



Installation and Operation Manual

Blackmagic URSA Mini and URSA Mini Pro

Includes Blackmagic URSA Viewfinder, URSA Studio Viewfinder, URSA Mini Shoulder Kit, URSA Mini Lens Mounts, Blackmagic Camera Fiber Converter, Studio Fiber Converter and URSA Mini SSD Recorder.

August 2020

English, 日本語, Français, Deutsch, Español, 中文, 한국어, Русский, Italiano, Português and Türkçe.



Welcome

Thank you for purchasing Blackmagic URSA Mini!

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

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

URSA Mini's beautiful user interface is designed for single operators who need quick, easy access to all of their camera's functions, while comprehensive ATEM switcher integration makes the amazing image quality of this Super 35mm digital film camera available to live production studios. You can even use Blackmagic Fiber Converters, so you can use a single SMPTE fiber cable to connect an URSA Mini to your live production switcher!

Best of all, URSA Mini is available with a 4K sensor, 4.6K sensor with even greater dynamic range or the revolutionary 12K sensor! We also listened to single operators when we developed our Blackmagic URSA Viewfinder which is perfect when you need extra precision and for shooting on the shoulder.

URSA Mini Pro offers even better image quality with additional features including ergonomic controls, interchangeable lens mounts and internal ND filters. If you are familiar with ENG cameras, we believe you will find these ergonomic controls and the built in ND filters extremely powerful. We're also proud to introduce our Blackmagic RAW codec, offering the flexibility of RAW processing all in a single file, providing massive performance increases with reduced file sizes, even when handling powerful images from Blackmagic URSA Mini Pro 12K!

We hope you use your URSA Mini or URSA Mini Pro 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

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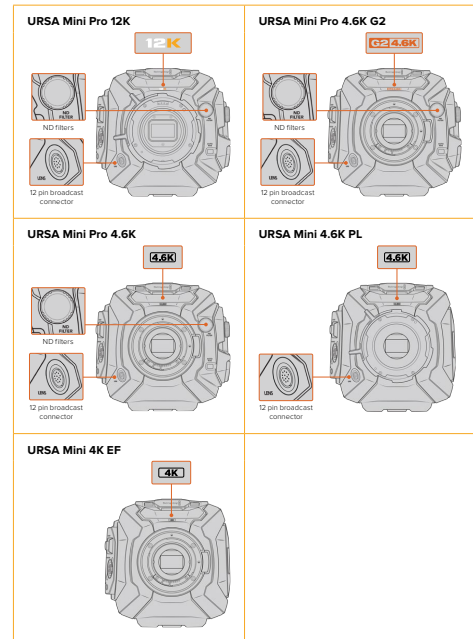
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Which camera are you using?

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

The available models are

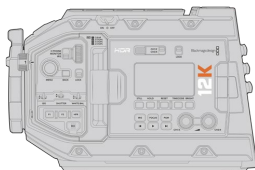
- URSA Mini Pro 12K
- URSA Mini Pro 4.6K G2
- URSA Mini Pro 4.6K
- URSA Mini 4.6K
- URSA Mini 4K



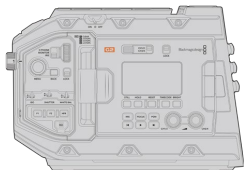
URSA Mini Pro

URSA Mini Pro 12K comes with a PL mount, and URSA Mini Pro 4.6K G2 and URSA Mini Pro 4.6K come with an EF mount. You can change the lens mount on all URSA Mini Pro cameras to accept other lens types. For more information on the interchangeable lens mount, see the 'interchangeable lens mount' section.

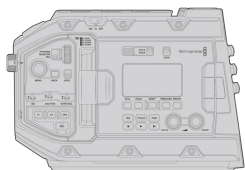
URSA Mini Pro is easy to recognize by the additional control buttons and LCD status screen on the left side of the chassis, as well as the ND filters near the lens mount. URSA Mini Pro 4.6K G2 also features an orange 'G2 4.6K' icon on the front above the lens mount and an orange 'G2' icon on the left side of the external control panel. Naturally, the additional control buttons will mean that you have different options for controlling your camera and changing settings. On the side of URSA Mini Pro 12K's external control panel is a '12K' icon and 'HDR' icon. The rear panel of URSA Mini Pro 12K has the headphone socket on the top right corner above the SDI ports, and a USB-C port is located in the bottom right corner below the 12V power connector.



URSA Mini Pro 12K, left side



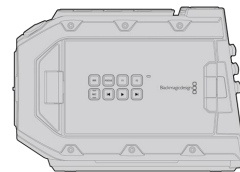
URSA Mini Pro 4.6K G2, left side



URSA Mini Pro 4.6K, left side

URSA Mini

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



URSA Mini, left side

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

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

Getting Started

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

Attaching a Lens

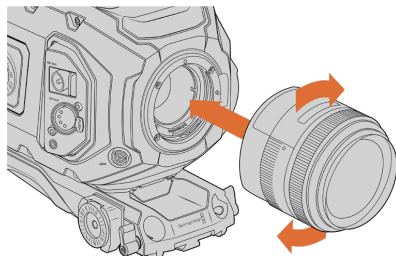
Attaching a lens to your camera is the same process for all URSA Mini cameras, however the EF, PL, B4 and F mounts have slightly different ways of operating. In all cases, the first step is to remove the protective dust cap.

To remove the protective dust cap from the EF lens mount, hold down the locking button and rotate the cap counterclockwise until it is released. For the PL and B4 mount lenses, rotate the locking ring counterclockwise and pull the protective dust cap away from the mount. For the F mount, hold down the locking button and rotate the cap clockwise until it is released.

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

TIP URSA Mini Pro 12K comes equipped with a PL mount. Other URSA Mini Pro cameras come out of the box configured to accept EF lenses. To get shooting right away, simply attach a lens as detailed below.

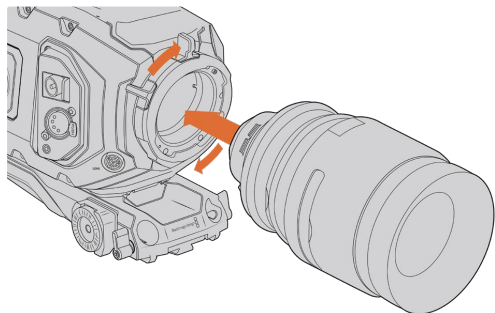
To attach an EF mount lens:



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

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

To attach a PL mount lens:



Attaching and removing a PL lens on Blackmagic URSA Mini PL and URSA Mini Pro 12K

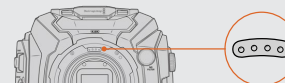
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- 1 Open your camera's PL locking ring by rotating it counterclockwise until it stops.
- 2 Align one of the lens' four flange notches with the locating pin on the camera mount. Be sure to align the lens for easy viewing of the lens marks.
- 3 Tighten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

URSA Mini Pro PL Mount

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



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

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

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

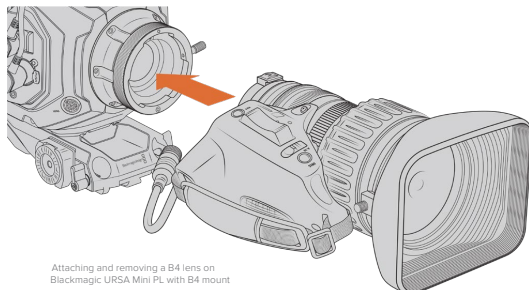
URSA Mini Pro and URSA Mini PL support control of PL 35mm lenses with servo handgrips. When the lens is plugged in to the 12-pin broadcast connector on the camera, URSA Mini will provide power and control signals to your lens in the same way it does with B4 lenses. For more information refer to the 'Using Servo Zoom Lenses' section in this manual.

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

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To attach a B4 mount lens:

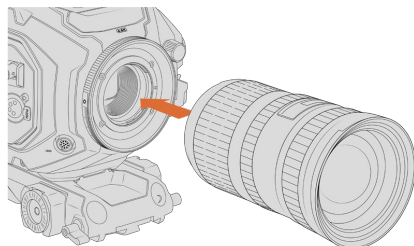


Attaching and removing a B4 lens on Blackmagic URSA Mini PL with B4 mount

- 1 Turn the B4 lens locking ring counterclockwise to reveal the alignment slot inside the top of the mount. Align the B4 lens to your URSA Mini's B4 mount so the alignment pin on the lens mount matches the position of the alignment slot.
- 2 Hold the lens against the B4 mount so the mount plates are against each other. Make sure the alignment pin is secured inside the alignment slot.
- 3 Turn the locking ring clockwise to tighten the lens against the mount and lock it into position.
- 4 To power the lens and provide lens control, simply plug the lens cable into the connector marked 'Lens' on the front of your URSA Mini PL or URSA Mini Pro's turret. Most B4 lenses will have the 12 pin connector and cable built in. This will provide power and control signals from your URSA Mini to the lens.

For information on the types of B4 lenses and how to use them with your camera, refer to the 'Using Servo Zoom Lenses' section in this manual.

To attach an F mount lens:



Attaching and removing an F mount lens on Blackmagic URSA Mini Pro 4.6K with the optional F mount fitted

Getting Started

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

NOTE Blackmagic URSA Mini Pro F mount features a mechanical iris adjuster. To use older style F mount lenses with built in focus rings with this mount, your lens aperture will need to be set and locked to its smallest setting, such as f/22. For more information on adjusting aperture with Blackmagic URSA Mini Pro F mount's manual iris adjuster, see the section 'Blackmagic URSA Mini Pro F Mount' in this manual.

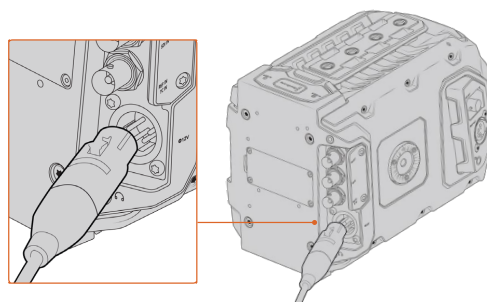
Powering your Camera

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

To plug in external power:

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

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



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

Getting Started

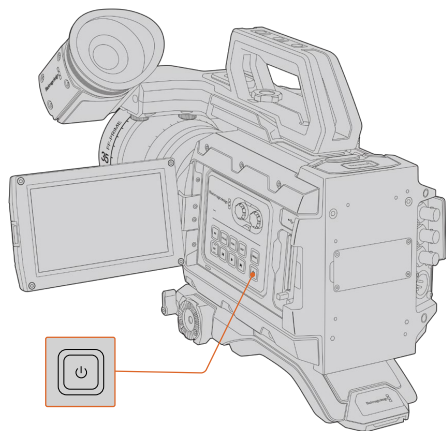
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You can use industry standard third party external batteries such as V mount or Gold Mount batteries with your URSA Mini. Refer to the 'mounting batteries' section for more information about mounting the different types of battery plates to support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

To turn on URSA Mini:

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

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



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

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

Storage Media

Your Blackmagic URSA Mini camera has a number of storage options. All URSA Mini cameras use CFast 2.0 cards to record video. URSA Mini Pro cameras can also record to fast UHS-II and UHS-I SD cards.

URSA Mini Pro G2 has a USB-C 3.1 Gen 1 port and URSA Mini Pro 12K has a USB-C 3.1 Gen 2 port for recording to high speed flash disks.

Using the optional URSA Mini SSD Recorder, you can record to high capacity solid state drives, or "SSDs".

NOTE URSA Mini SSD Recorder is designed for use with URSA Mini Pro 4.6K G2, URSA Mini Pro 4.6K, URSA Mini 4.6K and URSA Mini 4K. It is not compatible with URSA Mini Pro 12K.

Important Notes About Media Speeds

Write and read speeds published by recording media manufacturers are often based on peak speeds for small files such as still images, and may not accurately reflect write speeds for a continuous stream of high speed video.

Blackmagic has thoroughly tested all of the cards listed below for URSA Mini. For reliable recording with your chosen frame rates, use only the cards recommended by Blackmagic Design.

NOTE For more information on connecting URSA Mini SSD Recorder to your camera see the 'Blackmagic URSA Mini SSD Recorder' section.

CFast Cards

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

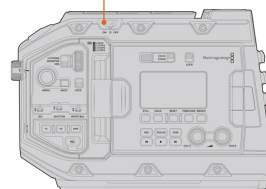
NOTE While CFast 2.0 cards are generally high speed cards, some cards have slower write speeds compared to read speeds, and maximum data rates can differ between models. To ensure reliable recording in your chosen frame rates, use only the recommended cards listed in this section.

Inserting a CFast Card

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

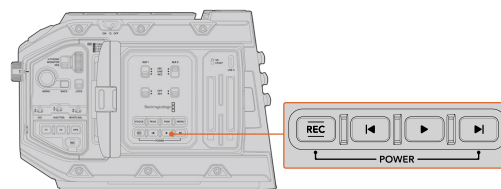
To turn on URSA Mini Pro:

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



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

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



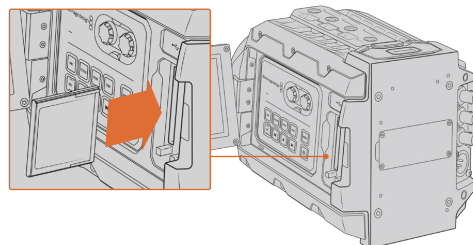
If you need to, you can also briefly hold down the record and forward skip buttons on the control panel behind the LCD to power your camera on or off

TIP If your URSA Mini Pro is turned off when the power switch is set to 'on', your camera may have been powered down via Bluetooth control or by holding down the record and forward skip control panel buttons. Simply toggle the power switch 'off' and 'on', or hold down the relevant control panel buttons to power the camera on.

To insert a CFast card:

- 1 Open the fold out monitor to access the CFast slots.
- 2 Insert the CFast card into the CFast card slot until you feel it lock into place. The card should insert easily without the need for excessive force. Push the CFast card ejector button to eject the card.

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



Blackmagic URSA Mini has two CFast slots for continuous recording

Choosing a CFast 2.0 Card

When working with high data rate video it's important to carefully check the CFast card you would like to use. This is because CFast 2.0 cards have different read and write speeds. The tables below identify the CFast cards recommended for use.

Which CFast cards should I use with Blackmagic URSA Mini Pro 12K?

The following CFast 2.0 cards are recommended for recording 12K DCI Blackmagic RAW 18:1 up to 60 frames per second, and 8K DCI Blackmagic RAW 8:1 up to 60 frames per second.

Brand	Card Name	Storage
Angelbird	AV Pro CF	128GB
Angelbird	AV Pro CF	256GB
Angelbird	AV Pro CF	512GB
Angelbird	AV Pro CF	1TB
ExAscend	Essential	512GB
ExAscend	Essential	1TB
FreeTail	Evoke Pro 3700x	128GB
FreeTail	Evoke Pro 3700x	256GB
FreeTail	Evoke Pro 3700x	512GB
FreeTail	Evoke Pro 3700x	1TB

Brand	Card Name	Storage
KomputerBay	x3400 CFast 2.0	128GB
ProGrade Digital	550MB/s CFast 2.0	256GB
ProGrade Digital	550MB/s CFast 2.0	512GB
SanDisk	Extreme Pro CFast 2.0 SDCFSP-128G-x46D	128GB
Wise	CFast 2.0 3400x	256GB
Wise	CFast 2.0 3500x	512GB
Wise	CFast 2.0 3500x	1TB

Which CFast cards should I use with the Blackmagic URSA Mini and URSA Mini Pro Cameras?

The following CFast 2.0 cards are recommended for recording 4.6K Blackmagic RAW 3:1 up to 60 fps.

Brand	Card Name	Storage
Angelbird	AV Pro CF	128GB
Angelbird	AV Pro CF	256GB
Angelbird	AV Pro CF	512GB
Angelbird	AV Pro CF	1TB
CinediskPro	510MB/s CFast 2.0	256GB
FreeTail	Evoke Pro 3700x	128GB
FreeTail	Evoke Pro 3700x	256GB
FreeTail	Evoke Pro 3700x	512GB
FreeTail	Evoke Pro 3700x	1TB
Hagiwara Solutions	CFast 2.0 DC-SMAN64GA	64GB
Hagiwara Solutions	CFast 2.0 DC-SMANA1GA	128GB
KomputerBay	3600x CFast 2.0 Card	64GB
ProGrade Digital	550MB/s CFast 2.0	64GB
ProGrade Digital	550MB/s CFast 2.0	128GB
ProGrade Digital	550MB/s CFast 2.0	256GB
ProGrade Digital	550MB/s CFast 2.0	512GB
SanDisk	Extreme Pro CFast 2.0 SDCFSP-128G-x46D	128GB
SanDisk	Extreme Pro CFast 2.0 SDCFSP-256G-x46D	256GB
SanDisk	Extreme Pro CFast 2.0 SDCFSP-512G-x46D	512GB
Sony	CFast 2.0 G Series CAT-G64	64GB
Sony	CFast 2.0 G Series CAT-G128	128GB
Transcend	CFX650 CFast 2.0 TS128GCFX650	128GB

Storage Media

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Brand	Card Name	Storage
Transcend	CFX650 CFast 2.0 TS256GCFX650	256GB
Transcend	CFX650 CFast 2.0 TS128GCFX650BM	128GB
Transcend	CFX650 CFast 2.0 TS256GCFX650BM	256GB
Wise	CFast 2.0 3400x	256GB
Wise	CFast 2.0 3500x	512GB

The following CFast 2.0 cards are recommended for recording 2160p ProRes 422 HQ up to 60 fps.

Brand	Card Name	Storage
Angelbird	AV Pro CF	128GB
Angelbird	AV Pro CF	256GB
Angelbird	AV Pro CF	512GB
Angelbird	AV Pro CF	1TB
Angelbird	AV Pro CF XT	256GB
Angelbird	AV Pro CF XT	512GB
CinediskPro	510MB/s CFast 2.0	256GB
Hagiwara Solutions	DC-SMAN64GA	64GB
Hagiwara Solutions	DC-SMANA1GA	128GB
KomputerBay	3600x CFast 2.0 Card	64GB
KomputerBay	3700x CFast 2.0 Card	256GB
ProGrade Digital	550MB/s CFast 2.0	128GB
ProGrade Digital	550MB/s CFast 2.0	256GB
ProGrade Digital	550MB/s CFast 2.0	512GB
SanDisk	Extreme Pro CFast 2.0 SDCFSP-128G-x46D	128GB
SanDisk	Extreme Pro CFast 2.0 SDCFSP-256G-x46D	256GB
SanDisk	Extreme Pro CFast 2.0 SDCFSP-512G-x46D	512GB
Silicon Power	CPX310	256GB
Sony	CFast 2.0 G Series CAT-G64	64GB
Sony	CFast 2.0 G Series CAT-G128	128GB
Transcend	CFX650 CFast 2.0 TS128GCFX650	128GB
Transcend	CFX650 CFast 2.0 TS256GCFX650	256GB
Transcend	CFX650 CFast 2.0 TS128GCFX650BM	128GB
Transcend	CFX650 CFast 2.0 TS256GCFX650BM	256GB

Storage Media

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Brand	Card Name	Storage
Wise	CFast 2.0 3400x	128GB
Wise	CFast 2.0 3400x	256GB
Wise	CFast 2.0 3500x	512GB

For the most up to date information on supported CFast cards for Blackmagic URSA Mini please refer to the Blackmagic Design support center at www.blackmagicdesign.com/support.

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

SD Cards

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

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

If you've ever shot video using a DSLR, or use a Blackmagic Micro Cinema Camera, Pocket Cinema Camera 4K or Blackmagic Video Assist, you probably already have compatible SD cards to use.

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

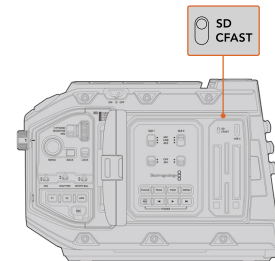
Inserting an SD Card

To insert an SD Card:

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

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

Choosing a fast SD Card

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

Before using your cards, you will need to format them to either HFS+ or exFAT formats. You can format your media with the storage manager or your computer. For more information, see the 'preparing media for recording' section.

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

The tables below identify the SD cards recommended for use when shooting with Blackmagic URSA Mini Pro. It's worth regularly checking the latest version of this manual for more up to date information. Updated manuals are available for download from the Blackmagic Design website at www.blackmagicdesign.com/support

NOTE When filming high frame rate or Ultra HD footage on your URSA Mini, we recommend CFast 2.0 or SD UHS-II recording media, which are typically faster and available in higher storage capacities than SD UHS-I media.

For the most up to date information about SD cards recommended for URSA Mini Pro 12K, please refer to the Blackmagic Design support center at www.blackmagicdesign.com/support.

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Which SD cards should I use with Blackmagic URSA Mini Pro 12K?

The following SD cards are recommended for recording 12K DCI Blackmagic RAW 12:1 up to 24 frames per second.

Brand	Card Name	Storage
ProGrade Digital	V90 UHS-II 300MB/s SDXC	64GB
ProGrade Digital	V90 UHS-II 300MB/s SDXC	128GB
ProGrade Digital	V90 UHS-II 300MB/s SDXC	256GB
Sony	Tough SF-G64 300MB/s UHS-II SDXC	64GB
Sony	Tough SF-G128 300MB/s UHS-II SDXC	128GB

The following SD cards are recommended for recording 8K DCI Blackmagic RAW 18:1 up to 60 frames per second.

Brand	Card Name	Storage
Angelbird	AV Pro MK2 V90 SDXC	256GB
ProGrade Digital	V90 UHS-II 300MB/s SDXC	64GB
ProGrade Digital	V90 UHS-II 300MB/s SDXC	128GB
ProGrade Digital	V90 UHS-II 300MB/s SDXC	256GB
Sony	Tough SF-G64 300MB/s UHS-II SDXC	64GB
Sony	Tough SF-G128 300MB/s UHS-II SDXC	128GB
Wise	285MB/s UHS-II SDXC	64GB
Wise	285MB/s UHS-II SDXC	128GB

Which SD cards should I use with URSA Mini Pro?

The following SD cards are recommended for recording 4K DCI Blackmagic RAW 12:1 up to 30 frames per second.

Brand	Card Name	Storage
Angelbird	AV Pro 300MB/s UHS-II SDXC	64GB
Angelbird	AV Pro 300MB/s UHS-II SDXC	128GB
Lexar	Professional 2000x UHS-II 300MB/s SDXC	64GB
Lexar	Professional 1000x UHS-II 150MB/s SDXC	64GB
SanDisk	Extreme Pro UHS-I 95MB/s SDXC	64GB
SanDisk	Extreme Pro UHS-I 95MB/s SDXC	128GB
SanDisk	Extreme Pro UHS-I 95MB/s SDXC	256GB
SanDisk	Extreme Pro UHS-I 95MB/s SDXC	512GB
SanDisk	Extreme Pro UHS-II 280MB/s SDXC	64GB
SanDisk	Extreme Pro UHS-II 300MB/s SDHC	32GB
SanDisk	Extreme Pro UHS-II 300MB/s SDXC	128GB

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Brand	Card Name	Storage
Sony	SF-G64 300MB/s UHS-II SDXC	64GB
Sony	SF-G128 300MB/s UHS-II SDXC	128GB
Toshiba	Exceria Pro UHS-II 270MB/s SDXC	64GB
Toshiba	Exceria Pro UHS-II 270MB/s SDXC	128GB
Toshiba	Exceria Pro UHS-II N502 SDHC	32GB
Toshiba	Exceria Pro UHS-II N502 SDXC	64GB
Toshiba	Exceria Pro UHS-II N502 SDXC	128GB
Toshiba	Exceria Pro UHS-II N502 SDXC	256GB
Transcend	Ultimate UHS-II 180MB/s SDXC	64GB
Wise	285MB/s UHS-II SDXC	64GB
Wise	285MB/s UHS-II SDXC	128GB

The following SD cards are recommended for 2160p ProRes 422 HQ up to 30 frames per second.

Brand	Card Name	Storage
Angelbird	AV Pro 300MB/s UHS-II SDXC	64GB
Angelbird	AV Pro 300MB/s UHS-II SDXC	128GB
Delkin Devices	UHS-II 250MB/s SDHC	32GB
ProGrade Digital	V90 UHS-II 250MB/s SDXC	128GB
SanDisk	Extreme Pro UHS-II 280MB/s SDHC	32GB
SanDisk	Extreme Pro UHS-II 280MB/s SDXC	64GB
SanDisk	Extreme Pro UHS-II 300MB/s SDHC	32GB
SanDisk	Extreme Pro UHS-II 300MB/s SDXC	128GB
Sony	SF-G64 300MB/s UHS-II SDXC	64GB
Sony	SF-G128 300MB/s UHS-II SDXC	128GB
Toshiba	Exceria Pro UHS-II 270MB/s SDXC	64GB
Toshiba	Exceria Pro UHS-II N502 SDHC	32GB
Toshiba	Exceria Pro UHS-II N502 SDXC	64GB
Toshiba	Exceria Pro UHS-II N502 SDXC	128GB
Toshiba	Exceria Pro UHS-II N502 SDXC	256GB
Transcend	Ultimate UHS-II 180MB/s SDXC	64GB
Wise	285MB/s UHS-II SDXC	64GB
Wise	285MB/s UHS-II SDXC	128GB

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The following SD cards are recommended for 1080p ProRes 422 HQ up to 60 frames per second.

Brand	Card Name	Storage
Angelbird	AV Pro 300MB/s UHS-II SDXC	64GB
Angelbird	AV Pro 300MB/s UHS-II SDXC	128GB
Delkin Devices	UHS-II 250MB/s SDHC	32GB
Lexar	Professional 2000x UHS-II 300MB/s SDHC	32GB
Lexar	Professional 2000x UHS-II 300MB/s SDXC	64GB
Lexar	Professional 1000x UHS-II 150MB/s SDXC	64GB
ProGrade Digital	V90 UHS-II 250MB/s SDXC	128GB
ProGrade Digital	V60 UHS-II 200MB/s SDXC	64GB
ProGrade Digital	V60 UHS-II 200MB/s SDXC	128GB
SanDisk	Extreme Pro UHS-I 95MB/s SDXC	64GB
SanDisk	Extreme Pro UHS-I 95MB/s SDXC	128GB
SanDisk	Extreme Pro UHS-I 95MB/s SDXC	256GB
SanDisk	Extreme Pro UHS-I 95MB/s SDXC	512GB
SanDisk	Extreme Pro UHS-II 280MB/s SDHC	32GB
SanDisk	Extreme Pro UHS-II 280MB/s SDXC	64GB
SanDisk	Extreme Pro UHS-II 300MB/s SDXC	64GB
SanDisk	Extreme Pro UHS-II 300MB/s SDXC	128GB
Sony	SF-G64 300MB/s UHS-II SDXC	64GB
Sony	SF-G128 300MB/s UHS-II SDXC	128GB
Toshiba	Exceria Pro UHS-II 270MB/s SDXC	64GB
Toshiba	Exceria Pro UHS-II 270MB/s SDXC	128GB
Toshiba	Exceria Pro UHS-II 270MB/s SDXC	256GB
Toshiba	Exceria Pro UHS-II N502 SDHC	32GB
Toshiba	Exceria Pro UHS-II N502 SDXC	64GB
Toshiba	Exceria Pro UHS-II N502 SDXC	128GB
Toshiba	Exceria Pro UHS-II N502 SDXC	256GB
Transcend	Ultimate UHS-II 180MB/s SDXC	64GB
Wise	285MB/s UHS-II SDXC	64GB
Wise	285MB/s UHS-II SDXC	128GB

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

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Locking and Unlocking SD Cards

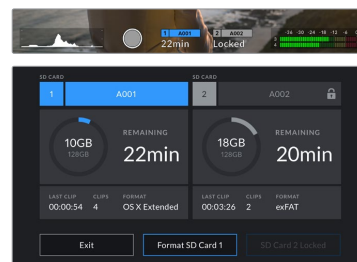
SD cards can be write protected, or 'locked', to prevent data from being overwritten.

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



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

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



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

USB-C flash disks

Blackmagic URSA Mini Pro 4.6K G2 features a high speed USB-C expansion port, which allows you to record video directly to USB-C flash disks. URSA Mini Pro 12K has two USB-C ports. The USB C 3.1 Gen 1 port on the side near the CFast card slots is for software updates. The port on the rear panel near the SDI connectors is for recording to high speed SSDs via USB-C 3.1 Gen 2. These fast, high capacity drives allow you to record video for long periods, which can be important when filming events with long durations.

When a USB-C flash disk is connected to your camera, it occupies the second media slot in your camera's operating system. Tapping the card or drive name in the storage menu sets it as the active drive. This means that recording, playback and storage management is exactly the same for USB-C flash disks as it is for CFast, SD cards and SSDs.

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Once you have finished recording you can connect the same drive directly to your computer for editing and post production, without having to copy media across.

To connect a USB-C flash disk:

- 1 Connect one end of a USB type-C cable to your USB-C flash disk.
- 2 On URSA Mini Pro 12K, plug the USB-C cable into the USB-C port on the back panel below the SDI ports. On URSA Mini Pro 4.6K G2, open the fold out touchscreen on the left side of the camera and connect the cable to the USB-C port above the CFast slots.

Which USB-C flash disks should I use with Blackmagic URSA Mini Pro 12K?

The following USB-C flash disks are recommended for recording 12K DCI Blackmagic RAW 8:1 at up to 30 frames per second.

Brand	Card Name	Storage
Angelbird	SSD2GO PKT MK2	512GB
Angelbird	SSD2GO PKT MK2	2TB
Glyph	Atom Raid SSD	4TB
Sony	Tough SL-CG5	500GB
Sony	Tough SL-C2	2TB
Delkin Devices	Juggler	2TB
Wise	PTS-S12 Portable SSD	512GB
Wise	PTS-1024 Portable SSD	1TB
Wise	PTS-2048 Portable SSD	2TB

Which USB-C flash disks should I use with Blackmagic URSA Mini Pro 4.6K G2?

The following USB-C flash disks are recommended for 4.6K Blackmagic RAW 3:1 up to 60 frames per second.

Brand	USB-C Flash Disk Name	Storage
Samsung	Portable SSD T5	500GB
Samsung	Portable SSD T5	1TB
Wise	Portable SSD	256GB
Wise	Portable SSD	512GB
Wise	Portable SSD	1TB

For the most up to date list of recommended USB-C flash disks please go to www.blackmagicdesign.com/support.

Important Notes About USB-C flash disk Speed

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

Some USB-C flash disks can have as much as 50% less write speed than the manufacturer's claimed speed. So even though the disk specifications claim a USB-C flash disk has speeds fast enough to handle video, in reality the disk isn't fast enough for real time video capture.

Use Blackmagic Disk Speed Test to accurately measure whether your USB-C flash disk will be able to handle high data rate video capture and playback. Blackmagic Disk Speed Test uses data to simulate the storage of video so you get results similar to what you'll see when capturing video to a disk. During Blackmagic testing, we have found newer, larger models of USB-C flash disk and larger capacity USB-C flash disks are generally faster.

Blackmagic Disk Speed Test is available from the Mac app store. Windows and Mac versions are also included in Blackmagic Desktop Video, which you can download from the 'capture and playback' section of the Blackmagic Design support center at www.blackmagicdesign.com/support.

SSDs

With the optional URSA Mini SSD Recorder, you can record video directly to solid state drives, or 'SSDs'. These fast, high capacity drives can be readily available from a variety of consumer electronics outlets.

NOTE See the section 'Blackmagic URSA Mini SSD Recorder' in this manual for information on installing Blackmagic URSA Mini SSD Recorder.

Inserting an SSD

To insert an SSD:

- 1 Hold your SSD with the connection pins facing towards the front of your camera.
- 2 Open the spring loaded cover on URSA Mini SSD Recorder and gently insert the SSD into the slot.

TIP URSA Mini SSD Recorder has a pressure plate to keep different sized SSDs in place, so there's no need to use spacers to fit your drive.

- 3 Once your SSD is all the way into the slot gently push it home until you feel it register, then lower URSA Mini SSD Recorder's cover.

To remove an SSD:

Open URSA Mini SSD Recorder's cover and gently grasp the drive between your thumb and forefinger. There's a small recess in the top of the bay to let you get a grip on the drive. Simply pull the drive out and close the cover.

NOTE Blackmagic URSA Mini SSD Recorder occupies the second storage slot in URSA Mini's operating system. This means that, while URSA Mini SSD Recorder is connected and a compatible SSD is inserted, your camera's second CFast 2.0 and SD card slot will be unavailable.

To use these slots instead, disconnect the SSD Recorder SDI connection from URSA Mini. There is no need to remove the SSD Recorder itself from your camera. For more information, see the the section 'Blackmagic URSA Mini SSD Recorder' in this manual.

Choosing a fast SSD for URSA Mini SSD Recorder

SSDs are designed to offer fast, affordable storage for a wide range of devices it's important to note that film making is only one part of the SSD market though, so choosing the right drive is vital to ensuring that you have enough bandwidth to record 4.6K Blackmagic RAW or Ultra HD footage. Many SSDs are designed for home computing and aren't fast enough to record Ultra HD video.

We highly recommend using only the SSDs from our recommended list, which have been tested with Blackmagic URSA Mini to ensure support for continuous filming at the specified resolutions. For the most up to date list of recommended SSDs please go to www.blackmagicdesign.com/support

Blackmagic URSA Mini SSD Recorder SSDs

The following SSDs are recommended for 4.6K ProRes 444 XQ up to 30 frames per second.

Brand	SSD Name	Storage
Angelbird	AV Pro	500GB
Angelbird	AV Pro Mk 3	250GB
Angelbird	AV Pro Mk 3	500GB
Angelbird	AV Pro XT	500GB
Angelbird	AV Pro XT	1TB
Angelbird	AV Pro XT	2TB
Angelbird	AV Pro XT	4TB
Kingston	SSDnow KC400	128GB
Kingston	DC400	480GB
Kingston	DC400	960GB
Samsung	860 EVO	2TB
Samsung	860 EVO	4TB
Samsung	860 PRO	2TB

Brand	SSD Name	Storage
Samsung	860 PRO	4TB
Sony	G Series Professional SSD. SVGS48	480GB
Sony	G Series Professional SSD. SVGS96	960GB
Transcend	SSD370	512GB

The following SSDs are recommended for 2160p ProRes 422 HQ up to 60 frames per second.

Brand	SSD Name	Storage
Angelbird	AV Pro	500GB
Angelbird	AV Pro Mk 3	250GB
Angelbird	AV Pro Mk 3	500GB
Angelbird	AV Pro XT	500GB
Angelbird	AV Pro XT	1TB
Angelbird	AV Pro XT	2TB
Angelbird	AV Pro XT	4TB
Innodisk	3MG2-P	2TB
Kingston	SSDnow KC400	128GB
Kingston	DC400	480GB
Kingston	DC400	960GB
Samsung	860 EVO	2TB
Samsung	860 EVO	4TB
Samsung	860 PRO	2TB
Samsung	860 PRO*	4TB
SanDisk	SDSSDP-064G	64GB
SanDisk	Ultra 3D	1TB
Sony	G Series Professional SSD. SVGS48	480GB
Sony	G Series Professional SSD. SVGS96	960GB
Transcend	SSD370	512GB
Western Digital	WD Blue 3D NAND SATA SSD	1TB
Wise	Cinema 240GB. CMS-0240	240GB

* Recording 1080p60 ProRes HQ for longer than 20 hours to Samsung 860 PRO SSDs is not recommended.

Important Notes About SSD Speed

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

Some SSDs can have up to 50% lower write speed than the manufacturer's claimed speed. So even though the disk specifications claim an SSD has speeds fast enough to handle video, in reality the disk isn't fast enough when used to store video data for real time capture.

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

Preparing Media for Recording

You can format your CFast cards, SD cards or SSDs using the storage manager, or via a Mac or Windows computer. We recommend formatting storage media using URSA Mini for best performance.

HFS+ is also known as OS X 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 storage media becomes corrupted. HFS+ is natively supported by Mac. exFAT is supported natively by Mac and Windows without needing to purchase any additional software. However, exFAT does not support journaling.

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

Preparing Media on Blackmagic URSA Mini

- 1 Tap either storage indicator at the bottom of the LCD touchscreen to enter the storage manager.
- 2 Tap a format button at the bottom of the touchscreen to format the card in slot 1 or 2, respectively. If you plug a flash disk into the USB-C port of an URSA Mini Pro G2, the button to format the second drive is 'Format drive'.