You can also access camera settings by pressing the 'disp' button below a touchscreen until the dashboard appears, then tapping the settings icon.



The touchscreens provide scopes to help set optimum exposure, focus and audio quality. The battery indicator changes to the external power icon when external power is plugged into the 12-20V XLR input.

Touchscreens

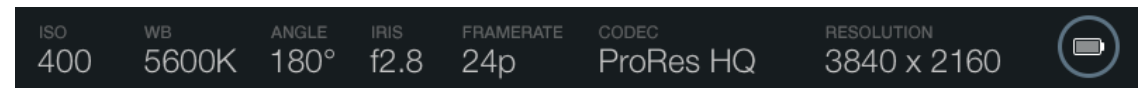
Each work station features a touchscreen so you can monitor your recordings, view scopes, apply settings and activate camera features.

By pressing the 'disp' button you can switch between viewing your clips during recording and playback, you can open the dashboard where you can access camera features and apply settings, or you can view scopes and status information. Scopes are provided to assist with focusing, setting exposure and audio monitoring.

Touchscreen Features

Status Strip

Your chosen settings are always displayed on a status strip at the top of each touchscreen, showing a convenient summary of your camera's settings.



Power Indicator

The power indicator displays a battery icon when using battery power, or an external power icon when plugged into external power via the 12-20 Volt XLR input.

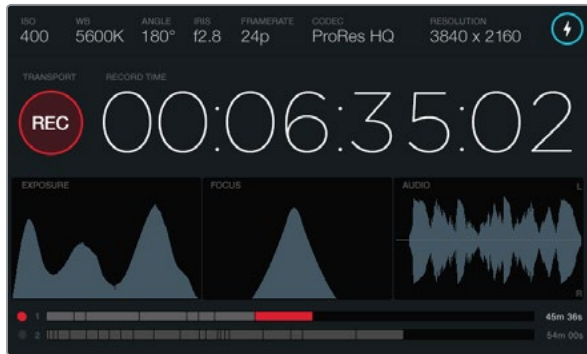
Duration Display

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 displayed duration of each clip starts from 00:00:00:00 for the first clip, or from the end of the previous recorded clip. For example, if a clip stopped recording at 00:06:25:00, the next clip will start recording at 00:06:25:01.

Clip duration is displayed on the touchscreen, however time of day timecode is embedded into your clips for post production, so it's worth regularly checking the time settings in the 'camera' settings menu to make sure they are always accurate.

26 Blackmagic URSA Features



When the peak of the focus scope curve reaches its highest point, you'll know your image is in focus.



The dropped frames alert indicates when your CFast card is dropping frames during recording. The red tips on the audio scope waveform indicate when your audio has clipped.

Transport Display

The transport display provides a bright colored icon that indicates which transport buttons are being used. The icon also provides a dropped frames alert if frames are dropped during recording, and displays FULL when recording has reached maximum capacity.

Exposure Scope

The exposure scope displays a histogram which shows the contrast between whites and blacks along a horizontal scale. 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. To achieve optimum exposure, set your lens aperture so the information is distributed towards the right of the histogram and curves to a point at the bottom right edge. This is known as ETTR, or exposing to the right.

Focus Scope

The focus scope displays a bell curve that moves up and down as you focus and defocus your lens. The height of the curve depends on the amount of detail in your picture. For example, in images containing lots of detail, the curve will be higher and more pronounced. When the curve peaks relative to the amount of detail in your image, you'll know your image is in perfect focus.

Audio Scope

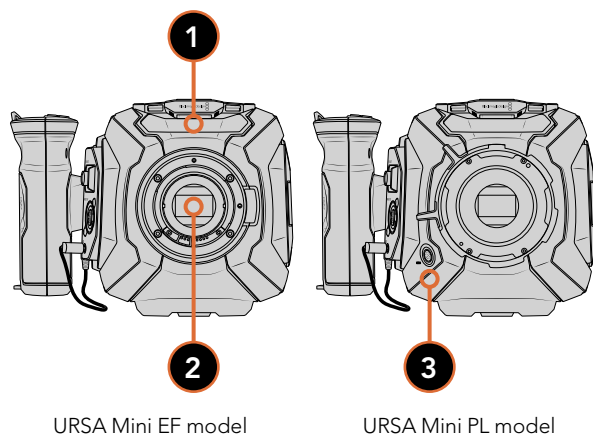
The audio scope displays a continually updating waveform of the previous 3 seconds of recorded audio. If you hear a loud sound while recording, you can easily check if your audio is clipped because the waveform will display red tips on the waveform spikes. You can make adjustments to avoid clipping by turning the audio level adjustment knobs counterclockwise until the audio meter stops rising above 0dB.

Media Timeline

The media timeline displays the recording and playback status of your CFast cards. The dot and clip indicators illuminate different colors depending on use: Red when writing to the card, green when reading the card, and yellow in the event of a card error. As a new clip is recorded, the active slot displays a new clip on the timeline. The time remaining indicator at the end of each timeline displays the remaining minutes and seconds of recording time for each CFast card and displays FULL when a card reaches maximum capacity.

When a card is full and you have an empty CFast card in the second slot, Blackmagic URSA will automatically record to the other CFast card. To play a selected clip, press the 'play' button on the fold out monitor transport controls, or on the outside of the door.

27 Blackmagic URSA Mini Overview



Front Panel

1. STEREO MICROPHONE

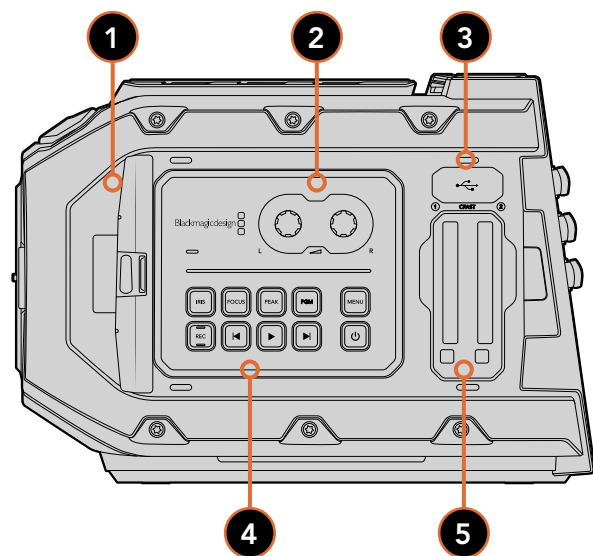
Built in high quality stereo microphone. Refer to the 'settings' section for information on microphone audio settings.

2. LENS MOUNT

EF or PL lens mount, depending on model. Refer to the 'Getting Started' section for information on mounting lenses.

3. BROADCAST LENS CONNECTOR

Provides power and control to compatible B4 mount lenses with 12-pin connections. This connector is only available on URSA Mini PL models.



Left Side

1. FOLD OUT TOUCHSCREEN

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

2. 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.

3. USB PORT

USB 2.0 port for updating internal software. Refer to the 'Blackmagic Camera Setup Utility' section for more information.

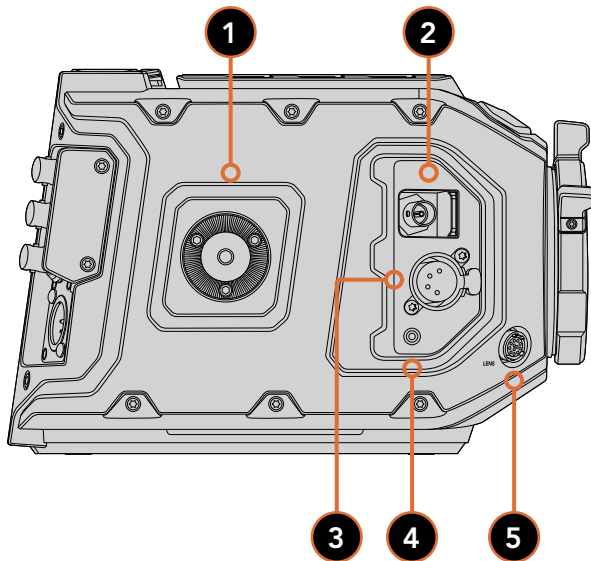
4. CONTROL PANEL BUTTONS

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.

5. MEMORY CARD SLOTS

Insert CFast 2.0 cards into the slots for record and playback. Refer to the 'Blackmagic URSA Mini Features' section.

28 Blackmagic URSA Mini Overview



URSA Mini PL model

Right Side

1. SIDE ROSETTE MOUNT

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

2. HD MONITORING OUTPUT

3G-SDI output BNC connector. Refer to the 'Camera Video Output' and 'Blackmagic URSA Viewfinder' sections.

3. +12V POWER OUTPUT

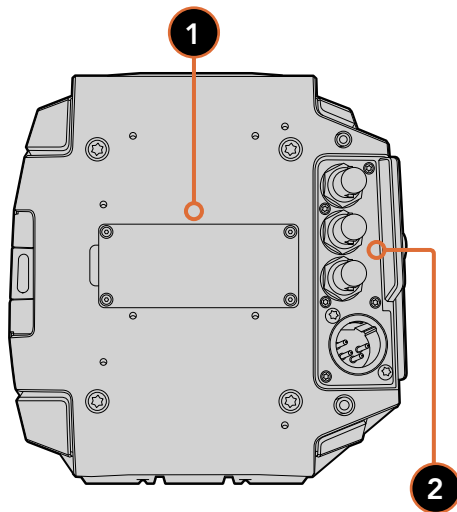
4 pin XLR power output connector. Refer to the 'Blackmagic URSA Viewfinder' section.

4. 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.

5. BROADCAST LENS CONTROL CONNECTOR

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



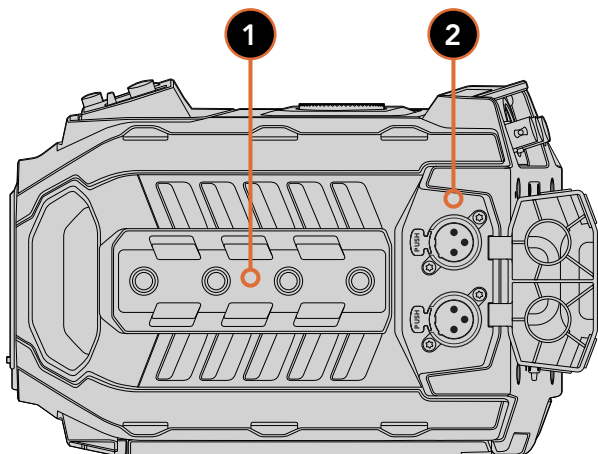
Rear Panel

1. BATTERY MOUNT PLATE

Mounting points and connector for attaching the optional V-mount or gold mount battery plate. For more information, refer to the 'mounting batteries' section.

2. REAR PANEL CONNECTORS

Rear panel connectors such as LANC input, SDI out, SDI in, Reference/timecode in, 12V power input and headphones. Refer to the 'Blackmagic URSA Mini connectors' section for more information.



Top Panel

1. 1/4 INCH MOUNTING POINTS

Mounting points for attaching top handle and accessories.

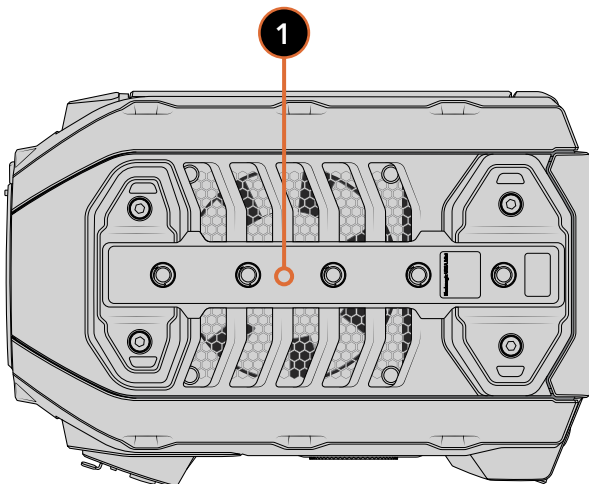
2. XLR AUDIO IN

Balanced XLR audio inputs for connecting external audio. Refer to the 'Blackmagic URSA Mini Connectors' section for more information.

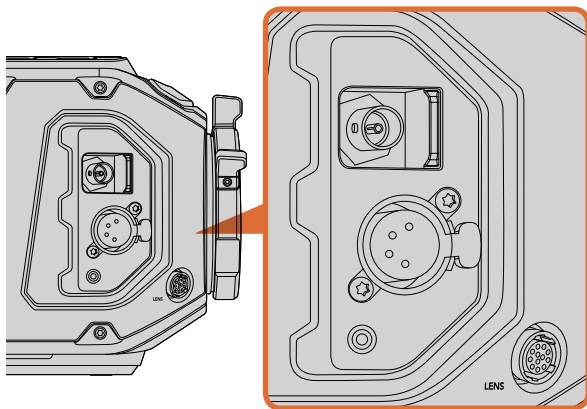
Underside

1. 3/8 INCH MOUNTING POINTS

Mounting points for attaching tripod heads, the optional URSA Mini shoulder mount kit and other accessories.



30 Blackmagic URSA Mini Connectors



Connect power and a HD video signal to a Blackmagic URSA Viewfinder via the 4 pin 12V power output and down converted HD monitoring output. URSA Mini PL model with B4 connector shown.

Right Side Connectors

The right side of your Blackmagic URSA Mini provides outputs for connecting a Blackmagic URSA Viewfinder and other external monitors and accessories, plus a dedicated LANC connector for the side handle. For more information on how to use these connectors refer to the 'Blackmagic URSA Mini features' section.

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.

+12V Power Output

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

LANC

2.5mm jack for connecting to the URSA Mini side handle. LANC supports record start and stop, plus iris and focus control using compatible EF lenses.

Broadcast Lens Control Connector

Provides power and control to compatible B4 mount lenses with 12-pin connections. This connector is only available on URSA Mini PL models.

Rear Connectors

Battery Plate Connector

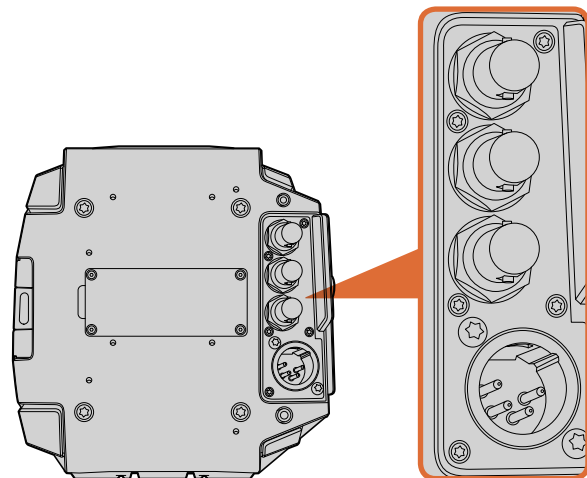
12 way Molex connector for attaching a third party V-mount or gold mount battery plate. For more information, refer to the 'mounting batteries' section.

LANC

2.5mm jack 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.

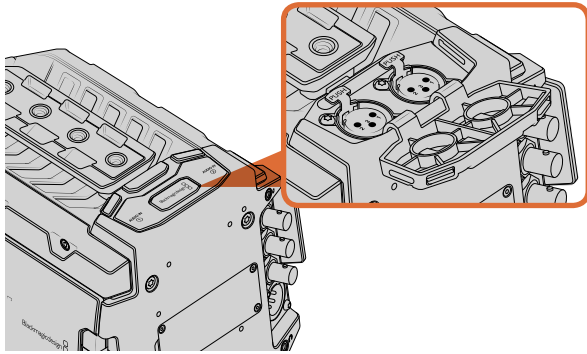
12G-SDI In

This feature will be made available in a later software update.

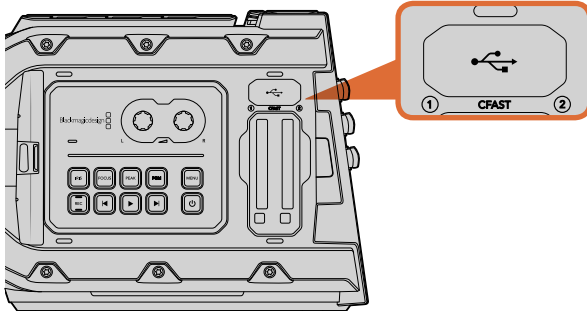


You can mount a third party v-mount or gold mount battery plate to Blackmagic URSA's rear panel. An URSA v-mount battery plate with the correct molex connector can be purchased at your nearest Blackmagic Design reseller.

31 Blackmagic URSA Mini Connectors



Balanced XLR inputs let you connect external audio from a mixer or microphones.



Connect the USB port to your computer when updating your Blackmagic URSA Mini's internal software.

12G SDI Out

Blackmagic URSA Mini's 12G-SDI output is used to send HD and Ultra HD 4K video to SDI equipment such as routers, monitors, SDI capture devices, and broadcast switchers.

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 'ref in' BNC connector. 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 record timecode from other professional audio and video equipment, such as audio mixers and clapper boards. This ensures audio and picture can be easily synchronized during post production.

12V+ Power Input

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

Headphone

3.5mm jack output 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 channel 15 and 16 of the SDI output.

Top Connectors

XLR Audio In

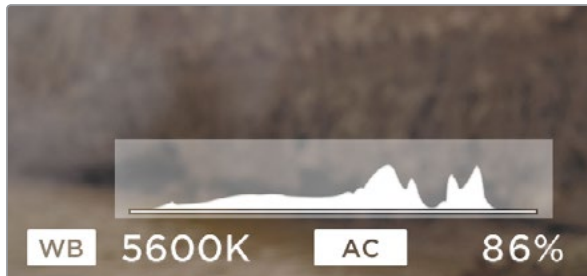
Use the balanced XLR inputs to plug in external analog audio from professional equipment such as audio mixers, PA systems or external microphones. The XLR connectors supply 48V phantom power so you can use microphones that aren't self powered. To enable phantom power select 'inputs' on the 'audio input' 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.

Left Side Connector

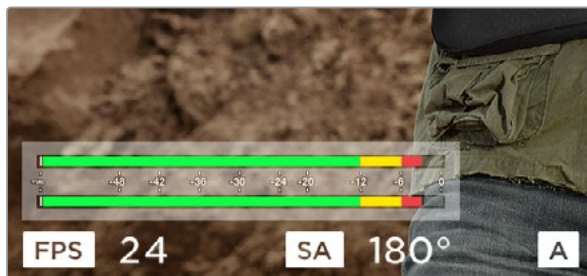
USB port

USB 2.0 port for updating internal software. Refer to the 'Blackmagic Camera Setup utility' section for more information.

32 Blackmagic URSA Mini Features



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



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.

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 Blackmagic URSA Mini when mounted on your shoulder using the URSA Viewfinder and the LCD closed. The status display shows your camera settings, plus scopes for exposure and audio levels. Guides can also be displayed to help you frame and compose your shots. For information on how to set frame guides, refer to the 'settings' section.

Touchscreen Features

On Screen Meters

A histogram and audio meter can be turned on or off so you can monitor your exposure and audio levels.

Histogram

The histogram shows the contrast between whites and blacks along a horizontal scale. 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. To achieve optimum exposure, set your lens aperture so the information reaches across to the far right of the histogram as possible, but still curves to a point at the bottom right edge. This is known as ETTR, or exposing to the right.

Recording Time Remaining

When a CFast card is inserted, the CFast indicator at the top right of the screen will show how much recording time is left on the card, plus will turn red to indicate that it is the card that the camera will be recording to.

The recording time remaining indicator shows the remaining recording time for your CFast card.

The time is shown in hours and minutes and will vary according to your selected frame rate and codec.

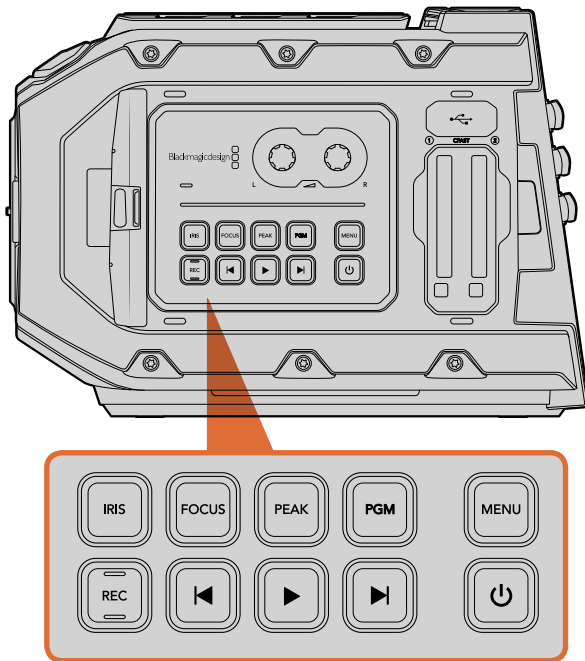
The indicator will automatically recalculate if either of these settings are changed. When there is approximately 5 minutes remaining on your card, the indicator will turn red, and will blink intermittently when there is only 2 minutes remaining.

Audio Meters

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 stay below 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.

33 Blackmagic URSA Mini Features



The control buttons on the left side of your Blackmagic URSA Mini lets 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.

Control Buttons

Your Blackmagic URSA Mini has control buttons on the left side of your camera behind the LCD, the outside of the LCD and on the side handle. The iris, focus, record and playback buttons all perform the same function.

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 focussed, the square will disappear. 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.

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.

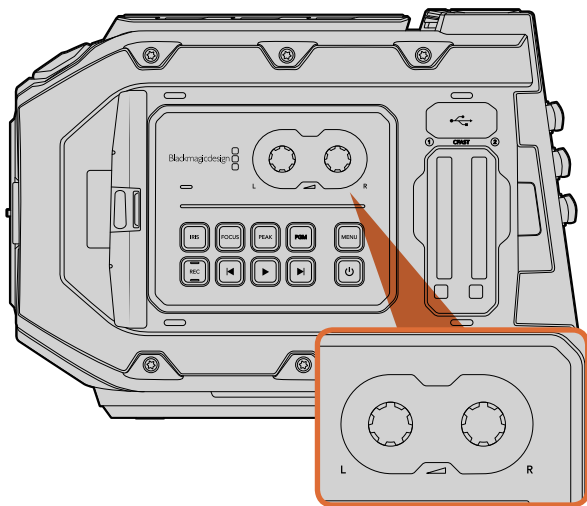
Program

This feature will be made available in a later software update.

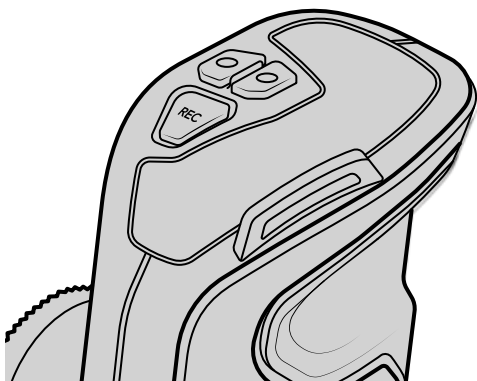
Menu

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

34 Blackmagic URSA Mini Features



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



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

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

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.

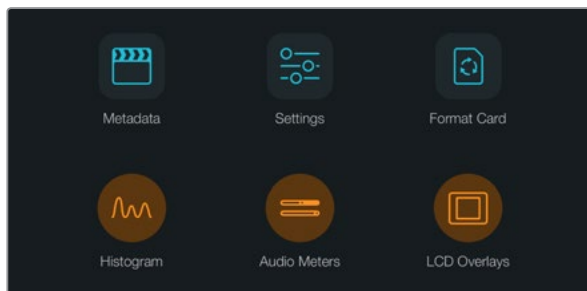
Function Buttons

On the outside of Blackmagic URSA Mini's LCD there are two 'function' buttons marked F1 and F2. In an upcoming software update, these will be mappable to settings or features that you frequently use.

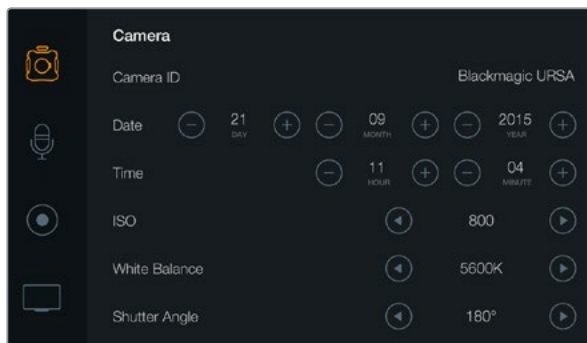
Side Handle

Your Blackmagic URSA Mini is shipped with a side handle that provides a comfortable, secure grip for the camera, plus built in iris, focus and record start/stop controls. These control signals are sent to the camera via the included LANC cable and connector. The side handle lets you trigger auto iris and focus on compatible EF lenses, plus start or stop recording with the simple press of a button. For information on how to attach the side handle to your Blackmagic URSA Mini, refer to the 'getting started' section.

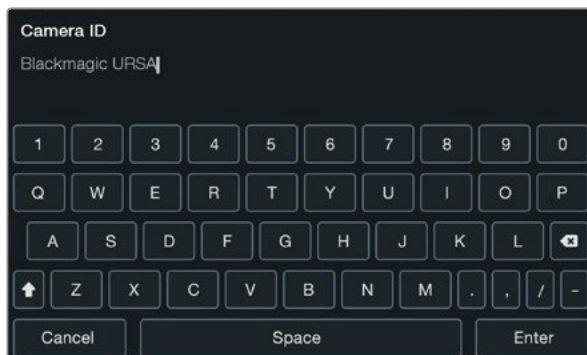
35 Settings



Press the 'disp' button below a touchscreen to open the dashboard.



To configure camera settings on your Blackmagic URSA, select the 'camera' touchscreen menu.



Set the camera ID using the touchscreen keyboard. The keyboard appears when you touch the camera ID text area.

Dashboard

On Blackmagic URSA press the 'display' button marked DISP on the control panel to open the dashboard. On URSA Mini press the 'menu' button. From the dashboard you can open the settings menu and change settings. You can also tap on icons to hide or show meters and guides on the LCD monitor, or format your CFast cards. On URSA Mini the dashboard can also be used to access the metadata settings, or you can easily bypass the dashboard and go straight to the menu settings on URSA Mini by pressing and holding the 'menu' button.

Camera Settings

To configure camera settings on your Blackmagic URSA or URSA Mini, select the 'camera' touchscreen menu, then tap the relevant arrows and icons with your finger.

Camera ID

If using more than one Blackmagic URSA or URSA Mini, it's helpful to set each camera's ID which will be included with any metadata recorded with your clips. Set the 'camera ID' with the touchscreen keyboard. Select 'enter' to save your camera ID, or 'cancel' to discard any changes.

Setting Date and Time

To set date and time on your Blackmagic URSA, tap the + or - icons to change the year, month and day settings.

Time is set to 24 hour format. To set the time, tap the + and - icons to make adjustments. If traveling with your Blackmagic URSA, remember to change the date and time to local time zones.

If you have your Blackmagic URSA stored for long periods, the time may need to be reset. It is always a good idea to check the time and date prior to recording. When connecting your camera to your computer via USB and launching Blackmagic Camera Setup utility, Blackmagic URSA's time is synced to your computer time.

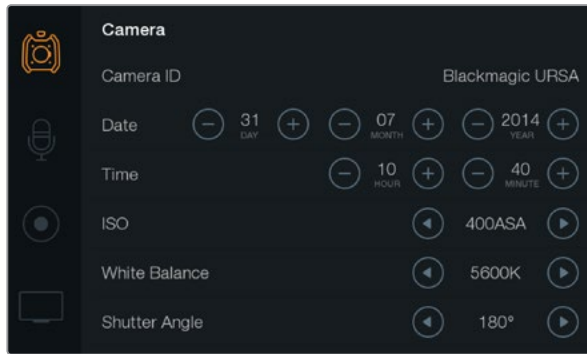
ISO

To adjust the ISO settings, tap the ISO arrow icons.

ISO settings are helpful when you are shooting in a variety of light conditions. The optimum ISO setting for your Blackmagic URSA or URSA Mini is ISO 400.

Depending on your situation, however, you may choose a lower or higher ISO setting. For example, in low light conditions ISO 800 can be suitable but may introduce some visible noise. In bright conditions ISO 200 can provide richer colors.

36 Settings



The camera settings screen.

White Balance

To adjust the 'white balance' settings, tap the white balance arrow icons with your finger.

Your Blackmagic URSA includes white balance presets for a variety of color temperature conditions. These are:

- 2500, 2800, 3000, 3200, 3400, 3600, 4000, 4500 and 4800K for various conditions under tungsten, incandescent or fluorescent light, or under dull natural light including candle light, sunrise/sunset, morning, and after noon light.
- 5000, 5200, 5400 and 5600K for outdoors on a clear, sunny day.
- 6000, 6500, 7000, 7500 and 8000K for a variety of daylight conditions.

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. For example, when shooting under tungsten lamps which emit a warm light, selecting 3200K adds some blue to the image. This balances the color so white is accurately recorded.

Color balance settings can also be used for creating color effects. For example, setting your white balance to 7500K can significantly warm your picture to create an intimate mood.

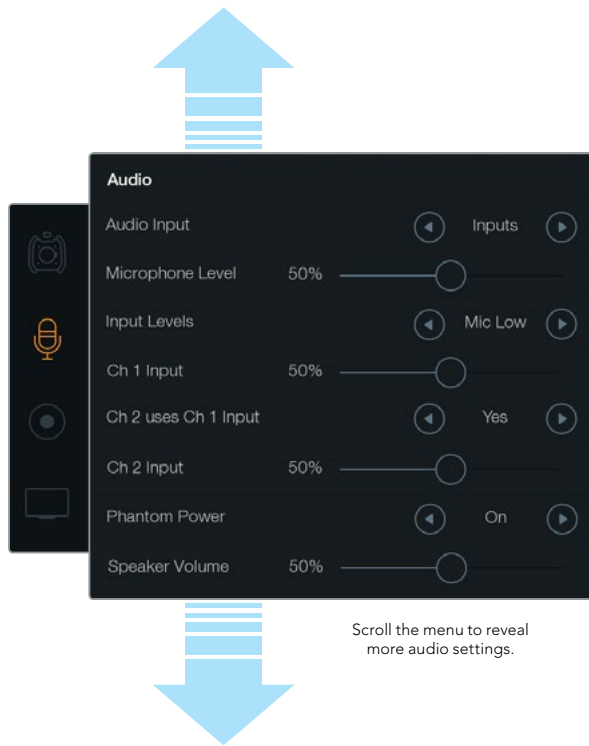
Shutter Angle

To adjust the 'shutter angle' settings, tap the shutter angle arrow icons.

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 a 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 will provide minimal motion blur for sharper, crisper images.

When shooting 24p in countries with 50 hertz power supplies, 172.8 degrees will minimize potential flickering from 50Hz light sources.



Record channel 1 audio on channels 1 and 2 by selecting 'yes' on the 'ch 2 uses ch 1 input' setting.

Audio Settings

To adjust audio input and monitoring settings on your Blackmagic URSA, select the 'audio' touchscreen menu, then tap or slide the relevant arrows and slider icons with your finger. Scroll the menu to reveal more audio settings.

Audio Input

To change the audio input between camera mic and external XLR inputs, select 'camera' or 'inputs'.

Microphone Level

Microphone level adjusts the recording levels for Blackmagic URSA'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.

Internal Mic -15dB Pad

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

Internal Mic Low Cut Filter

On URSA Mini, set to 'on' to enable the low cut filter which helps to reduce potential wind noise that may occur in exterior shooting conditions.

Input Levels

Set the external audio input levels by tapping the relevant left and right arrow icons. External audio connectors support line, or microphone levels with 48V phantom power. It's important to select the appropriate level for your audio signal. Level settings include 'line', 'mic low', and 'mic high'.

Channel 1 Input

Touch and drag the ch 1 Input slider icon left or right to adjust the channel 1 audio level.

Channel 2 uses Channel 1 Input

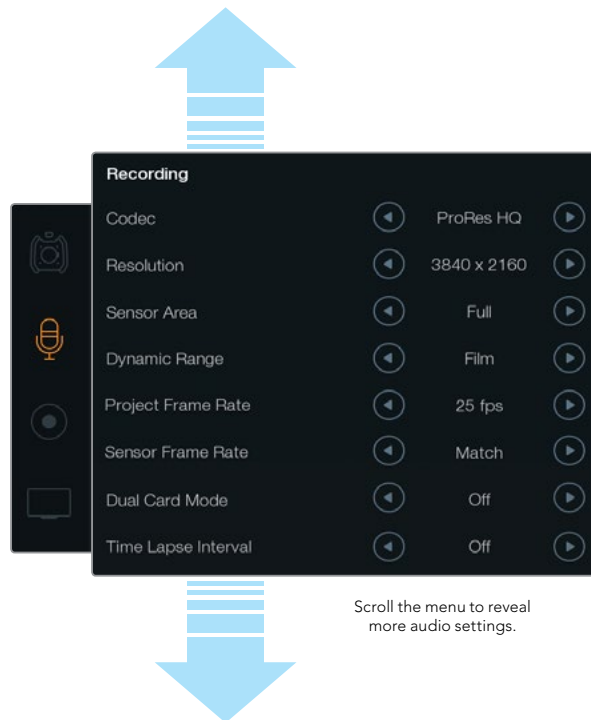
Select 'yes' if you want to record channel 1 external audio to channels 1 and 2. Select 'no' if you want channel 1 audio to remain on one channel only.

Channel 2 Input

Touch and drag the ch 2 Input slider icon left or right to adjust the channel 2 audio level.

Phantom Power

Select 'on' to enable phantom power, or 'off' to disable. The phantom power setting is active only when 'audio input' is set to 'inputs' with 'mic low' or 'mic high' input levels selected.



Choose between CinemaDNG 4K RAW and ProRes recording formats using the 'recording' touchscreen menu.

Headphone and Speaker Volume

Touch the headphone or speaker volume icon and drag left or right to adjust audio monitoring levels. When headphones are connected, the headphone setting is displayed. Alternatively, when headphones are not detected, the speaker setting is displayed. Headphones are active when recording or playing a clip. The built in speaker is active only during playback.

Recording Settings

To set the video format recorded to your CFast 2.0 cards, tap the circular record icon with your finger, then tap the relevant arrow icons.

Codec

The 'codec' setting lets you choose between various CinemaDNG RAW and Apple ProRes codecs such as RAW, RAW 3:1, ProRes 444 XQ, and more. The amount of video you can record on a CFast card will increase when choosing codecs that utilize higher compression. Refer to the 'recording duration table' in the 'recording' section for more information.

Resolution

This setting works in combination with the 'codec' setting. Select the resolution for your desired recording format by choosing 4000x2160, 3840x2160, or 1920x1080 to record in 4K, Ultra HD or HD respectively.

For example, if you want to record clips using 4K RAW, select 4000x2160. Now choose which CinemaDNG RAW codec you wish to use by adjusting the codec setting.

Sensor Area

Use this setting to select between 'full' and 'window' shooting modes. URSA can be set to use the 'full' sensor area up to 120 frames per second. For even higher frame rates up to 150 frames per second you can use 'window' mode. Window mode allows higher frame rates and takes a 1080 HD resolution image from the center of the super 35mm sensor.

Dynamic Range

Adjust the 'dynamic range' setting by tapping the dynamic range arrow icons.

Blackmagic URSA has two dynamic range settings:

Film

The 'film' setting shoots video using a log curve giving you 12 stops of dynamic range and maximizes the information in your video signal to help you get the most out of color grading software, such as DaVinci Resolve. When recording in CinemaDNG RAW formats, only the film dynamic range setting is available.



A sensor frame rate higher than your project frame rate will result in slow motion. To ensure your recorded clips play back at standard speed, set the sensor frame rate to match the project frame rate.

Video

The 'video' setting uses the REC709 color standard for high definition video. This lets you work faster by recording directly to the compressed video formats your camera supports, which are compatible with popular post production software.

Frame Rate

Adjust the 'frame rate' settings by tapping the frame rate arrow icons.

Blackmagic URSA has two frame rate settings; project frame rate and sensor frame rate.

Project Frame Rate

The project frame rate is URSA'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 used in your post production workflow.

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

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 standard playback speed, make sure you set your sensor frame rate to match your project frame rate by selecting 'match' in the sensor frame rate settings.

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.

Variable Frame Rates

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!



Set dual card mode to 'on' to record CinemaDNG RAW clips to two CFast cards simultaneously. This feature lets you record clips using higher frame rates than is achievable on a single CFast card.



The time lapse feature lets you set Blackmagic URSA to automatically record a new frame at a chosen time interval. For example, one frame every second.

Dual Card Mode

Blackmagic URSA lets you record CinemaDNG RAW clips at higher frame rates by recording to both CFast cards simultaneously. Turn 'dual card mode' on or off by tapping the setting arrow icons. You can also enable 'dual card mode' to increase the reliability of CFast cards if you find a single card is dropping frames while recording CinemaDNG RAW clips.

When dual card mode is enabled on Blackmagic URSA, an icon will appear on the touchscreen linking the two CFast slot indicators together. While recording, both CFast slot indicators will flash to show the cards are active and their respective media timelines will update accordingly.

On Blackmagic URSA Mini, 'dual rec' will appear on the top left of the status display when dual card mode is enabled.

When recording in dual card mode, the CinemaDNG RAW clip folders on both Cfast cards share the same name. To copy the files to your storage location, simply transfer the contents from each CFast card to the same storage folder. You can choose to keep the audio file from only one CFast card as both are exactly the same.

Time Lapse Interval

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

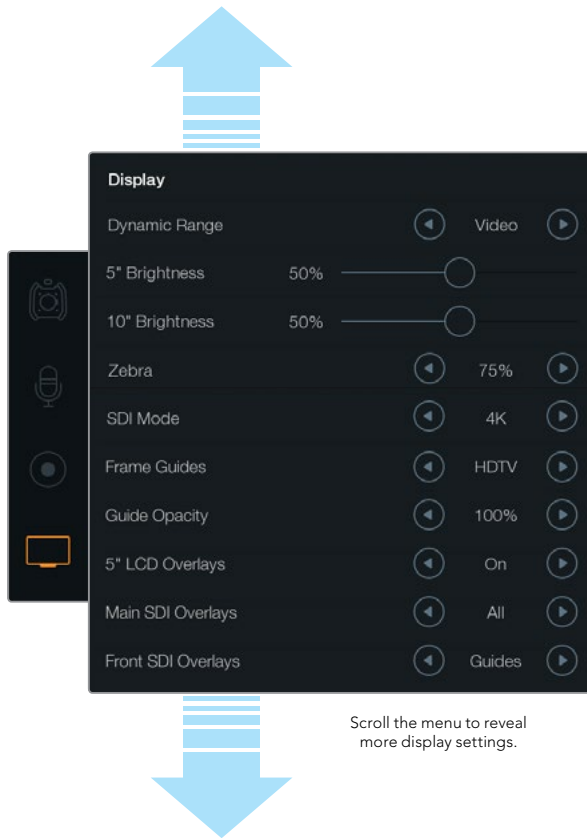
Minutes: 1 - 10

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.

When the 'rec' button is pressed in time lapse mode, the timecode counter updates when a frame of video is recorded. To set the time lapse interval setting, touch the time lapse interval arrow icons. Remember to set the time lapse feature to 'off' when you want to record at standard speed.



Scroll the menu to reveal more display settings.

Set the dynamic range of your fold out monitor and touchscreen displays using the 'display' settings. This feature lets you view your recording in 'video' dynamic range, even if your 'recording' settings are set to 'film' dynamic range. You can choose what overlays to display on each monitor and SDI output by tapping on the arrow icons for each setting. SDI overlays can always be viewed on the fold out monitor by pressing the fold out monitor's 'disp' button. Press more than once to cycle through them.

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. Blackmagic URSA uses the following file naming convention when recording video.

[Camera ID]_[Reel Number]_[yyyy-mm--dd]_[hhmm]_C[Clip number].mov

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

BMC01_1_2014-08-08_1631_C0002.mov	QuickTime Movie Filename
BMC01 _1_2014-08-08_1631_C0002.mov	Camera ID
BMC01_1_2014-08-08_1631_C0002.mov	Reel Number
BMC01_1_ 2014-08-08 _1631_C0002.mov	Date (2014 Aug 08)
BMC01_1_2014-08-08_ 1631 _C0002.mov	Time (16:31pm - 24hrs)
BMC01_1_2014-08-08_1631_ C0002 .mov	Clip Number

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

Display Settings

To adjust the 'display' settings on a touchscreen, select the display touchscreen menu, then touch or slide the relevant arrows and sliders. Scroll the menu with your finger to reveal more display settings.

Dynamic Range

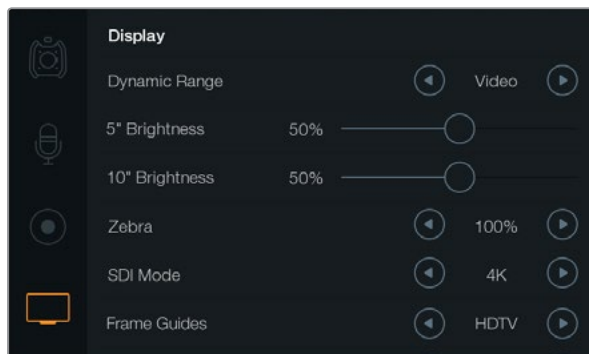
Blackmagic URSA's fold out monitor and touchscreens let you view your video as you are recording. You can set the display dynamic range to 'video' or 'film' settings. The 'display' settings dynamic range lets you monitor your video with the display set to video even when the recording format is set to film!

To adjust the 'display' settings dynamic range, touch the dynamic range arrow icons.

5" Brightness/Brightness

On Blackmagic URSA, move the 5" Brightness setting slider icon left or right to adjust brightness for each touchscreen. On URSA Mini, move the 'brightness' setting slider to adjust the brightness of the touchscreen LCD.

42 Settings



Display settings screen with zebra set to 100%. This will let you see which areas of your image are over exposed.



SDI overlays set to 'all' with the HDTV frame guide. Your selected overlays can be viewed independently via URSA's 10" fold out monitor, touchscreens and SDI outputs. Press the 'disp' button on the fold out monitor to independently cycle through the SDI overlay settings on the fold out monitor.

10" Brightness

On Blackmagic URSA, move the '10" brightness' slider icon left or right to adjust brightness for the 10" fold out monitor.

Zebra

To activate and adjust the zebra setting, tap the left and right zebra arrow icons.

The zebra helps you achieve optimum exposure by displaying diagonal lines over areas of the video that exceeds your set zebra level. For example, setting the zebra to 100% shows which areas are over exposed.

Simply open the lens aperture until the zebra pattern appears, then gradually close the aperture until the zebra pattern disappears. To achieve optimum exposure, you may need to decide which areas of your picture to leave over exposed. Car headlights and extreme highlights are a good example of what can often be left over exposed.

SDI Mode

Use this setting to switch Blackmagic URSA's 12G-SDI output between 4K and HD video. When the recording resolution is set to HD, only HD will be output.

Overlay Settings

You can monitor your video with overlays via the fold out monitor and touchscreens. Overlays can also be viewed via URSA's HD-SDI monitoring output and 12G-SDI output. To choose an overlay to display, tap the overlay setting arrow icons:

Off: gives you a clean feed.

Status: displays only the recording information, such as f-stop number, frame rate and shutter angle.

Guides: displays only the frame guides.

All: displays both frame guides and recording information.

5" LCD Overlays

On Blackmagic URSA, select 'on' or 'off' to enable or disable a touchscreen's overlays.

Main SDI Overlays

This setting lets you choose which overlays to display via the rear 12G-SDI output.

Front SDI Overlays

This setting lets you choose which overlays to display via the HD-SDI monitoring output.



SDI Overlays set to 'guides' with the 2.39:1 frame guide. Change the transparency of the frame guide by adjusting the 'guide opacity' setting.

Frame Guides

You can choose from seven different frame guides to display on your camera's fold out monitor and SDI outputs. Frame guides include aspect ratios for various cinema, television and online standards, plus a rule of thirds composition grid.

Tap the 'frame guide' setting arrow icons to select your desired frame guide. When using Blackmagic URSA Viewfinder, make sure you have frame guides turned off in your camera's front SDI settings as the URSA Viewfinder will generate its own frame guides or you will find them doubled up in the viewfinder display.

HDTV: Displays action and title safe regions of your image within a 1.78:1 aspect ratio compatible with 16:9 HD television and computer screens.

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

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.

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.

Thirds: 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.

Guide Opacity: Aspect ratios are displayed as mattes on the top and bottom of your touchscreen and fold out monitor. You can adjust the opacity of the matte by adjusting the 'guide opacity' setting. For example, if you prefer to view your guides as solid mattes, select 100%. Alternatively, if you would like to view guides at maximum transparency, set the guide opacity to 25%.

Image Stabilizer

When using an EF lens mount, Blackmagic URSA or URSA Mini supports the image stabilizer feature found in many EF lenses. Simply set the stabilizer switch to 'on' to use it with your camera.

When URSA is battery powered, the image stabilizer is activated only while recording in order to conserve power. When external power is connected to the camera, the image stabilizer will always be active when the lens stabilizer switch is set to 'on'.

Battery Voltage Display

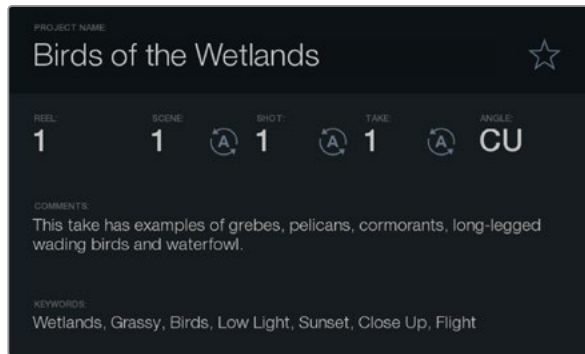
On Blackmagic URSA Mini, you can change the way the battery level indicator displays the remaining charge. There are two settings, 'on' and 'off.'

When this is set to 'off,' and you are using a battery and plates that support accurate levels, you will see your battery power remaining as a percentage.

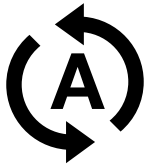
If you are using a plate and battery combination that does not allow percentage accurate readings, the display will show three bars which will empty as the battery depletes.

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

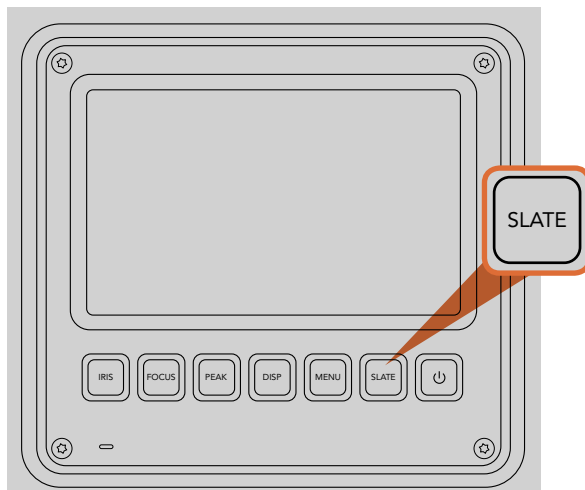
45 Entering Metadata



Log metadata directly into the camera using the 'slate' feature.



Select the auto-increment icon if you want the scene, shot or take number to auto-increment.



On Blackmagic URSA, press the 'slate' button to activate the slate feature on a touchscreen.

The Slate

The touchscreen on your Blackmagic URSA Mini, or the two touchscreens on Blackmagic URSA have many purposes, one of which is to allow you to easily log metadata directly into the camera using the 'slate' feature. Metadata is stored in the recorded files and is easily accessed by editing software.

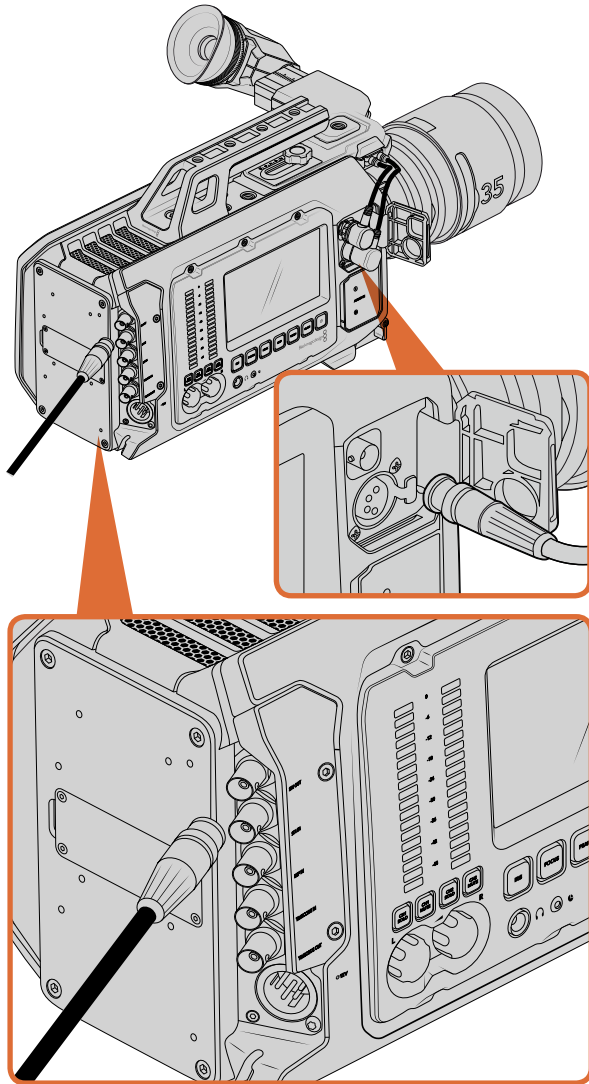
- Step 1.** In 'recording' mode, tap anywhere on the LCD screen, or press the 'slate' button on Blackmagic URSA to make the slate appear.
- Step 2.** To enter or change details, tap the text area you wish to change and a touchscreen keyboard will appear. Type in the desired information and tap the 'enter' key on the bottom right corner of the keyboard. The information will be updated on the slate and will also be recorded onto the file.
- Step 3.** If you want the scene, shot or take number to auto-increment, tap the corresponding auto-increment icon so it is highlighted. Tap it again to turn off the auto-increment feature. You will see the information auto increment with every recording.

If you wish to edit the metadata of a clip, cue the clip in playback mode and enter the slate screen to display the clip's metadata. Change any information in the slate and tap the 'update' button to confirm the change.

Entering words into the keywords field will allow you to use them as search terms in your library database. This may be particularly useful for large projects where you have lots of material. The use of keywords narrows down the number of clips to search through, saving valuable time when you are editing.

All metadata is compatible with popular software such as Final Cut Pro X and DaVinci Resolve.

46 Camera Video Output



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.

HD Monitoring Output

Blackmagic URSA and 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.

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. 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 HD or 4K 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. To do this, first connect the switcher to your camera's rear 12G-SDI input. Now press the 'program' button marked PGM on your Blackmagic URSA's fold out monitor. To switch back to the camera image, simply press the PGM button again. This feature will also be available in URSA Mini in a future software update.

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.

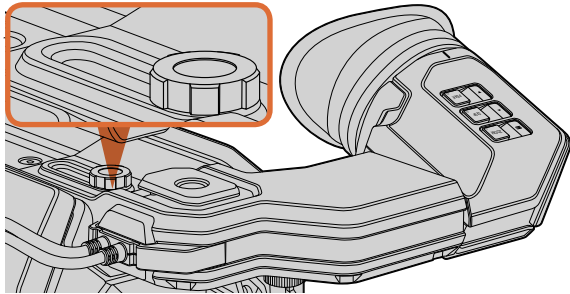
Monitoring information is displayed via your HD-SDI monitoring out connector by adjusting the 'front SDI overlay' settings in the display settings menu. SDI overlays provide frame guides and information such as recording details and camera settings. If you simply want to monitor your shots, you can always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

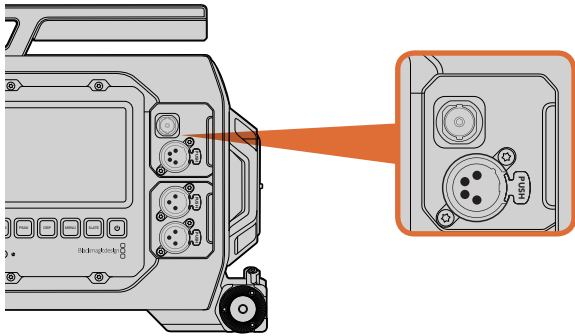
SDI Output Formats

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

48 Blackmagic URSA Viewfinder



To mount your Blackmagic URSA Viewfinder to your URSA, slide the viewfinder mount along your camera's handle ridges and tighten the thumbscrew to a 3/8" mounting point.



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

Blackmagic URSA Viewfinder is a powerful electronic viewfinder designed for your Blackmagic URSA. 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'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 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.

Adjusting the Eyepiece

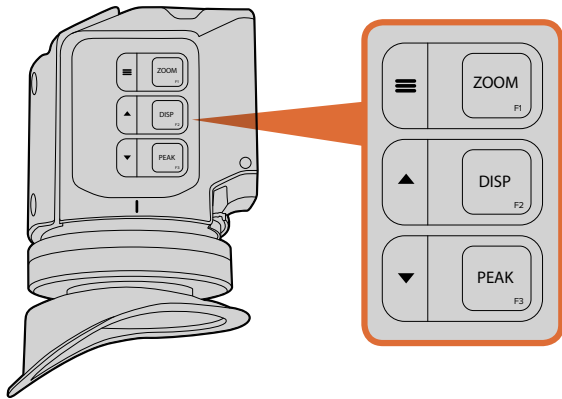
The detachable rubber eyepiece can be adjusted to fit your left or right eye. Adjust the viewfinder arm by loosening the knob on the bottom of the arm and sliding it left or right to comfortably fit your eye.

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.

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.

49 Blackmagic URSA Viewfinder



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

- **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.

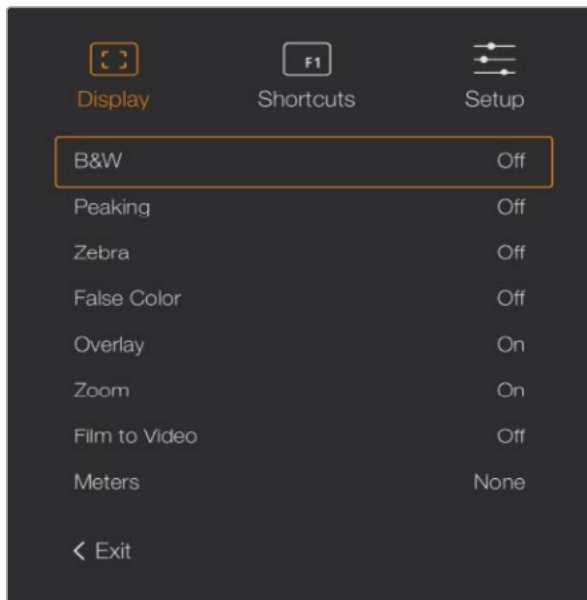
Menu Settings

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

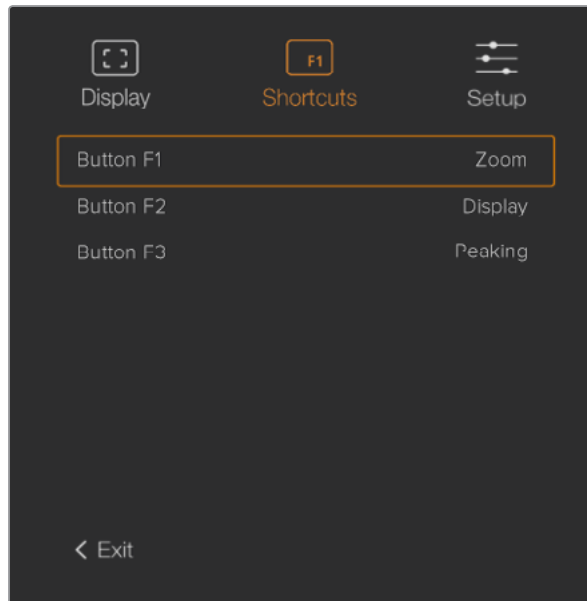
The 'display' menu provides the following features:

- **B&W** - Switches between color and monochrome.
- **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.



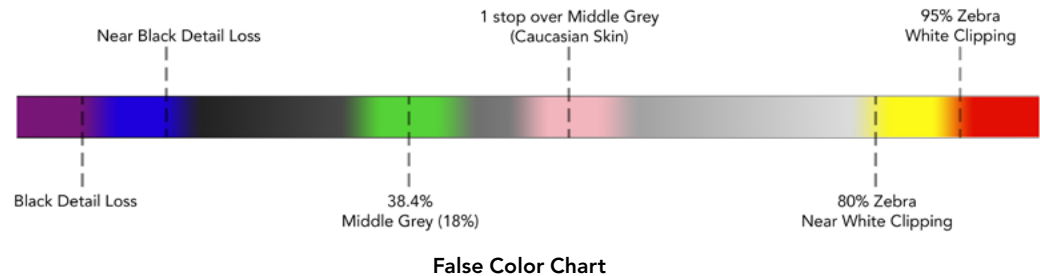
The 'display' menu in URSA Viewfinder

50 Blackmagic URSA Viewfinder



The 'shortcuts' settings in URSA Viewfinder.

- **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.



- **Overlay** - Switches overlays on and off. The type of guides and status information displayed in the overlays 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.
- **Meters** - Switches between the types of meters to display in overlay view. The options are 'histogram', 'audio', 'both' or 'none'.

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:

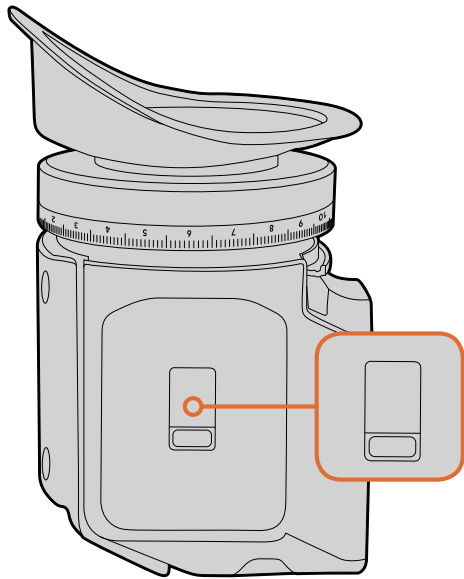
Step 1. In the 'shortcuts' menu, press the 'up' ▲ or 'down' ▼ button to move up or down and select one of the 3 buttons to make it your shortcut button. Press the 'menu' ≡ button to confirm your selection.

Step 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.

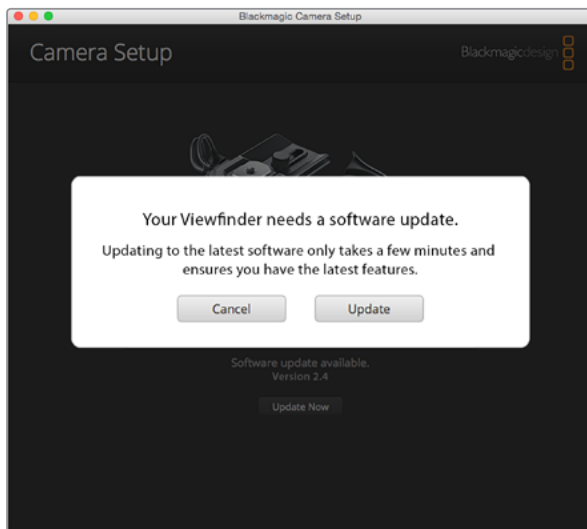
- B&W
- Peaking
- Zebra
- False Colour
- Display
- Zoom
- Film to Video
- Meters
- Focus Chart

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

51 Blackmagic URSA Viewfinder



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



Your computer will prompt you to update the latest internal software version if an older version is detected.

Setup

The 'setup' menu provides the following features:

- **Brightness Adjustment** - allows adjustments for the brightness of the display with range -5 to +5.
- **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.

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 a few seconds, the display turns off to conserve power and to extend the life of the OLED display. While 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.

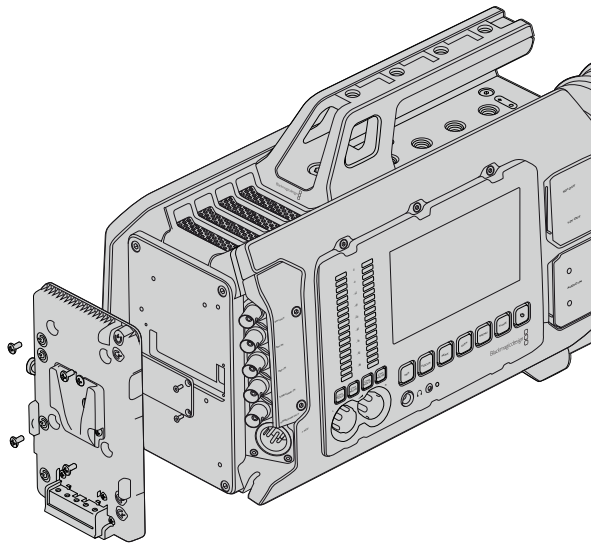
Updating URSA Viewfinder's Internal Software

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.

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. 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 optimized performance.

52 Mounting Batteries



Connecting a third party battery plate lets you mount V-mount or gold mount batteries.



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.

Mounting V-mount or Gold Mount Batteries

You can easily mount industry standard V-mount or gold mount batteries to Blackmagic URSA or 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. Some third party battery manufacturers provide battery plates with the correct moxle 51353-1200 connector for plugging into URSA's moxle power connector. 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:

- Step 1.** Remove Blackmagic URSA or URSA Mini's moxle power cover from the rear panel by unscrewing the 4 corner screws. You'll now see Blackmagic URSA's 12 way moxle 55959-1230 power connector.
- Step 2.** Connect Blackmagic URSA or URSA Mini's 12 way moxle 55959-1230 power connector to your third party battery plate.
- Step 3.** Screw the third party battery plate onto your Blackmagic URSA or 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

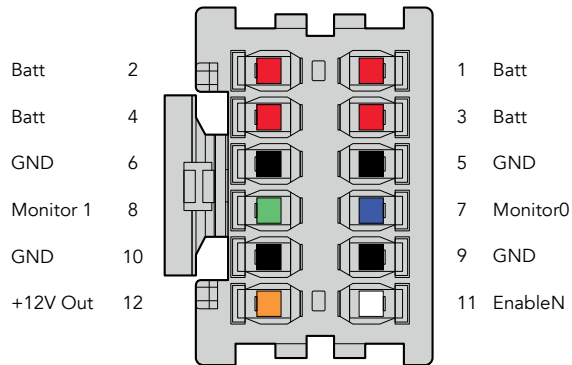
If you don't have an off the shelf battery plate designed to plug into URSA and want to modify your own battery plate, you can use the supplied adapter cable and connector, which is also available at your local Blackmagic Design support office.

To wire the adapter cable and connector to your battery plate:

- Step 1.** Strip approximately half an inch of insulation from the end of each red and black wire.
- Step 2.** Solder all 4 x red 'Batt' wires to the corresponding 'positive' wire from your battery plate.
- Step 3.** Solder all 4 x black 'GND' wires to the corresponding 'negative' wire from your battery plate.

Ensure the joins are well insulated.

53 Mounting Batteries



The rear view of the adapter's connector housing. Refer to the wire configuration table for a description of each pin.

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.

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:

Anton Bauer	Connect the blue/white striped wire to the housing blue wire at pin 7.
IDX	Connect the green wire to the housing green wire at pin 8, and the grey wire to the housing blue wire at pin 7.
Blueshape	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.

54 Using DaVinci Resolve



Introducing DaVinci Resolve

Shooting with your Blackmagic URSA 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 or URSA Mini includes a version of DaVinci Resolve Studio for Mac OS X and Windows so you have a complete solution for shooting and post production!

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 and 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.



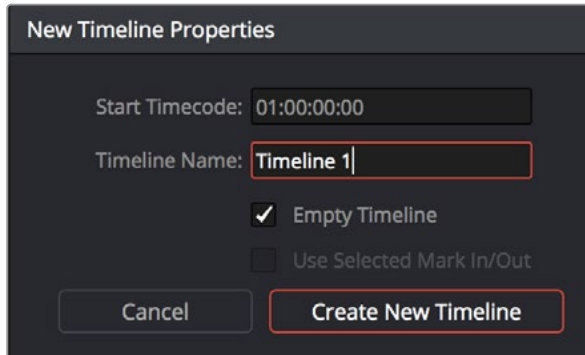
To import your clips, simply drag them from the 'media storage' browser and drop them into the media pool. You can also drag and drop files from your desktop.

Importing your Clips

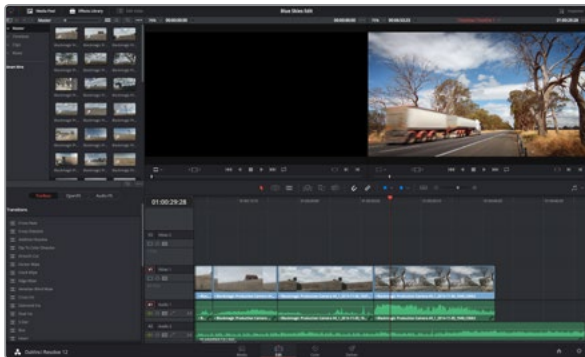
To start editing your clips, you'll first need to import them into the media pool:

- Step 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.
- Step 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.

55 Using DaVinci Resolve



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.



The 'edit' page. You can trim your clips, change their order, move them around and add transitions between them using the timeline editor.

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 'plus' icon in the 'media storage' tab, browse to and select a drive or folder path, click 'save', restart DaVinci Resolve and reopen 'untitled project' to refresh the 'media storage' settings.

Step 3. 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.

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!

Step 1. You'll first need to create a new timeline. Right click anywhere within the media pool and choose Timelines > Create New Timeline. When the dialog box appears, click the 'create new timeline' button.

Step 2. Click on the 'media pool' button above the timelines window. Now double click on a clip 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.

Step 3. Go to the timeline and position the timeline play head where you want your clip to be inserted.

Step 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.

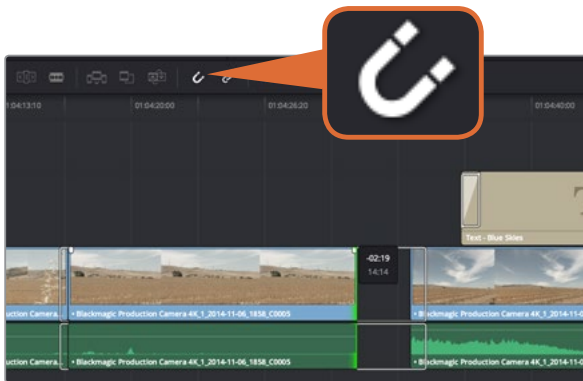
Your clip will be placed onto the timeline using the edit type you selected. You'll find a description of each edit type and how to use them in the DaVinci Resolve manual.

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.

56 Using DaVinci Resolve



Trim your clips by dragging their start and end points left or right. The 'snapping' feature can be turned off when making fine adjustments.



Trim your clips by dragging their start and end points left or right. The 'snapping' feature can be turned off when making fine adjustments.

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:

- Step 1.** After adding clips to your timeline, hover your mouse pointer over the start of a clip until the pointer becomes a 'trim' icon.
- Step 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.
- Step 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 left 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.

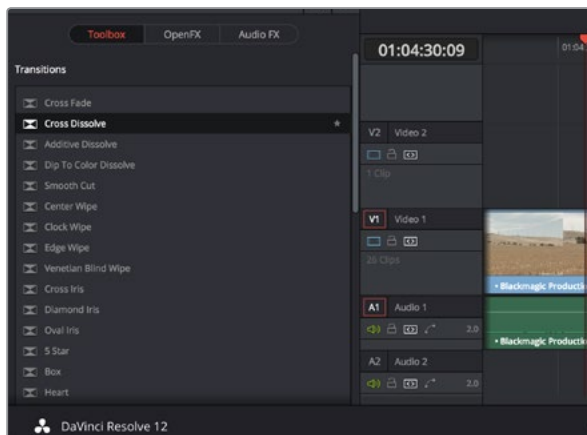
Turning the 'snapping' feature off is handy when fine tuning edits, but it's a helpful feature to keep your clips held tightly against each other, so it's worth turning back on once you're done. Press the 'N' key to quickly turn snapping on or off.

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:

- Step 1.** Click on the project setting 'gear' icon at the bottom right of your DaVinci workspace, then select 'keyboard mapping' from the settings list.
- Step 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.
- Step 3.** Click on the shortcut once to highlight the setting. Double click on the shortcut to enable the change.
- Step 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.
- Step 5.** Click 'save' to confirm your new shortcut setting.



The transitions palette contains many types of transition effects.



Simply drag and drop transitions between adjoining clips.



Drag a title type from the 'titles' palette and drop it on an empty track.

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.

To add a dissolve transition between two clips:

- Step 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.
- Step 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.

Adding Titles

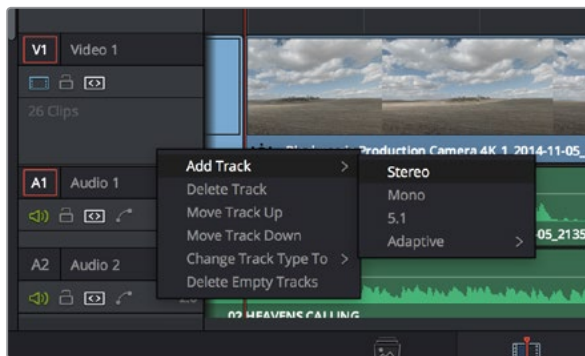
It's easy to create titles for your edit. You can place a title on any video track just as you would a clip. If you run out of tracks you can easily add new ones by right clicking next to an existing track name and selecting 'add track'.

To create a title:

- Step 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.
- Step 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.
- Step 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

58 Using DaVinci Resolve



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.



With the 'color' page you get absolute control over the look of your clips.

such as color, size, alignment, position, and more. Transitions can be added to titles, just like they can for clips.

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:

Step 1. Right click next to the name of the last audio track on your timeline and select 'add track'.

Step 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.

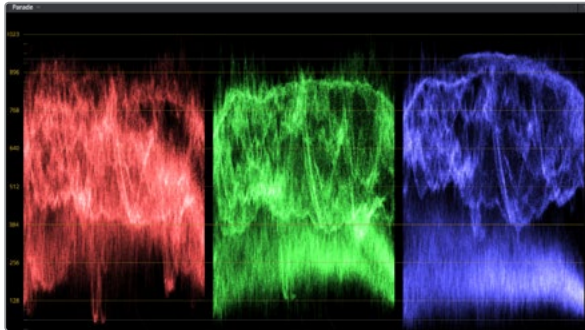
Color Correcting your Clips

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.

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.



The parade scope helps you optimize highlights, mid tones and shadows.



The 'lift', 'gamma', 'gain' and 'offset' 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.

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.

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.

By default, the 'color wheels' palette, which contains the 'lift', 'gamma' and 'gain' controls which will generally constitute your first adjustment, is set to display the 'primaries bars'. You can change this to display the 'primaries wheels' using the 'mode' pop-up menu at the upper-right-hand corner of the palette. These should resemble controls you've seen in other applications for doing color and contrast adjustments.

Step 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.

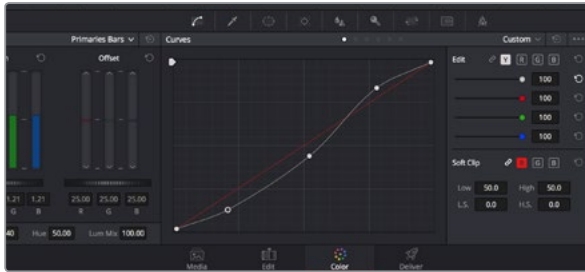
Step 2. Adjusting the 'gain'

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.

Step 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.

60 Using DaVinci Resolve



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.



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.

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.

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.

To qualify a color:

- Step 1.** Add a new serial node.
- Step 2.** Open the 'qualifier' palette and make sure the 'color range' sample eyedropper tool is selected.
- Step 3.** Click on the color in your clip you want to affect.
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.
- Step 4.** 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 trackballs or custom curves.

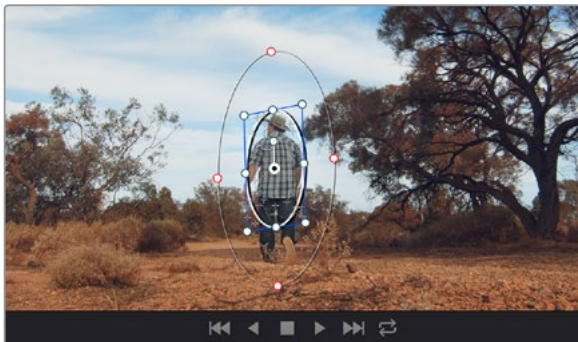
61 Using DaVinci Resolve



Use power windows to mask out areas you don't want to be affected by the HSL qualifier secondary adjustments.



Power windows let you make secondary corrections to specific parts of your image.



You can track objects or areas in your clip using the tracker feature so power windows can follow the action.

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. 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:

- Step 1.** Add a new serial node.
- Step 2.** Open the 'window' palette and select a window shape by clicking on the icon next to the shape. Your selected window shape will appear on the node.
- Step 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.

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.

To track a window to a moving object:

- Step 1.** Create a new serial node and add a power window.
- Step 2.** Go to the start of your clip and position and size the window to highlight just the object or area you want.

62 Using DaVinci Resolve

- Step 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.
- Step 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 your clip on the timeline.



OFX plugins are a quick and easy way to create imaginative and interesting looks.



The 'deliver' page is where you export your edit. You can select from many different video formats and codecs.

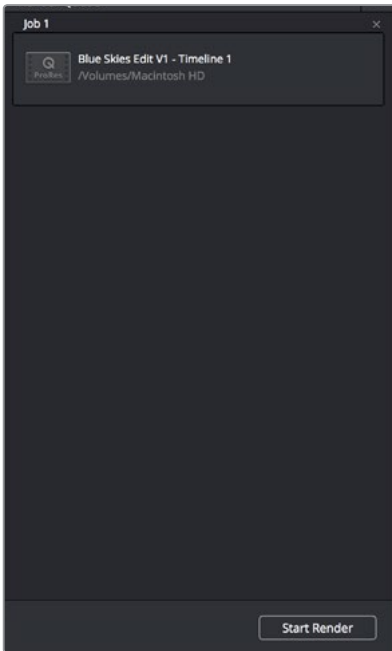
Mastering your Edit

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.

To export a single clip of your edit:

- Step 1.** Click on the 'deliver' tab to open the deliver page.
- Step 2.** Go to the 'render settings' window on the top left of the page. In the 'format' settings, select 'single clip'. Choose a video format and codec, and resolution. The frame rate will usually be locked to the project settings frame rate. If you want to include audio with your export, tick the 'export audio' checkbox in the 'audio' settings.

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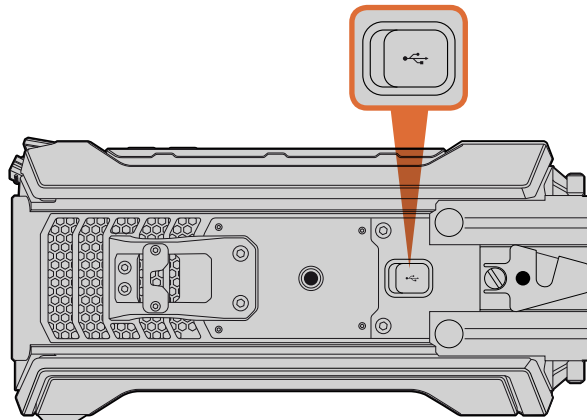
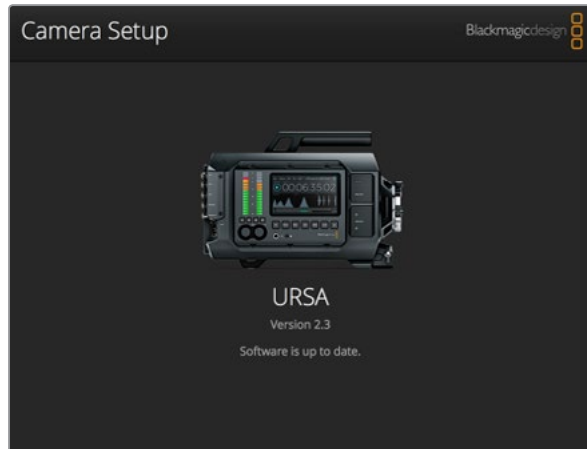


After adding your render settings to the render queue, click the 'start render' button to export your edit.

- Step 3.** In the 'file' settings, select 'use custom filename'. Name your export, then choose your destination by clicking the 'browse' button and selecting a folder location. Click 'ok'.
- Step 4.** You'll see the 'deliver timeline' stretched across the bottom of the page. Select 'all clips' to select the entire program for rendering.
- Step 5.** Go to the bottom of the 'render settings' and click on the 'add job 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.

64 Blackmagic Camera Setup Utility



The Mini-B USB 2.0 port is used to update the camera software and can be found on Blackmagic URSA's bottom panel, and above the memory card slots on Blackmagic URSA Mini.

How to Update Your Camera Software on Mac OS X

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.

How to Update Your Camera Software on 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.

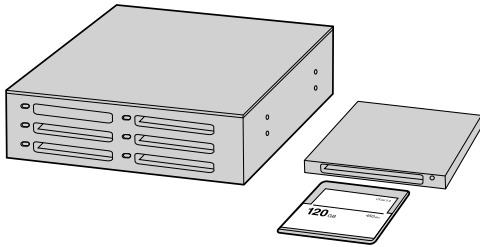
In Windows 8, select 'apps' from the 'start' screen and navigate to the Blackmagic Design folder. From here you can launch Blackmagic Camera Setup.

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

After installing the latest Blackmagic Camera Setup utility on your computer, connect a USB cable between the computer and your Blackmagic URSA or URSA Mini. On Blackmagic URSA, the Mini-B USB 2.0 port is located on the bottom panel of your camera. 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.



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.

Working with Files from CFast 2.0 Cards

To import your clips from a CFast 2.0 card:

- Step 1.** Remove the CFast card from your Blackmagic URSA or URSA Mini.
- Step 2.** Mount the CFast card to your Mac OS X or Windows computer using a CFast 2.0 reader/writer or CFast drive.
- Step 3.** 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.
- Step 4.** 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.
- Step 5.** Before you unplug the CFast card from your computer, it's always a good idea to eject safely using either Mac OS X 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.

- Step 1.** Launch Final Cut Pro X, go to the 'menu' bar and select 'file/new project'. A window will open containing project settings.
- Step 2.** Name your project and select the 'custom' checkbox.
- Step 3.** Set the 'video properties' settings to 1080p HD, 1920x1080 and 25p.
- Step 4.** Set your 'audio' and 'render properties' settings to 'stereo, 48kHz, and Apple ProRes 422 HQ'
- Step 5.** Click OK.

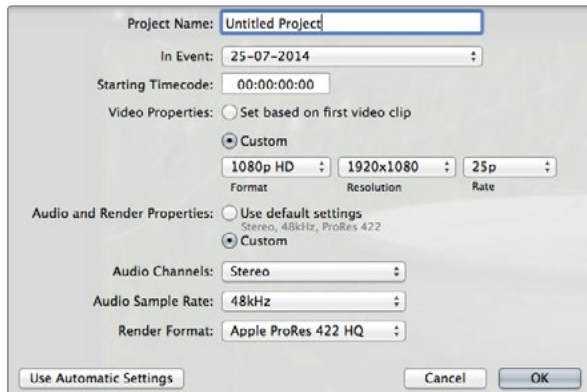
To import your clips into your project, go to the 'menu' bar and select 'file/import/media'. Choose your clips from your CFast card.

You can now drag your clips onto the timeline for editing.

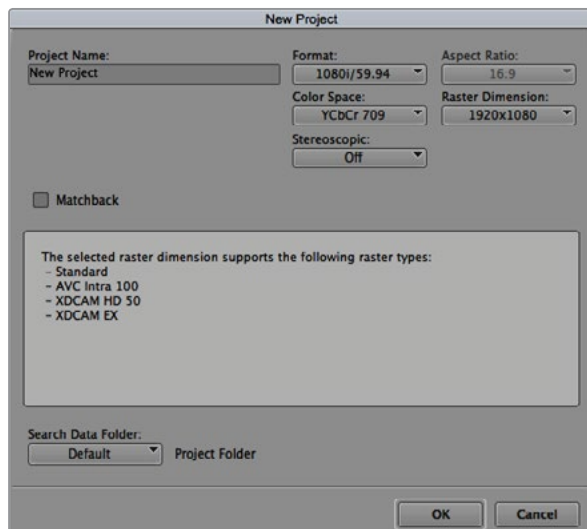
Using Avid Media Composer

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.

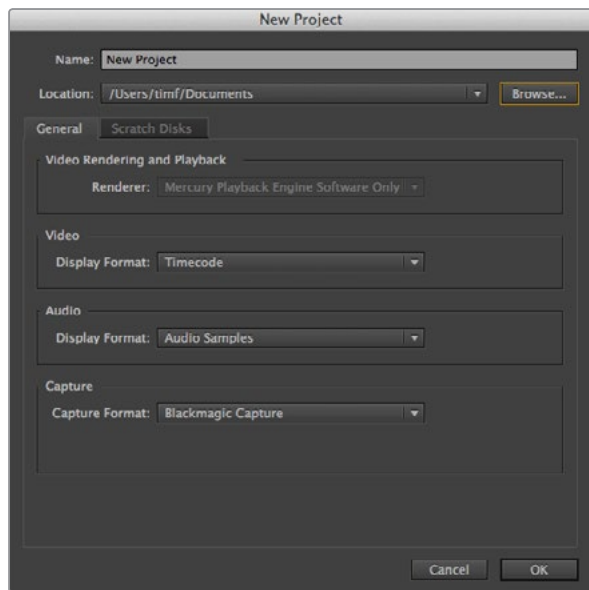
- Step 1.** Launch Media Composer and the 'select project' window will appear. Click the 'new project' button.
- Step 2.** In the 'new project' window name your project.
- Step 3.** Go to the 'format' drop down menu and select 1080i/59.94.
- Step 4.** Go to the 'color space' drop down menu and select YCbCr 709.



Final Cut Pro X project settings.



Setting the project name and project options in Avid Media Composer 8.



Setting the project name and project options in Adobe Premiere Pro CC, (2014).



- Step 5.** Go to the 'raster dimension' drop down menu and select 1920x1080. Click OK.
- Step 6.** Select 'tools>background services' and click the 'start' button if background services are not already running and then click 'OK.'
- Step 7.** Select the media bin where you wish to import your files.
- Step 8.** 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.

- Step 1.** Launch Adobe Premiere Pro CC. In the 'welcome' window select 'create new/new project'. A window will open containing project settings.
- Step 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.
- Step 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.
- Step 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.

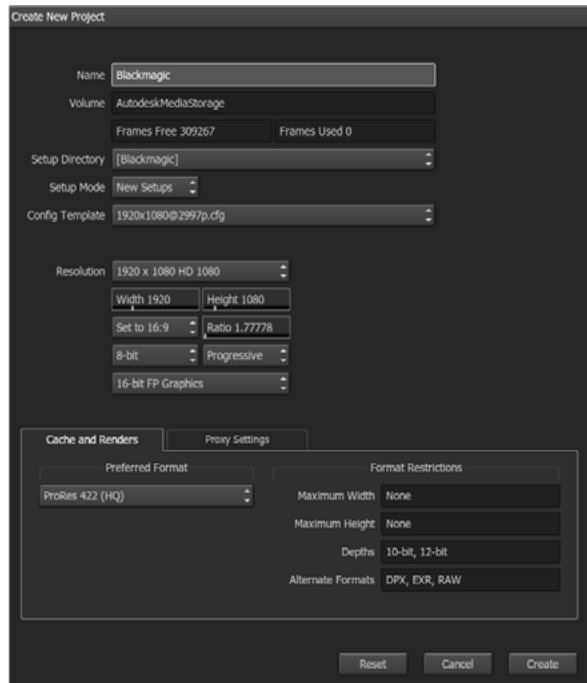
You can now drag your clips onto the sequence timeline for editing.

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.

- Step 1.** Launch Smoke and the 'project and user settings' window will appear. Click on the 'new' button under the project heading.
- Step 2.** The 'create new project' window will open. Name your project.
- Step 3.** From the resolution dropdown menu, select 1920x1080 HD 1080.

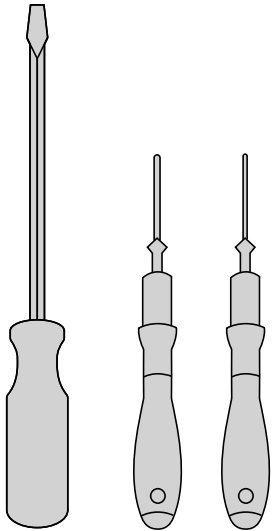
68 Post Production Workflow



Setting the project name and project options in Autodesk Smoke 2013.

- Step 4.** Make sure bit depth is set to 10-bit and frame type is 'progressive'.
- Step 5.** From the 'config template' dropdown menu select 1920x1080@25000p.cfg.
- Step 6.** Leave the 'preferred format' set to ProRes 422 HQ and click 'create'.
- Step 7.** Click on the 'new' button under the 'user' heading.
- Step 8.** When the 'create new user profile' window opens, type your user name and click 'create'.
- Step 9.** When the 'project and user settings' window reopens, click the 'start' button.
- Step 10.** From the menu bar, select 'file>import>file' and select your clips to import.
- Step 11.** Once the clips appear in the media library you can drag your clips onto the timeline and begin editing.

69 URSA Mini Shoulder Mount Kit



To attach the shoulder mount kit to your URSA Mini you will need a large flat head screwdriver, a 5mm 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:

- Step 1.** Gently place your URSA Mini upside down on a flat, stable surface so you can easily access the base of your camera.
- Step 2.** Fasten the shoulder mount baseplate to URSA Mini using the 2 x ¼" flat head screws and driver.
- Step 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.

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.

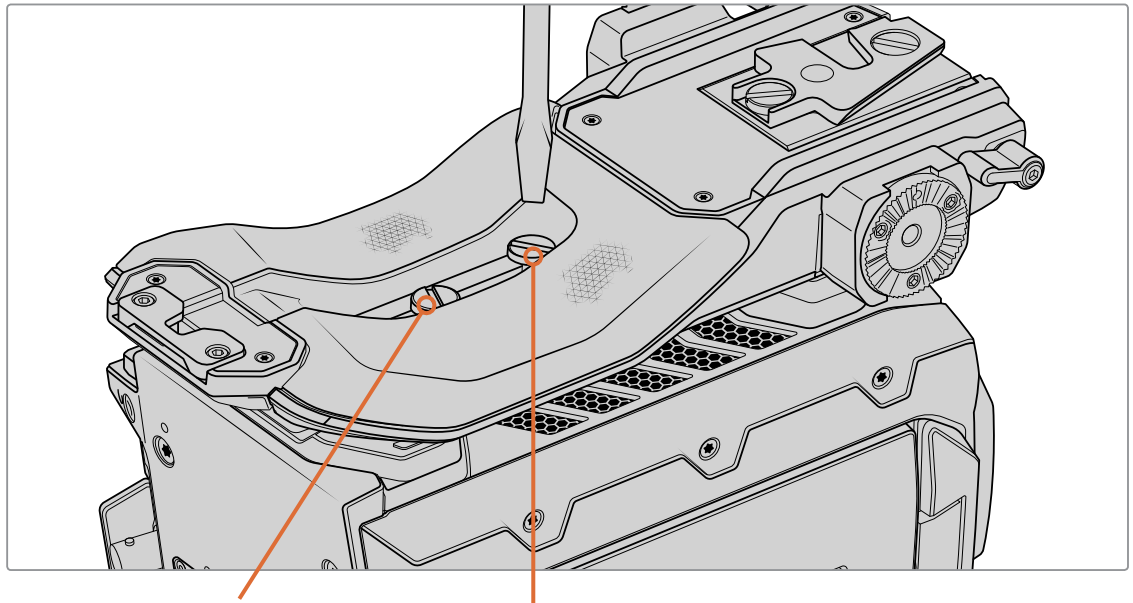
The quick release mount on the baseplate lets you lock your camera into an ENG style tripod plate or place it on your shoulder so you can follow the action.

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 5mm 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.



2 x ¼" baseplate screws

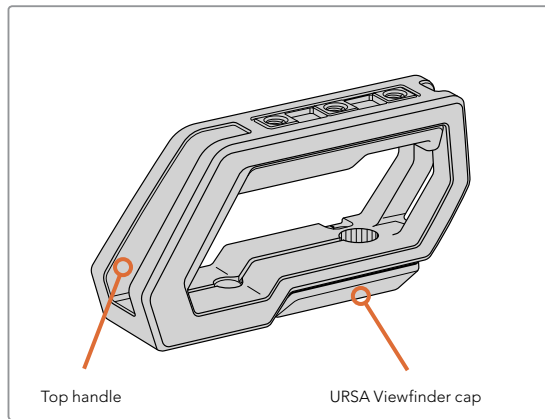
Insert screws via threaded hole in slot

70 URSA Mini Shoulder Mount Kit

To attach the top handle without URSA Viewfinder:

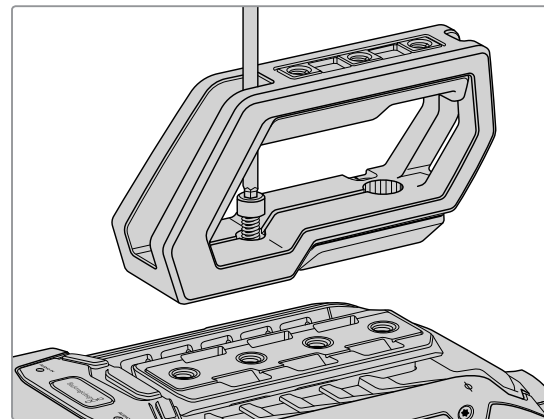
You can use URSA Mini Shoulder Mount Kit with or without the optional URSA Viewfinder.

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.



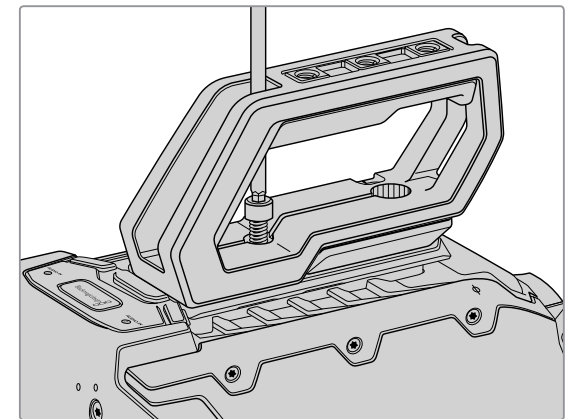
Step 1.

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



Step 2.

Fasten the handle to any two of your URSA Mini's top 1/4" mounting points using the two supplied 1/4" screws with a 5mm 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.

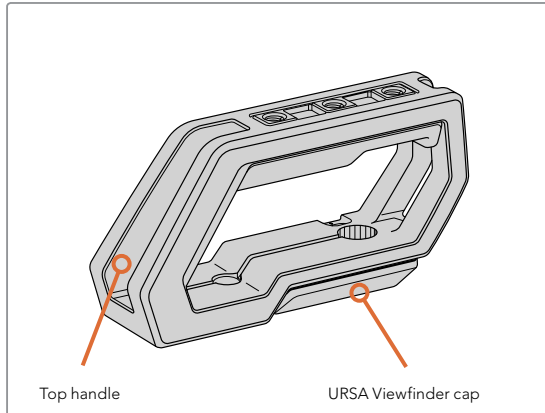


Step 3.

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.

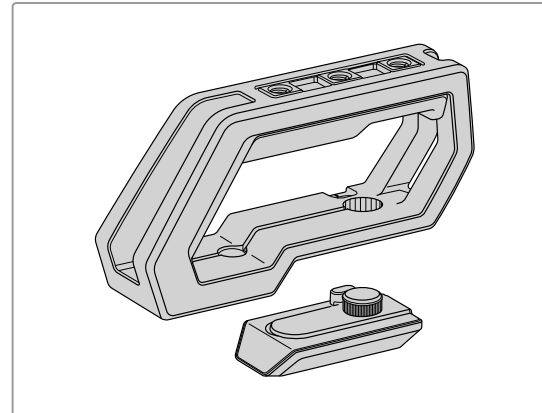
71 URSA Mini Shoulder Mount Kit

To attach the top handle with URSA Viewfinder:



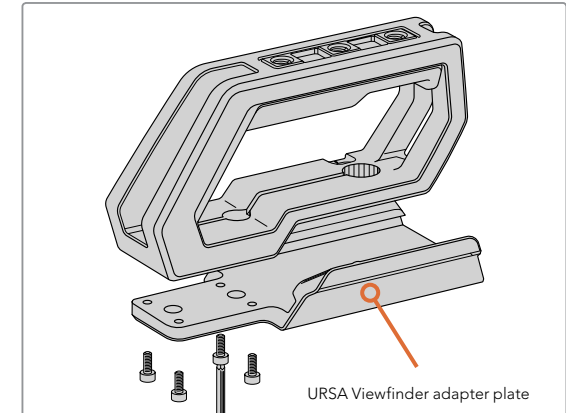
Step 1.

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



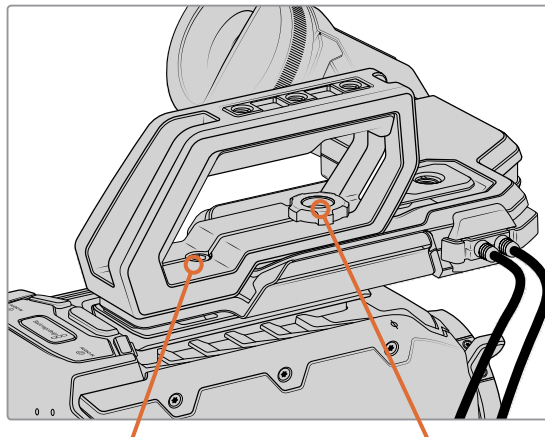
Step 2.

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.



Step 3.

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



2 x 1/4" socket head screws for mounting handle to camera

Thumbscrew for adjusting the optional URSA Viewfinder position.

Step 4.

Fasten the handle to any two of URSA Mini's top 1/4" mounting points using the two supplied 1/4" screws with a 5mm 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

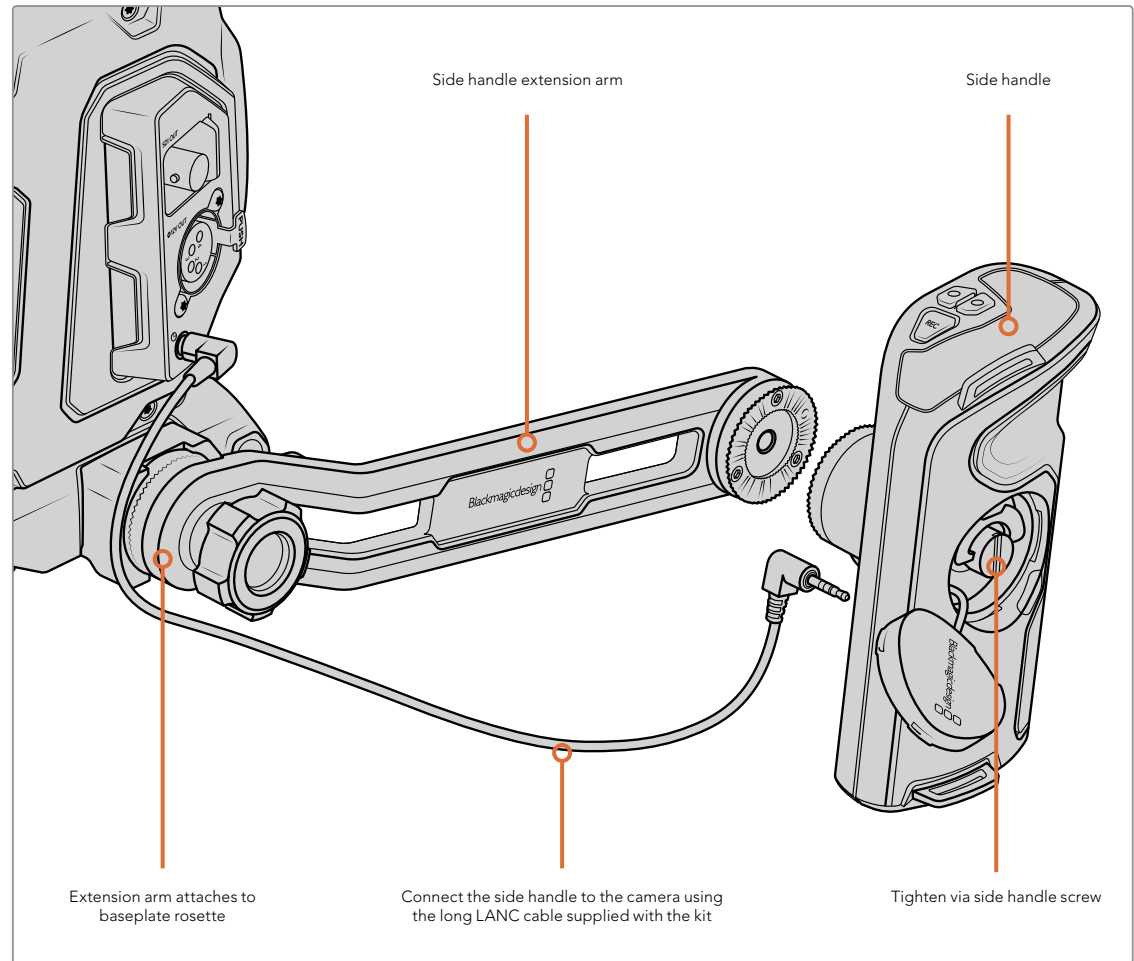
When using the URSA Mini shoulder mount kit, you'll need to reposition URSA Mini's side handle for comfortable shoulder based shooting. Use the bundled extension arm and longer LANC cable to move the side handle to a more ergonomic position.

To attach the side handle extension arm:

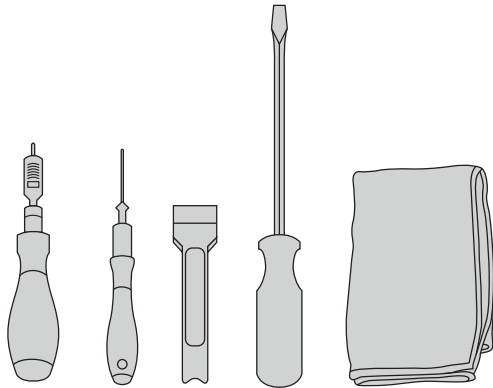
- Step 1.** Place your URSA Mini on a flat, stable surface allowing room next to the camera to lower the extension arm. Mounting URSA Mini to a tripod is helpful for this purpose.
- Step 2.** Attach the indented end of the extension arm to the baseplate rosette, lower the arm to suit, and fasten with the supplied rosette thumbscrew.
- Step 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.
- Step 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!



73 Upgrading the Sensor Turret on the URSA model



To remove and replace Blackmagic URSA's sensor turret you'll need a torque wrench capable of 3.0 Nm maximum torque with 4.0mm and 2.5mm hex key drivers, levering tool, large flat head screw driver, and a lint free cloth.

Blackmagic URSA's unique design lets you replace the sensor turret if you want to upgrade your camera as we release new sensors in the future. When upgrading, you can also change the lens mount. For example, you can upgrade from an EF mount to a PL mount. URSA is designed to be occasionally upgraded, but not frequently. Constant changing of the turret can wear out the connector and is not recommended.

To upgrade the turret, first make sure you have the following tools:

1. Torque wrench with 4.0mm and 2.5mm hex key drivers and accurate setting for 3.0 Nm maximum torque.
2. Appropriate wedge shaped plastic levering tool.
3. Large flat head screw driver.
4. Lint free cloth.

Each component has screws of different lengths so it's important to keep the screws near their relevant components so you don't mix them up.

After replacing the sensor turret, power your camera and record a clip to check your new sensor turret is seated properly. If you are looking for help or have any technical questions, please visit our support center at www.blackmagicdesign.com/support.

To remove and replace the sensor turret:

Removing the Sensor Turret



Step 1.

If you have a third party battery plate mounted to the rear panel, remove the plate by unscrewing the four M3 mounting screws with the 2.5mm hex key driver. This is so you can rest your Blackmagic URSA securely on the flat rear panel for convenient access to the sensor turret.



Step 2.

With the battery plate detached, carefully rest Blackmagic URSA on the rear panel. Be sure to place URSA on a solid flat platform with the SDI connectors over the edge so they are not damaged.



Step 3.

Remove the V-Mount plate from the 15mm rails mount using the large flat head screw driver.

74 Upgrading the Sensor Turret on the URSA model

Removing the Sensor Turret



Step 4.
Remove the 15mm rails mount using the 4.0mm hex key driver.



Step 5.
Loosen the four sensor turret mounting screws two full turns using the 4.0mm hex key driver.



Step 6.
Use the plastic wedge levering tool to lever the sensor turret loose from the camera body.



Step 7.
Remove all four screws and lift the sensor turret.



Step 8.
As you lift the turret, the adjoining data connector will be released from the camera chassis.



Step 9.
Remove the thermal gap pads from the large and small copper block using the plastic wedge levering tool. Thoroughly clean the copper blocks in the camera chassis and the sensor turret with the lint free cloth. Do not use any cleaning fluids.

75 Upgrading the Sensor Turret on the URSA model

Replacing the Sensor Turret



Step 1.

Apply new thermal gap pads, supplied with your new URSA turret assembly, to both cleaned copper blocks in the camera chassis. Ensure the fold out monitor cable is seated against the inside wall.



Step 2.

Align the sensor turret so the alignment pins slot into the three alignment holes and gently press downward until you feel the sensor data connector join with the mating chassis connector.



Step 3.

Loosely fasten the four sensor turret mounting screws and spring washers until initial contact is made between the sensor turret and the camera body. It's important you do not tighten the screws at this point.



Step 4.

Using the torque wrench, apply one full turn of pressure to mounting screw A, followed by one full turn to screw B, and repeat for screws C and D. Continue to apply one full turn to each screw in the described sequence until all screws have reached the maximum allowable torque of 3 Nm.



Step 5.

Reattach the 15mm rails mount by placing the front of the mount against the camera base and rotating it into place. Using the torque wrench, gradually and evenly tighten the screws until all have reached the maximum allowable torque of 3 Nm.

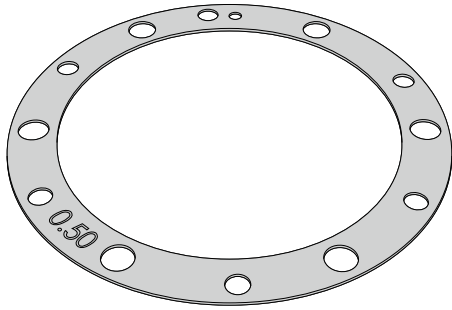


Step 6.

Reattach the quick release V-Mount plate by tightening the screws using a flat head screwdriver, and reattach the third party battery plate (if any) to Blackmagic URSA's rear panel.

Congratulations, you have now upgraded your Blackmagic URSA!

76 Shimming the PL Mount



What is a Shim?

Blackmagic Shims are thin disks of varying thickness that let you make fine adjustments to the distance between your PL lens and Blackmagic URSA or 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 PL mount is designed so you can easily adjust the back focus using shims.

Shims are placed between the PL mount and the camera body so the distance from your subject to the sensor matches the focus marks on your lens. Your Blackmagic URSA or URSA Mini is supplied with a 0.50mm shim already installed. You can purchase shim sets of varying thickness from your local Blackmagic Design reseller. Use shim thicknesses depending on your back focus requirements.

To shim your camera's PL mount you'll need a torque wrench able to accurately set a maximum torque of 0.45Nm, with 2.0mm and 2.5mm hex key drivers.

Removing and replacing the PL Mount



Step 1.

Place Blackmagic URSA or URSA Mini 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.



Step 2.

Remove the six PL mount screws using the 2.5mm hex key. You may need to occasionally rotate the PL locking ring clockwise or counterclockwise to access the screws.



Step 3.

Carefully lift the lens mount away from the camera body. Keep the screws safely located close to the lens mount.

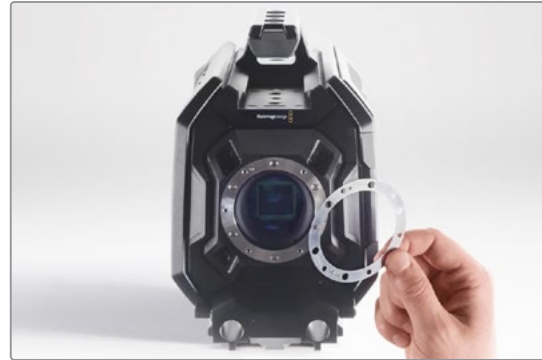
77 Shimming the PL Mount

Removing and replacing the PL Mount



Step 4.

Note the alignment of the existing 0.50mm shim with the alignment pin at the 11 o'clock position.



Step 5.

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.



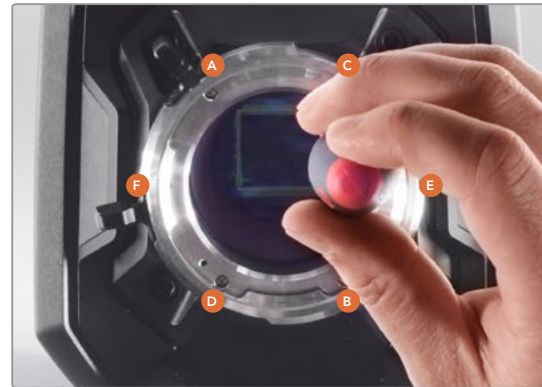
Step 6.

Place the lens mount onto the camera body ensuring the alignment hole is aligned with the alignment pin at the 11 o'clock position.



Step 7.

Loosely turn the six mounting screws until initial contact is made with the shoulder of the lens mount.



Step 8.

Using the torque wrench, apply one full turn of pressure to mounting screw A, followed by one full turn to screw B, repeat for screws C and D, then E and F. Continue to apply one full turn to each screw in the sequence above until all screws have reached the maximum torque of 0.45Nm.

Getting 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.

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 X, 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 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.

12 Month 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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