

XT Camera System

User Manual



Preliminary version
based on beta firmware

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Primary parts of the XT Camera System

XT Camera Body, IQ4 and XT Lens



Assembling the XT Camera System



XT Camera System Modularity

The XT Camera System is a modular system and consists of a **XT Camera Body**, an **IQ4 Digital Back** and a **XT Lens**. The IQ4 can also be used on a XF Camera Body and since the lens mount is compatible with Cambo WRS lenses, these can be used with the system too.

This chapter will explain how you remove and attach an IQ4 to the XT Camera Body as well as mounting and removing a lens.

Depending on how you purchased the system, the XT Camera System may be supplied ready for use with the IQ4 already attached.



IQ4 Release Button

IQ4 Lock Slider

Removing the IQ4 from the XT Camera Body

1. Turn the XT Camera System off and remove any interface cables from the IQ4.
2. Push the IQ4 lock slider toward the XT Camera Body while simultaneously pressing the IQ4 release button. Note that the lock slider acts as a safety catch.
3. Tilt the IQ4 slightly backward from the top and gently lift the IQ4 off the XT Camera Body's guide rail.

Attaching the IQ4 to the XT Camera Body

1. Gently place the mounting plate of the IQ4 onto the bottom guide rail of the XT Camera Body.
2. Push the IQ4 lock slider and press the release button simultaneously to retract the back's upper locking mechanism, and then push the IQ4 firmly onto the camera's twin catches, using the bottom guide rail as a pivot.

After removing the IQ4 from the XT Camera, remember to protect the sensor by reattaching cover, and to attach the back port cover on the XT to protect the camera system from dust.



Changing lenses

It is easy to mount and exchange the lens on the XT Camera Body. Note that the lens mount is compatible with all Cambo WRS lenses.

Mounting the Lens Panel

1. Ensure that both lens panel locks are open.
2. Slide the bottom of the lens plate into the lens panel slot.
3. Slide the safety lock at the top-middle upwards.
4. Tilt the lens panel up against the XT Camera body.
5. Lock both lens panel in place.

Removing the Lens Panel

1. Open both lens panel locks by sliding them upwards.
2. Slide the safety lock at the top-middle upwards.
3. Tilt the lens panel outward at the top
4. Lift the lens free from the lens panel slot at the bottom
5. Remove the lens.



Rotating the XT Camera

The integrated and rotatable tripod mount makes it easy to quickly switch from landscape to portrait format without having to remove the XT Camera from the tripod.

Open the silver-colored Rotation Lock on the tripod mount by pressing it forward to unlock it and rotate the XT Camera System 90 degrees. Then press the Rotation Lock backwards until it locks into position.

Be aware that any Shift movements that you have applied will obviously be rotated as well so readjust the vertical and horizontal shifts if necessary. Please read a later chapter on how to use and take advantage of the integrated Shift system on the XT Camera System.

Removing the tripod mount system

The integrated tripod mount can be removed from the XT Camera Body if you want to save weight or size. Removing the tripod foot mount will also make it more convenient to shoot the XT Camera handheld.



1) Shift the XT Camera horizontally all the way to the right (when looking at the camera from behind) with the Horizontal Shift Dial.

2) A torx screw is now uncovered. Unscrew it with the supplied torx tool.



3) Remove the top-right corner piece with the XT label by sliding it upwards.



4) Open the silver-colored Rotation Lock on the tripod mount by pressing it forward. Then rotate the tripod mount system all the way up to the area with the removed XT plate.

5) Remove the tripod mount system.

6) Slide the XT corner piece back in place and secure it by fastening the torx screw from step 2.

Readying the XT Camera System



Loading and removing the batteries

Loading the battery in the IQ4

1. Open the battery cover located on the underside of the IQ4 .
2. Insert the battery, power contacts first.
3. Push the battery up until it locks into position.
4. Close the compartment cover.

Removing a battery from the IQ4

1. Open the battery compartment cover.
2. Push the retaining catch inside the compartment to release the battery and pull out.
3. Close the battery compartment cover.

Battery life

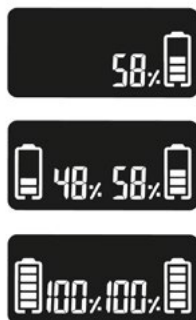
The actual number of shots possible will vary depending on the shooting conditions. For instance Image Browsing, Live View and WiFi use will reduce the number of shots available on a single charge. The age and condition of the battery also has an effect on battery life.



Charging the batteries

When working untethered, the standard power source of the XT Camera System is the 7.2 V (3400 mAh) BP-911/914/915 type rechargeable Li-ion battery.

To maximize battery performance, charge the battery before use with the supplied Pro Cube 2 charger. Approximately 2.5 to 3 hours are required to fully charge exhausted batteries.



1. Connect the supplied power adapter to the charger and insert the batteries into the charger slots. If charging only one battery, either slot can be used.
2. The charge indicator will blink and display the battery's approximate capacity as a percentage.
3. Charging is complete when the charge indicator stops blinking and the capacity level displays "100%".
4. Remove the batteries and unplug the cable from the charger.

The Pro Cube 2 will display how much the batteries have been charged in mAh since the charging session started. This can be useful if you are in a hurry and know from experience that a particular amount of mAh is enough to get you 100 captures, for example. The three dots over a battery icon indicates on the display which one is currently being measured.

Battery information

The XT Camera System uses a 7.2 V (3400 mAh) BP-911, 914, 915 type rechargeable Li-ion battery and IQ4 requires the battery to be loaded prior to use, even when shooting tethered to a computer using a bus-powered interface cable (Gigabit Ethernet or USB-C).

Charging a device by USB

The XT Pro Cube 2 can also be used to charge a device like a smartphone by connecting it to the USB port on the charger. The display will show USB when doing so. Note that the Pro Cube 2 will charge any inserted Li-ion batteries fully before starting to charge the attached device over USB.

General advice for the battery and charger

Charge the batteries before use

Batteries discharge when not in use. For optimum performance, charge the batteries before using the XT Camera.

NOTE:

In low temperatures, keep spare batteries close to body temperature by storing in an inside jacket pocket. Li-Ion type batteries tend to lose efficiency under cold conditions.

Charge the batteries indoors

Only charge the batteries indoors (and away from moisture) at ambient temperatures between 5-35 Celsius (41-95 Fahrenheit).

Remove batteries when not in use

Never leave the battery in the charger for an extensive period of time. When charging is complete, remove the battery and unplug the charger from power outlet. When the battery is left in the XT Camera a small amount of current is drawn, resulting in accelerated discharge and shorter battery life. Remove the batteries when not in use.

Only use approved batteries

Use only 7.2 V BP-915 type batteries. Capacity in excess of 3300 mAh is recommended. Some third party batteries may not fit into the IQ4's battery compartment, due to differences in the manufacturing tolerances. Do not try to force a battery into the compartment. When pressing the battery release button it should slide out without being hindered. If a battery can't be removed, levering the battery out may cause damage. Please contact your Phase One dealer for advice.

Dirt and fingerprints on battery terminals may cause loose connection and corrosion. Clean the contacts with a soft-cloth before loading the batteries.

Shooting tethered

Always keep a battery in the IQ4 when shooting tethered to a computer via a Gigabit Ethernet or USB-C connection. Please read the Power Connections chapter for more information.

Use in foreign countries

The AC power adapter is supplied with several power plug adaptors for international use. The power adaptor is compatible with 110 to 250 V AC (50/60 Hz) power sources.

Only use the original power adapter or 12 V DC car adapter (supplied)

It is not recommended to use a portable voltage transformer with the battery charger. Battery charging from a car's 12 V electrical socket is possible but the car battery will discharge if the engine is not running.

Powering the XT Camera System On and Off

Powering up the XT Camera is achieved with a short press of the On/Off button on the back of the IQ4. A long press of the same button will power off the XT.

NOTE:

There can be a low number of shutter actuations reported on a brand new XT Camera Body. This is normal behavior as the shutter mechanism has been tested during final quality check procedures. The shutter count on a new XT Camera Body should never exceed 99.

Setting Date, Time and Language



Setting the Date and Time on the IQ4

Date and time are set and controlled via the IQ4's menu. When the IQ4 is initially shipped from factory, or if the IQ4 has been without power for a long period of time, it will automatically prompt you to set the time and date. Touch the screen and scroll through the numbers to attain the appropriate date and time. The time and date is applied to the EXIF data in all files captured with the IQ4. You can change this later in the Menu under **IQ Settings > Date and Time**.

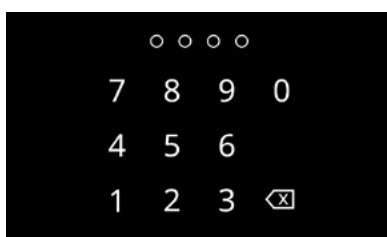


Setting Language on the IQ4

The XT Camera System is delivered with the language set to English by default. Follow the steps below to change the language of the IQ4 to one of eight others available, including German, Russian, Korean, Japanese, Chinese (simplified), Swedish, Italian and Spanish.

Swipe up from the bottom of the screen and tap on the IQ4 Menu icon. Navigate to the **Language** menu item and select the preferred language option. Each choice is displayed using the native language, with English noted in parentheses.

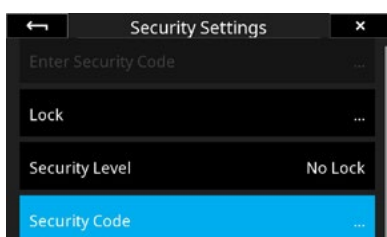
Note: If you choose a language by mistake, and can no longer read the menu, look for the menu item with **(L)** in it.



Security Code Protection

Access to the IQ4 can be protected by a four-digit security code that you will have to enter on the touch screen after it has been turned on.

The security code protection is a safety measure to ensure that other people cannot gain access to the IQ4 without your consent. This is of particular importance since IQ4 can provide wireless access over a network that other people might have access to.



You can setup the security code as well as the level of protection by selecting **Menu > Security Settings** on the IQ4. Please see the Security Settings chapter later for full details.



Ready for Capture Beep

You can control whether you would like to get a sound beep from the camera system whenever it is ready to capture the next image. It is on by default. This is useful under a busy shot where you need to concentrate on your subject at hand instead of checking to Capture Ready icon in the Status Bar on the screen.

This is set by going to the IQ4 Menu and selecting **IQ Settings > Ready Beep**. You have three options:

- None (Off)
- Single (one beep)
- Multi (longer beep)

Using memory cards

The Phase One IQ4 supports both XQD and SD memory cards. Phase One recommends that you use the supplied Sony XQD G Series 64 GB card or a similar card with the same 400 MB/s write speed rating for optimal performance.

If you plan on saving raw files to the SD card, use the supplied Sony SDXC UHS-II G Series 64GB card. Otherwise, it is recommended to use SD card that has a write speed of at least 100 MB/s and is marked with speed class U3.

Note: While the XQD card slot in the IQ4 is compatible with CFexpress cards from a mechanical stand point, CFexpress cards are not supported yet. A future firmware upgrade for IQ4 is planned to add support for CFexpress cards.



Installing XQD and SD cards

Installing an XQD card

When inserting the XQD card into its media storage slot in the IQ4, make sure that the labeling side on the card is facing towards the front of the back so that the small triangles on the XQD card and the IQ4 XQD slot align. Slide it straight into the slot until it clicks into place. If resistance is felt, stop immediately, and check whether the card is oriented correctly.

Installing a SD card

Position the SD card so the label is facing towards the screen on the IQ4 and slide it straight into the SD marked-slot until it clicks into place. You will need to push the SD card into the port until it is recessed about 1 mm to ensure it locks into place. You will hear a click once that point has been reached. If resistance is felt, stop immediately, and check whether the card is oriented correctly.



Removing the SD card

Removing an XQD card

Before removing the XQD card, confirm that the memory card access light is off. Then press the card in with a finger to release it. The memory card pops out and can be removed by using two fingertips.

Removing a SD card

Before removing the SD card, confirm that the memory card access light is off. Then press the card in and let it go. The inserted SD card needs to be pushed about 1 mm into the port before it will release. Use a small plate or a finger nail to do so. The memory card will now be released, and you can remove it with your fingertips.

Selecting cards for storage

You can choose to store the captured raw files on either the XQD or the SD card. You also have the option to save a raw version to XQD and a jpeg version to SD. It will be explained in a later chapter how to set this up.



Shutter Half Press

You can decide what the XT Camera System should do when half pressing the Shutter Button on the XT Camera.

It is possible to either active Live View on the screen, to turn the display on or to disable any action. This is set by entering the IQ4 Menu and selecting **XT Menu > Shutter Half Press >** and choosing one of the options.



LED Lights

LED Lights

The IQ4 feature two main LEDs located below the bottom left corner of the screen.

A **Blue** LED will show when you power the IQ4 on. Two **Red** LEDs indicates that the back is going through the boot up procedure.

When capturing an image the **Green** LED will blink rapidly to indicate that the IQ4 is busy and that there are images in the buffer that needs to be cleared to the XQD card, the SD card and/or the local storage.

A **Red** LED indicates that the IQ4 is writing to the storage media, and therefore the buffer has not been emptied.



Restore to Default

Restoring the defaults

The IQ4 is supplied preconfigured with a number of default settings ready for use, either when purchased by itself, or with the XT.

After adjustment of these settings, you can restore the back to the factory defaults from the back's screen by pressing **Menu > System Settings > Restore to Default**.



XT Camera System – Getting Started

The XT Camera System is controlled from the touch screen on the IQ4 with regards to exposure, storage and file settings while the Shift functionality and the Shutter button is found on the XT Camera Body. Finally, focus is adjusted manually on the XT Lens. This chapter will give a quick overview on how to get started while the succeeding chapters will explain all the functionality and options in detail.



Turning the XT System On and Off

The XT System is turned on and off by pressing the power button on the IQ4. The battery in the IQ4 supplies power to both the XT Camera Body and the XT Lens with the integrated shutter.

Any power source connected to the IQ4 - like USB-C, Power over Ethernet or an external power supply - will also feed the whole XT System. To turn the XT Camera System off, press and hold the power button on the IQ4 for 2 seconds.



Setting the Exposure

The Exposure settings are controlled on the IQ4 start screen - called Camera Controls - where you can set the desired Shutter Speed, Aperture and ISO value. The chosen Shutter Speed and Aperture will automatically control the shutter and aperture that are fully integrated into the XT Lens.

The exposure is adjusted manually on the XT Camera System. It is highly recommended to enter Live View mode as it provides a number of visual aids such as Exposure Meter, Exposure Simulation, live Histograms and RAW Clipping Warning that makes it easy to adjust the exposure with sufficient accuracy.

Tap on the Movie icon in Camera Controls to initiate Live View.



There are two ways to select the exposure settings (Shutter Speed, Aperture, ISO) in order to adjust those. You can either press on the bottom-left key on the IQ4 to cycle through the options or just tap on the desired setting at the bottom of the touch screen.

Once ISO, Shutter Speed or Aperture becomes highlighted, you can adjust the value by pressing on the top-right key or the bottom-right key on the IQ4. The top key increases the shutter time, ISO and Aperture values while the bottom key does the reverse.

It is highly recommended to take advantage of the different exposure adjustment aids that Live View provides like the RGB Histogram, RAW Histogram and RAW Clipping Warnings that are explained below. You enable these by sliding your finger in from the right of the screen and tap on the Histogram icon.

Please see the succeeding Camera Controls and Live View chapters for full detail on adjusting the exposure.



XT Capture Settings

In addition to adjusting exposure, the Camera Controls also let you change additional settings like White Balance, File Format and applying an IQ Styles.

These settings are accessed by tapping on the related icon on the Camera Controls screen.



Adjusting the Focus

Focus is adjusted manually with the Focus Ring on the XT Lens. It is highly recommended to enter Live View mode when adjusting the focus by tapping on the Live View icon on Camera Controls.

There are two ways to evaluate the focus when in Live View - Focus Peaking and zooming into the image. Focus Peaking is a visual aid that mark the sharp areas green and will update as you change the focus. You can also zoom into any part of the image by tapping on it and then inspect the sharpness level. It is possible to combine the two methods as Focus Peaking will update as you zoom into the image and pan around.

For more information on how to turn Focus Peaking on and off as well as taking advantage of the other Live View features, please see the Live View chapter later on.



Using Shift

The XT Camera System provides horizontal as well as vertical (rise/fall) movements that enables perspective control, image displacement and stitching of multiple captures. The workflow is greatly improved by that fact that any movement is automatically detected and recorded as metadata in each image file for advanced and seamless Lens Cast Correction (LCC) in Capture One.

The horizontal and vertical (rise/fall) movements is operated by Horizontal Shift Dial on the top of the XT Camera Body and the Vertical Shift Dial located at the right-hand side of the camera.

You can check the amount of X movements in millimeters at the top of the camera body with the Horizontal Shift Scale and the amount of Y movements in millimeters on the side of the camera body with the Vertical Shift Scale. You can apply shift in both directions up to +/- 12mm.

The shifted scale will also be visible on the IQ4 screen when using the Live View and Camera Controls and will - as mentioned - be recorded automatically in the captured image metadata for Capture One to recognize.

It is recommended to enter Live View when adjusting the Shift values as the effect of the movements(s) will be clearly visible and easy to review.



Capturing Images

You can either capture an image by pressing the Shutter Release Button on the XT Camera or by tapping on the Capture Button in the IQ4 touch screen when in Camera Controls or Live View.

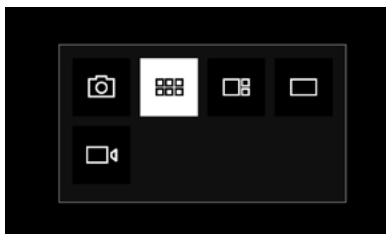


Viewing the Image

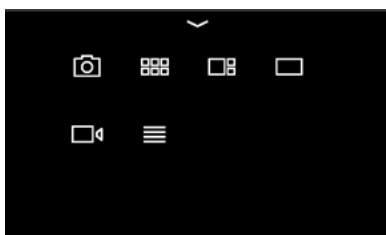
The captured image will be shown on the IQ4 screen automatically as a default behavior. You can view a Histogram to check for proper exposure as well as zooming into the image to review focus and sharpness.

Please read the Viewing Images chapter for full details on how to browse through the captured images and how to review, rate and delete them.

IQ4 Navigation



Changing mode on the touch screen



Swipe up for Shortcuts Menu

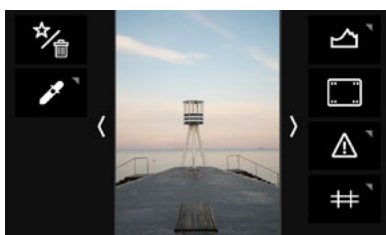
Touch Screen Operation

The 3.2-inch touch screen on the IQ4 let you use touch gestures like swipe to browse through images quickly, pinch to zoom in to an image as well as activating tools and adjusting settings.

The operation of IQ4 is divided into five major modes: **Camera Controls**, **Browser**, **Tools Viewer**, **Viewer** and **Live View**. You cycle through them by pressing the top-left button on the IQ4 and tapping the button until the desired mode is chosen in the Mode Bar. If you tap just once on the top-left key, it goes back to the last used mode. This way you can quickly switch between **Camera Controls** and **Tools Viewer**, for instance, even though they are not next to each other.

You can also select a mode from the **Shortcuts Menu** that is accessed by swiping up from the bottom of the touch screen.

The IQ4 will start up in **Camera Controls** as default.



Swipe in for Actions (left) and Tools (right)

Accessing Tools, Settings and Status

While in any of these modes, you can always access the **Shortcuts Menu** and the **Status Menu**. There is also a number of context sensitive **Actions** and **Tools** that you can control while in the **Camera Controls**, **Browser**, **Viewer**, **Tools Viewer** or **Live View** mode.

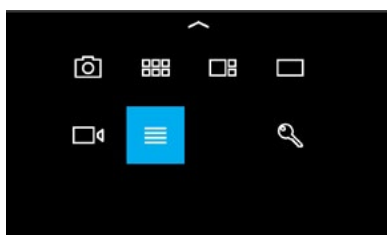
See next page for a visual guide to the swipe feature.

There are the four different edge gestures where you swipe from the edge on the screen and inwards.

- Swipe from **top edge** and downwards activates the **Status Menu**
- Swipe from **bottom edge** and upwards activates the **Shortcuts Menu**
- Swipe from **left edge** and inwards activates the **Actions** (like Delete, Rating, etc.)
- Swipe from **right edge** and inwards activates the **Tools** (Histogram, Clip Warning, Metadata, etc.)



You close the **Shortcuts Menu**, **Status Menu**, **Actions**, and **Tools** again by swiping in the opposite direction towards the edges.



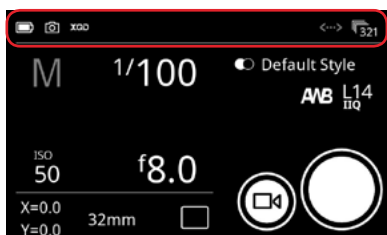
Shortcuts Menu with IQ4 Main Menu selected

Using the Shortcuts Menu

The **Shortcuts Menu** (swipe up from bottom) have a number of shortcuts to select modes or the IQ4 Menu. It is similar to the Contextual menu on the older IQ3.

The features and settings that you can select from the **Shortcuts Menu** are:

- Camera Controls
- Browser
- Tools Viewer
- Viewer
- Live View
- IQ4 Main Menu
- Lock (if enabled)



Status Bar

Using the Status Bar

The Status Bar area at the top of the screen will show you key information about battery, memory cards and connections.

The icons for USB-C, Ethernet and WiFi are only displayed in the Status Bar if there is currently a connection (cables for USB-C and Ethernet, wireless for WiFi). A gray icon indicates that there is a connection, but no computer host (Capture One) is currently present. A white icon indicates that there is a host.

If you swipe down from the top of the screen, the Status Menu will reveal more information (see next page).



Status Menu

Status Menu

If an icon is greyed out instead of being white it means that it (like the SD card) is not currently present or active.

If you tap on one of the icons in the Status Menu, it will take you to the relevant setting in the IQ4 Menu. The following is a list of the 8 different points of information in the Status Menu and where they will take you in the IQ4 Menu System, if you tap on them:

- Battery Status -> Power Management
- Capture Readiness -> About
- USB-C Connection > Storage Setup
- Ethernet Connection > Network Settings
- XQD card presence > Storage Setup
- SD card presence > Storage Setup
- WiFi Connection > Network Settings
- Sensor Temperature -> Temperature

Swipe up from the bottom of the screen to close the Status Menu.



Camera Controls

Camera Controls

The default start screen is the **Camera Controls** where you can adjust exposure settings and capture the image. Please see the Camera Controls chapter on how to use it.



Viewer

Viewing Images

When you want to review the captured images, select either **Viewer** or **Browser** by pressing the top-left button on the IQ4 until it is highlighted or by swiping up from the bottom of the screen and select the desired mode.

Once in **Viewer**, you can browse through the captured images in full screen mode by swiping on the touch screen with one finger in either direction. You can also use pinch gestures to zoom in and out.

Please see the next chapter for all the information about viewing, deleting and rating images as well as enabling workflow features like Highlight and Clip Warning, adding a Grid overlay or showing file information.

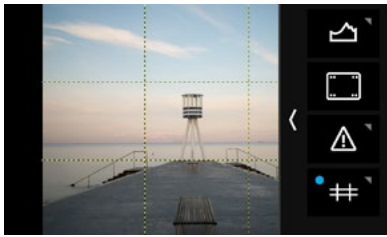


Live View icon

Live View

You initiate **Live View** by either tapping on the Movie icon in **Camera Controls** or by pressing the top-left button on the IQ4 until the Live View icon is highlighted. You can also swipe up from the bottom of the IQ4 touch screen and selecting the icon.

Please see the **Live View** chapter for full information about the available features and Tools in this mode.



Tools settings

Changing settings in Tools

Some Tools have certain settings that can change their behavior or appearance. A small triangle in the upper right corner of the Tool icon indicate that there are settings available, and you access them by a long press on the icon.



Four Key Navigation

The IQ4 can also be operated by using the four keys on each side of the touch screen. While some touch gestures are faster and more intuitive, using the real keys can be necessary when wearing gloves or shooting in cold weather.

You open the IQ4 Menu system by a long-press on the bottom-left key.

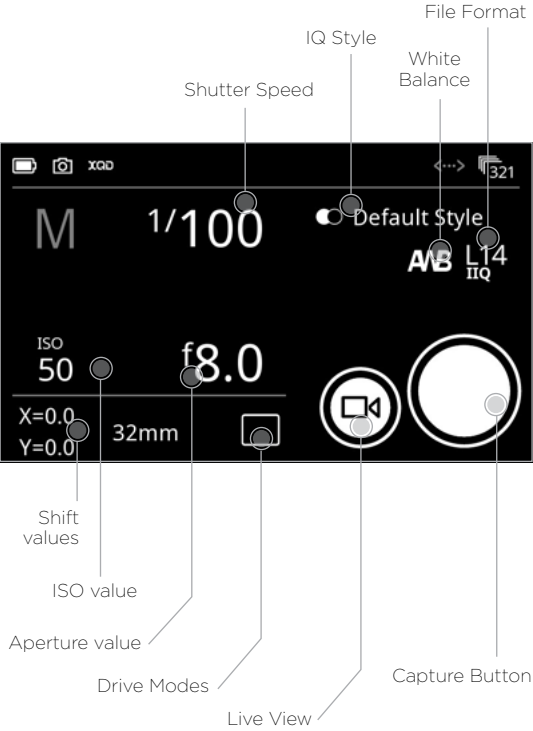
In general, the bottom-left key is used to open a menu item or enable the selected menu item. The two keys to the right are used to navigate up and down. The top-left key is used to move a step back out of the currently selected menu item and will finally end in the Mode selected last, for example Camera Controls.

Camera Controls



The start screen on the IQ4 is the Camera Controls that let you adjust exposure settings like shutter speed, aperture and ISO as well as other settings like white balance or applying a Style via the touch screen.

If you are in Live View mode or viewing images, you can get back to the Camera Controls by tapping on the top right button until it is selected.



The illustration on the left gives you a quick overview of the settings. You just need to tab on an icon to change the settings.

Capturing an image

You can either capture an image by pressing the Shutter Release Button on the XT Camera or by tapping on the Capture Button on the IQ4 touch screen.



Setting the Exposure

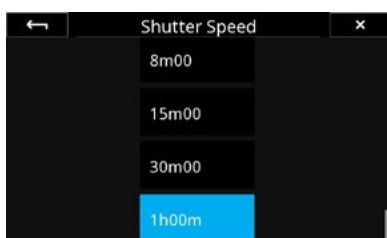
Using the Camera Controls to change the exposure settings are straightforward - simply touch the Shutter Speed, Aperture or ISO value icons to change them.

You can also press the bottom-left key on the IQ4 to select and cycle through the Shutter Speed, Aperture or ISO value.

Once ISO, Shutter Speed or Aperture becomes highlighted, you can adjust the value by pressing on the top-right key or the bottom-right key on the IQ4. The top key increases the shutter time, ISO and Aperture values while the bottom key do the reverse.

Note that it is highly recommended to enter Live View mode to adjust the exposure manually as Live View provides a number of visual aids such as Exposure evaluation meter, Exposure Simulation, live histograms and RAW Clipping Warning that makes it easy to set the proper exposure.

Please read the Live View chapter for the full detail on how to take advantage of all the Live View exposure features.



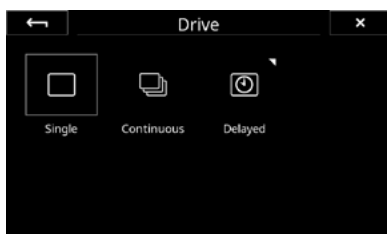
Long Exposure

The XT Camera System is capable of long exposures up to 60 minutes in duration. No special Exposure mode is required, you just need to select the desired Shutter Speed and start the capture.

The shutter remains open for the allotted time and the shutter button on the IQ4 screen will show the elapsed time (in secs).

Noise Reduction (Dark Frame Subtraction)

In order to minimize noise, an additional dark frame is captured for the same duration as the capture and subtracted from the original exposure. This is fully automatic so there is no need for you to intervene. After the elapsed exposure time, the shutter button on the IQ4 screen shows a count-down in seconds during the dark frame subtraction where the icon changes from an iris to a crescent moon icon to denote the operation. When the noise reduction (dark frame) process is finished, the camera is ready to capture another image.



Drive modes

The XT Camera System has three Drive modes; **Single**, **Continuous** and **Delayed**. Each mode is selected by tapping on the Drive Mode icon on the Camera Controls screen on the IQ4. Note that exposure **Bracketing** is selected as a sequence tool by sliding in from right of the screen (see later for details).

Single Capture

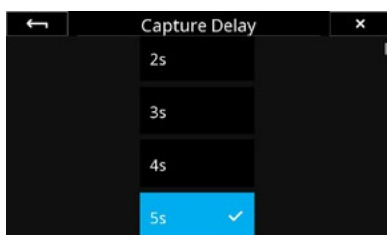
One image will be captured when fully pressing the shutter release button. Holding the button down will not result in additional captures. To make a subsequent capture, the shutter release button must be released then pressed again.

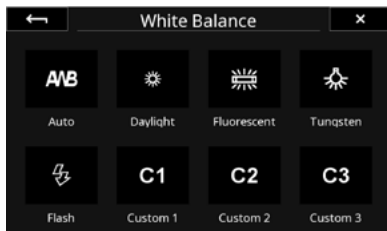
Continuous Capture

The camera will capture images continuously with the fastest possible frame rate with the release button held down. Note that frame rates are dependent on the IQ4 version and file format selected.

Delayed Capture

You have the option of setting a specific delay timer manually. This is done by a long press on the **Delayed** icon on the Drive Mode screen, and then choosing the desired value in seconds by scrolling through the values with your finger. This delay will be also be used if you are using the Bracketing or Time Lapse tools (see later).

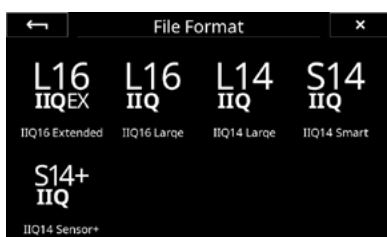




Setting the White Balance

You set the white balance by tapping the White Balance icon.

Please read the **Custom White Balance** chapter on how to set a custom white balance (**C1** to **C3**). This can be done on both a captured image and when in Live View.



Choosing the File Format

Tap on the File Format icon to get access to the options.

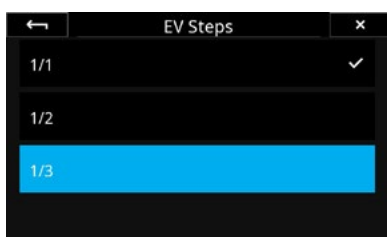
Please read the **File Formats** chapter to get an overview of all the available RAW file formats.



Selecting an IQ Style

Tap on the File Format icon to get access to the different IQ Styles.

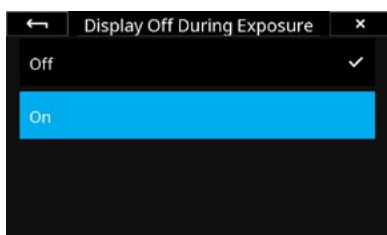
Please read the **Capture One Inside Styles** chapter to get an overview of all the available IQ Styles, including on how to create and load your own customized IQ Styles.



Exposure Level Increments

You can set up how large the exposure steps should be when adjusting the Shutter Speed, Aperture or ISO value. You can use either 1/3, 1/2 or 1 EV increments.

To change this, enter the IQ4 Menu and select **XT Menu > EV Steps >** then and choose either **1/1**, **1/2** or **1/3**.

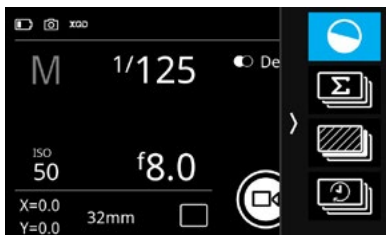


Display Off During Exposure

You can make sure that the screen is turned off during the exposure. This feature is especially useful when shooting long exposures in order to preserve battery life or to ensure that no light is emitted from the screen in the dark.

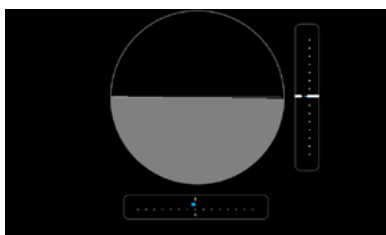
You enable this feature by entering the IQ4 Menu and selecting **IQ Settings > Display > Display Off During Exposure >** and choosing **On**.

The screen will now turn off during the capture. You can always wake it by tapping on the screen or by pressing a key on the IQ4.



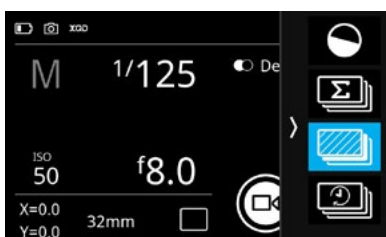
Virtual Horizon Tool

The Virtual Horizon tool provides a quick and accurate visual aid to ensure that the camera is level in both horizontal and vertical planes and is particularly useful when the camera is mounted on a tripod. Swipe in from the right side of the touch screen and tap on the Virtual Horizon icon to activate it.



The Virtual Horizon tool will now be displayed full screen with a virtual horizon as well as a roll and a pitch Scale indicator bar.

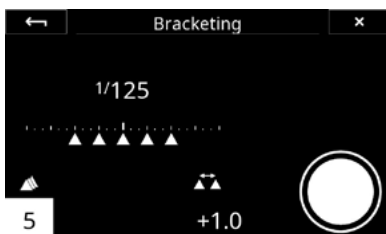
Once you have ensured that the IQ4 is level, close the tool by pressing the top-left key on the IQ4 to return to the Camera Controls screen.



Bracketing tool

The exposure **Bracketing** tool automatically takes a series of captures based around the selected exposure setting. The XT Camera System will by default capture three frames in succession: one 1-stop under, one at the set exposure and one 1-stop over. Bracketing steps can be selected up to 3.0 EV apart, with the option for selecting from 2 to 7 captures in total.

To enable Bracketing, slide in from right of the **Camera Controls** screen and then tap on the **Bracketing** icon.

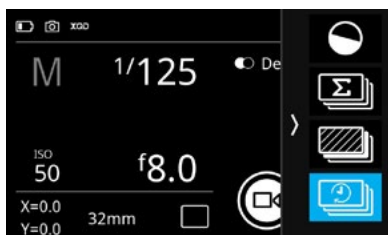


You are now presented with the tool where you can select the number of captures by tapping on the value in the lower-left of the touch screen. The difference in EV between each capture is adjusted by tapping on the value in the lower-mid of the screen. You can also press on the lower-left key on the IQ4 to select and cycle through the values and then change their value by pressing on the top-right or bottom-right key on the IQ4.

Once you are ready to begin the Bracketing sequence, press the shutter button on the XT Camera or the Capture Button on the touch screen.

If you need to abort the capture sequence, tap on the trash icon.

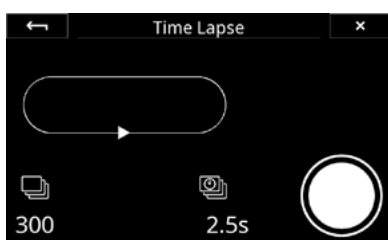
Bracketing is a sequence tool, so metadata is stored in the RAW files to indicate that they are part of the same sequence ID. This metadata is recognized by Capture One, making it easy to select all the images in the same sequence – and only those – for processing.



Time Lapse tool

The **Time Lapse** tool will capture a sequence of images with a set time delay between each. These can then be combined to create a time lapse video in an external program.

To enable Time Lapse, slide in from right of the **Camera Controls** screen and then tap on the **Time Lapse** icon. You are now presented with the tool where you can set the total number of captures by tapping on the value in the lower-left of the touch screen. The interval in seconds between each capture is adjusted by tapping on the value in the lower-mid of the screen.



You can also press on the lower-left key on the IQ4 to select and cycle through the values and then change their value by pressing on the top-right or bottom-right key on the IQ4.

Values that are indicated as red, is out of range - for instance if there is not enough storage for all the images, or the time between each capture too fast for the specific file format setting.

Once you are ready to begin the Time Lapse sequence, press the shutter button on the XT Camera or the Capture button on the screen.

If you need to abort the capture sequence, tap on the trash icon. You can add a delay before the time lapse starts by selecting the **Delayed** Drive mode from the **Drive** option on the Camera Controls screen (see earlier in this chapter).

Time Lapse is a sequence tool, so metadata is stored in the RAW files to indicate that the files are part of the same time lapse sequence ID as well as their position within the sequence. This metadata is recognized by Capture One, making it easy to select all the images in the same sequence - and only those - for processing.

Live View



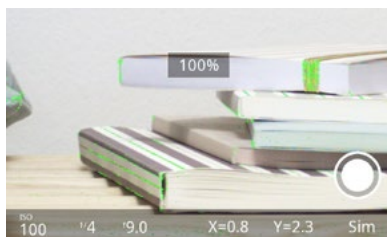
The IQ4 can display a Live View feed on the touch screen. It is a very effective method for getting the focus right and adjusting exposure prior to the capture.

Activating Live View

You can initiate Live View by either tapping on the Movie icon in Camera Controls or by pressing the top-left button on the IQ4 until the Live View icon is highlighted. You can also swipe up from the bottom of the IQ4 touch screen and selecting the icon.

Zooming in Live View

You can use pinch gestures to zoom in to the Live View feed by pinching outward and zoom back out by pinching inward. Note how a number at the center top of the screen will display the zoom percentage for a few seconds. Double-tap to zoom to 100% and double-tap again to go to fit screen view. While zoomed in to the Live View feed, you can pan around by pressing a finger on the screen and move it.



You can zoom all the way in to 400% in Live View by either using the pinch-outward gesture or by triple-tapping on the screen. Triple-tap again to zoom back to fit screen view.

Adjusting Exposure in Live View

The exposure is adjusted manually on the XT Camera System. It is highly recommended to use Live View mode as it provides a number of visual aids such as Exposure evaluation meter, Exposure Simulation, live Histograms and RAW Clipping Warning that makes it easy to adjust the exposure manually with the required precision.

Selecting Exposure Settings

There are two ways to select the exposure settings (Shutter Speed, Aperture, ISO) in order to adjust those. You can either press on the bottom-left key on the IQ4 to cycle through the options or just tap on the desired setting at the bottom of the touch screen. It now becomes highlighted.



Once ISO, Shutter Speed or Aperture becomes highlighted, you can adjust the value by pressing on the top-right key or the bottom-right key on the IQ4. The top key increases the shutter time, ISO and Aperture values while the bottom key do the reverse. It is also possible to slide your finger upwards or downwards on the screen to change the selected value.

Finally, if you long press on one of the exposure settings (Shutter Speed, Aperture, ISO) at the bottom of the touch screen, you get a menu list with values to scroll through and select. This is a nice option if you quickly need to change the Shutter Speed or ISO value a large step.

Exposure Simulation

By default, the Live View feed on the IQ4's screen is using **Exposure Simulation** which means that the brightness of the Live View image will reflect the actual exposure settings (Shutter Speed, Aperture, and ISO values) and thus the final exposure of the captured RAW files. The advantage of this feature is that you can adjust shutter speed, aperture and/or the ISO value until the desired exposure level is achieved based on the Live View feed.

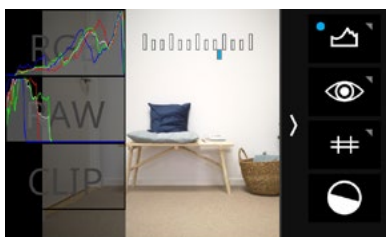
Note you can enable the **Auto** gain feature instead of using **Exposure Simulation**. Auto gain will optimize the Live View image to show a bright and even exposure of the subject regardless of what exposure settings you have set. It feature will be explained later in this chapter.



Using the Exposure Adjustment Aids

It is highly recommended to take advantage of the different exposure adjustment aids that Live View provides like the **Exposure Meter** or the live histograms. The **Exposure Meter** is present in the top-middle part of the Live View feed and gives an indication of whether the current exposure is deemed to correct, too dark or too bright. It will update as you change the exposure settings.

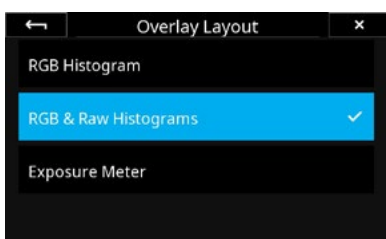
For even more precise feedback, it is recommended to enable the RGB Histogram, RAW Histogram and RAW Clipping Warnings that are explained below.



Live RGB and RAW Histograms

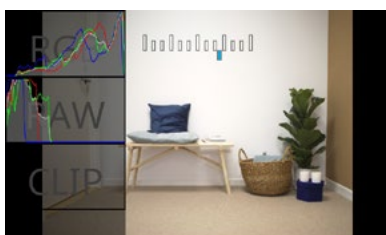
You can enable a live RGB and RAW histogram in Live View to help evaluate the exposure based on the current settings. The histograms will reflect the results of the captured image and are excellent tools to ensure that you get a proper exposure and doesn't clip either the shadows or the highlights.

You enable the live RGB and RAW histograms by swiping in from the right side of the touch screen while in Live View and toggle the feature on by tapping on **Histogram** icon.



You can configure whether you only want to see the **Exposure Meter**, the **RGB Histogram** with the Exposure Meter or in addition also want to see the **RAW Histogram** and **RAW Clipping Meter** as overlays. This is set up by long-pressing on the Histogram icon and choosing the desired options from the menu (see left).

Once the live RGB Histogram and live RAW Histogram is active, you can adjust shutter speed, aperture and/or the ISO value until the desired exposure level is achieved. This requires that you are using the **Exposure Simulation** mode.

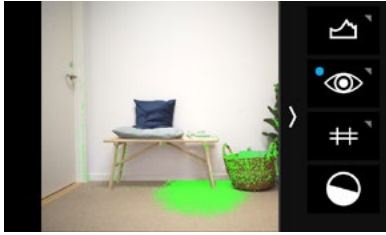


Live RAW Clip Warning

The live RAW Clipping warning in Live View indicates the amount of raw data that are being clipped for each for the color channels (Red, Green and Blue).

Once a blue, green or red pixel is clipped, the bar will start to light up for the corresponding color channel. A full bar indicates that several pixels in the image are clipped in that color channel while a single bar indicates that only one or few pixels are clipped. This feedback will let you decide to what degree you might accept some partial clipping since Capture One can recover details in the highlights as long as not all three color channels are clipped.

Once the Clip Warning Tool is enabled, adjust shutter speed, aperture and/or the ISO value until the highlights are no longer clipped. This requires that you are using the **Exposure Simulation** mode.



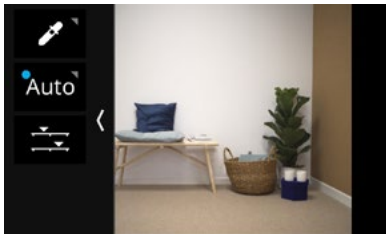
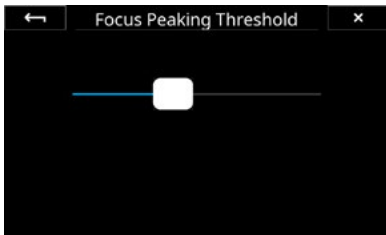
Focus Peaking and Manual Focus

The Focus Peaking feature is a great aid to get the focus right as it will highlight the areas in the Live View feed that has high contrast and are thus likely to be in focus. It will update continuously as you adjust focus manually on the XT Camera. This feature is especially useful when you have zoomed into the image.

You enable **Focus Peaking** by swiping in from the right side of the touch screen while in Live View and toggle the feature on by tapping on **Focus Peaking** icon (it looks like an eye).

You can change the **Focus Peaking Threshold** by long-pressing on the icon. Then adjust the threshold by sliding the finger on the bar.

Note that the feature looks for high contrast areas, so smooth zones like skin tones or a clear sky might not be highlighted, even if that part of the image is within the depth of focus.

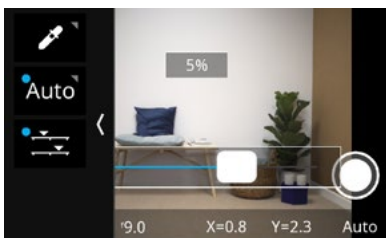


Using Auto Gain for Automatic Brightness

The Auto Gain feature will optimize the Live View image to show a bright and even exposure of the subject regardless of what exposure settings you have set. This is desirable when you need to check critical focus or the composition in dim light, for example when you are working with the modeling light of a flash system or out shooting at dawn. This is similar to how the Live View image was displayed on the IQ3.

The Auto Gain feature works as a toggle, making it easy to switch back and forth between Exposure Simulation and Auto Gain on the set. It is activated by swiping in from the left and tapping on **Auto**. The IQ4 will now analyze the image and adjust the brightness automatically. Note how the Info bar at the bottom will now display **Auto**. Swipe in from the left and tap on **Auto** to turn Auto Gain off again if needed.

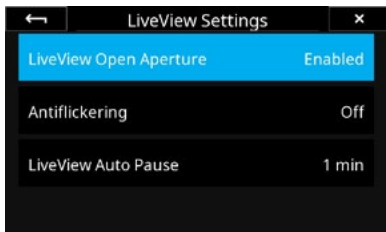
Auto Gain is also referred to as ViewFinder Mode in the IQ4 menu system.



Adjusting the Auto Gain brightness

If the calculated automatic brightness on the screen is too bright or dim, you can finetune the gain manually. Swipe in from the left and tap on the adjustments icon. Then tap on the slider and move it to readjust the brightness.

Swipe in and tap on the adjustments icon to dismiss the slider and accept the change.



Using Auto Gain with open or shooting Aperture

When using the Auto Gain feature in Live View, you can choose whether the lens aperture should be fully open or closed down to the shooting aperture. Using the aperture closed down to the shooting value will let you evaluate the real depth of field and sharpness throughout the image. Using the aperture fully open instead can make it easier to adjust the point of focus accurately. It will also let more light in, giving you a Live View feed with lower noise in very dim lighting.

You set the aperture behavior by swiping in from the left and long pressing on the **Auto** icon. Then select **LiveView Open Aperture** in the menu and set the function to **Enabled** (fully opened aperture) or **Disabled** (shooting aperture).

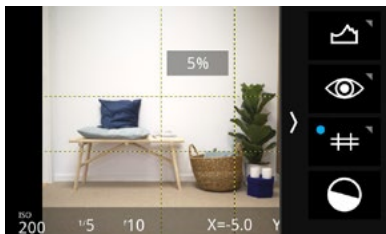
You should be able to hear the aperture open or close on the lens as you change the option, providing that your shooting aperture is not fully open.



Enable Antiflickering

When using Live View, some light sources can cause flickering at either 50Hz or 60Hz. Enabling **Antiflickering** can mitigate this. You set it by swiping in from the left and long pressing on the **Auto** icon. Then select **Antiflickering** in the menu and choose either **50Hz** or **60Hz**.

Exposure Simulation and Long Exposures With the Exposure Simulation feature, the chosen shutter speed will reflect the frame rate of the Live View feed. This might not be optimal when using long exposures as the resulting low frame rate would introduce an interactive lag on the Live View feed. For this reason, the IQ4 will try to maintain practical frame rates on long exposures while adding a screen brightness compensation. This means that what you see is still what you get, exposure wise.



Displaying a Grid

You have the option to display different types of grid overlays in Live View as a composition aid.

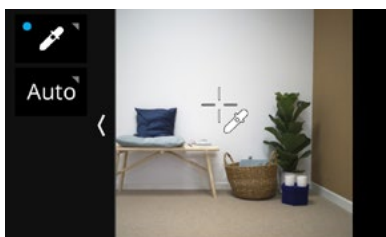
You enable the grid by swiping in from the right side of the touch screen and tap on the icon with the grid lines. Tap on it again to disable the grid.

You can change the grid type by long-pressing on the icon until the **Grid Mode** menu becomes available. Then choose either the Square, Golden Ratio, Center Cross, or 3x3 option and close the menu by tapping on the arrow in the top-left corner.



Image Capture in Live View

You can capture an image while in Live View by pressing the shutter release button on the XT Camera Body (or via a connected cable release), but you also have the option to capture directly from the Live View screen by tapping on the **Capture** button in the lower-right corner.



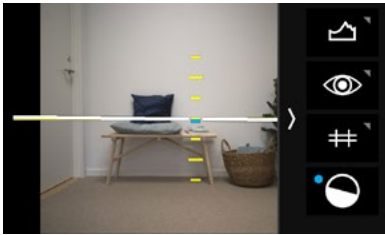
Setting a Custom White Balance

Swipe in from the left and tap on the **White Balance Picker** icon to activate the tool. Then drag the White Balance Picker icon with your fingertip to the point on the image that you want to reference as a neutral tone (a gray patch, or a light gray neutral area in the image). The tool will now automatically adjust the white balance based on the color in that spot.



Next, tap on the White Balance Picker icon on the screen and you will get the option to save the white balance adjustment as either **Custom 1**, **Custom 2** or **Custom 3**. The setting is automatically saved and all subsequent captures will use this white balance setting.

Note that you can access additional White Balance settings by long-pressing on the White Balance icon. Please read the Custom White Balance chapter for more information.

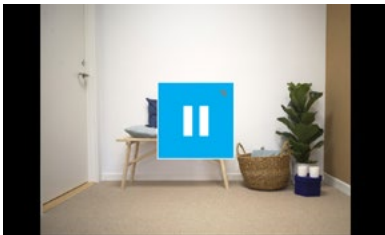


Virtual Horizon Tool

The Virtual Horizon tool provides a quick and accurate visual aid to ensure that the camera is level in both horizontal and vertical planes and is particularly useful when the camera is mounted on a tripod. Swipe in from the right side of the touch screen and tap on the Virtual Horizon icon to activate it.

The Virtual Horizon tool will now be displayed full screen with a virtual horizon as well as a roll and a pitch Scale indicator bar.

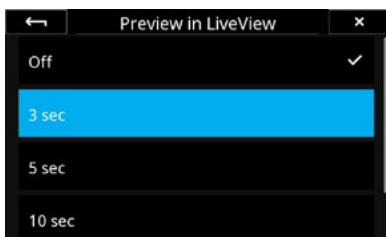
Once you have ensured that the IQ4 is level, close the tool to return to the Camera Controls screen.



Live View Auto Pause

You can set a timer that will automatically pause the Live View feed in order to save battery power. Once activated, the Live View feed will stop being updated, and a pause icon will be shown as an overlay. Tap on it to start the Live View feed again.

You can set the pause timer or turn the feature off by either a long press on the Pause icon or by entering the IQ4 Menu and selecting **IQ Settings > LiveView Auto Pause**. It is set to 1 minute by default.



Preview Time

You can select how long a preview of the captured image should be displayed on the screen before returning to the Live View feed. This is done by going to the menu and selecting **IQ Settings > Preview > Preview in LiveView**. You can set it from 3 to 10 seconds. Note that it is also an option to turn Preview off, if you prefer an uninterrupted Live View feed.

Viewing Images



Viewing single Images

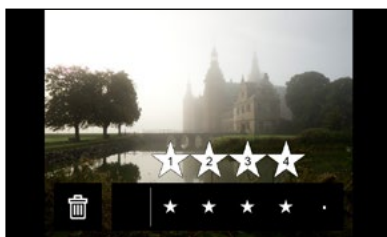
When you want to review the captured images, shift to **Viewer** by either pressing the top-left button on the IQ4 until it is highlighted or by swiping up from the bottom of the screen and select it.

Once in **Viewer**, you can browse through the captured images in full screen mode by swiping on the touch screen with one finger in either direction.

You can also use pinch gestures to zoom; zoom in to the image when pinching outward and zoom back out when pinching inward. Double-tap on the image is another way to zoom in and out of the image, going from fit screen to 100%, and back again.

While zoomed in on an image, you can pan around it by pressing a finger on the image and moving it.

You can swipe in from either the left or right of the touch screen to enable tools like a histogram or functionality like rating the current image.



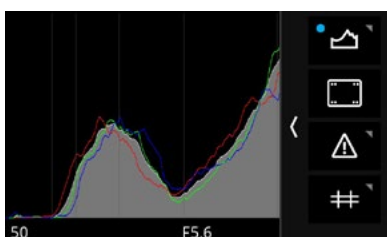
Delete a single image

With the image selected, swipe in from the left of the screen and press on the Rate/Delete icon to toggle the functionality on. A row under the image will now appear where you can delete the image by tapping on the Trash icon.

If you want to delete multiple images, please see later on how to do this from Browser.

Rating an image

With the image selected, swipe in from the left of the screen and press on the Rate/Delete icon to toggle the functionality on. A row under the image will now appear where you can rate the image by either tapping on the row or by swiping your finger along it.



Displaying a Histogram

You can display a histogram in the Viewer to check for proper exposure. Enable it by swiping in from the right of the touch screen and tap on the histogram icon. Tap on it again to disable the histogram.

Note: The Viewer has an alternative mode similar to that on the IQ3 where certain tools are always displayed to the right of the image. Please see the Tools Viewer chapter for full information about the available Tools in this mode.

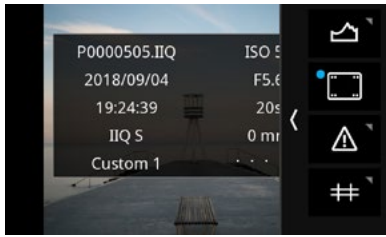
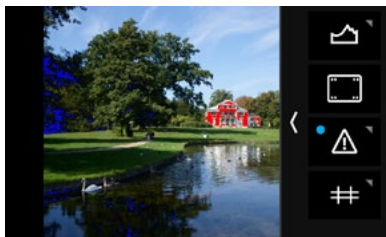


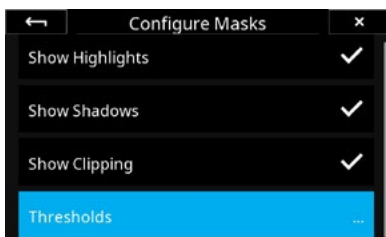
Image Info

You also have the option to display different kinds of metadata information like rating, file name, and Exif data. Swipe in from the right of the touch screen and tap on the second icon to enable it.



Exposure Masks

You can display different kind of masks on the images to ensure that exposure is correct. This is done by swiping in from the right of the touch screen and tapping on the icon with the exclamation mark. Tap on it again to remove the information.



It is possible to toggle the different kind of masks on or off by long-pressing on the icon until the **Configure Masks** menu becomes available.

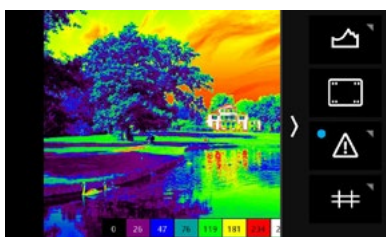
Then choose the **Show Highlights**, **Show Shadows** and **Show Clipping** as desired. Note that the Show Clipping option is based on the RAW data in the image file. This is a great feature as any clipping warning on an image will alert you that the highlight information is gone and cannot be recovered.



You can also adjust the threshold of Highlight (red color) and Shadow (blue color) warnings by selecting Thresholds...

Then move either the **Highlight Threshold** or the **Shadow Threshold** slider until they reach the desired level.

Close the menu by tapping on the arrow in the top-left corner.



Exposure Zone

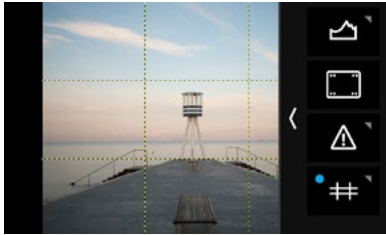
This tool displays a visualization of the exposure range of the captured image based on the raw luminosity data and is useful in determining the absolute point at which highlights will clip. It can also be a valuable tool when deciding how shadows are to be rendered. Color tones are used to indicate the exposure range in either EV steps or Luminosity values.

To enable the **Exposure Zone** tool, swipe in from the right of the screen and long press on the Exposure warning icon (the exclamation sign). Then select **Mode** in the menu and change from **Masks** to **Zone System**.



While in the menu, you can customize the appearance of the Exposure Zone tool by selecting **Configure Zone System** and choose whether you want to display a **Legend** and whether the exposure **Labels** should be denoted as **EV** steps, **Luminosity** values or turned off (**None**).

To toggle the visibility of the **Exposure Zone** tool on and off, tap at the bottom right thumbnail.

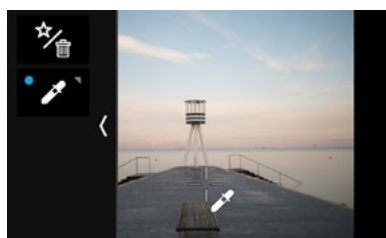


Displaying a Grid

You have the option to display different types of grid overlays in the Viewer as a composition aid.

You enable the grid by swiping in from the right of the touch screen and tap on the icon with the grid lines. Tap on it again to disable the grid.

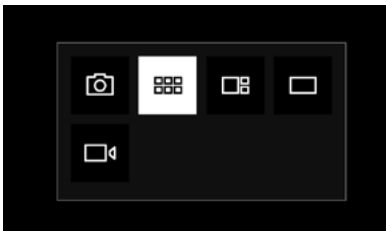
You can change the grid type by long-pressing on the icon until the Grid Mode menu becomes available. Then choose either the Square, Golden Ratio, Center Cross, or 3x3 option and close the menu by tapping on the arrow in the top-left corner.



Setting a Custom White Balance

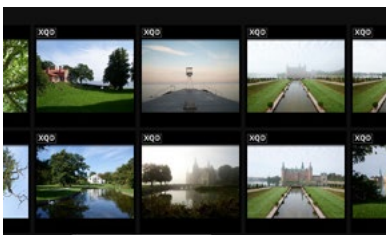
Swipe in from the left and tap on the **White Balance** Picker icon to activate the tool. Then drag the White Balance Picker icon with your fingertip to the point on the image that you want to reference as a neutral tone (a gray patch, or a light gray neutral area in the image). The tool will now automatically adjust the white balance based on the color in that spot.

Next, tap on the White Balance Picker icon on the screen and you will get the option to save the white balance adjustment as either **Custom 1**, **Custom 2** or **Custom 3**. The setting is automatically saved and all subsequent captures will use this white balance setting.



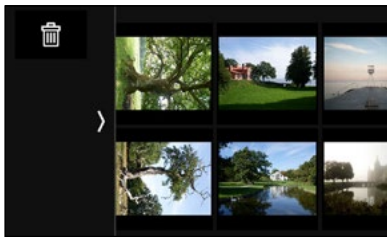
Viewing Images as thumbnails

If you want to view the captured images as thumbnails then either press the top-left button on the IQ4 until the **Browser** icon is highlighted or by swipe up from the bottom of the screen and select the **Browser** icon.



You can then browse through sets of thumbnail images by swiping on the touch screen with one finger in either direction. You can also press the bottom-right key on the IQ4 to select the next image or press the top-right key to select the prior image. The selected image is highlighted with a blue frame.

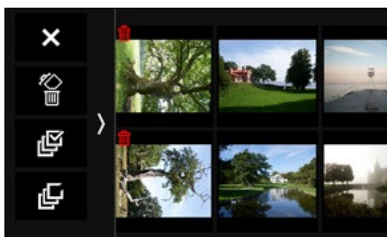
Tap on an image to select it and show it in full screen **Viewer** mode.



Deleting multiple images

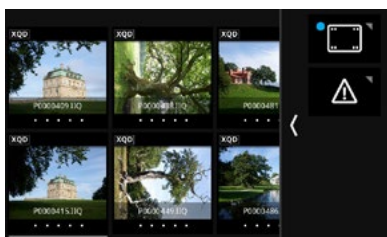
When in Thumbnail browser mode, swipe in from the left of the screen and press on the Delete icon.

You can now choose to delete a single selected image, a range of selected images, or delete all images.



You select one or multiple images for deletion by tapping on them. A small trash icon will denote that they have been selected for deletion. Then swipe in from the left of the screen and tap on the Trash icon (the second icon) to delete them.

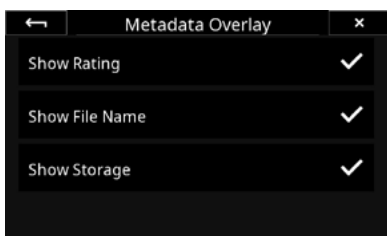
The delete swipe menu also gives you the option to select all images for deletion or to deselect all images. Finally, you can discard to delete process by tapping in the top X icon.



Browser Image Info

When viewing the images in **Browser**, you have the option to display different kinds of metadata information like rating, file name, and storage data.

You enable these by swiping in from the right of the touch screen and tapping on the metadata icon (top icon). Tap on it again to remove the information. You can toggle the different kinds of information on or off by long-pressing on the icon until the **Metadata Overlay** menu becomes available.



Then choose the **Show Rating**, **Show File Name**, and/or **Show Storage** as desired. Close the menu screen by tapping on the arrow in the top-left corner.

If you have enabled **Show Storage**, each thumbnail will have a row of small icons to indicate where the image is saved to, and whether a JPEG copy is saved in addition to the RAW files.

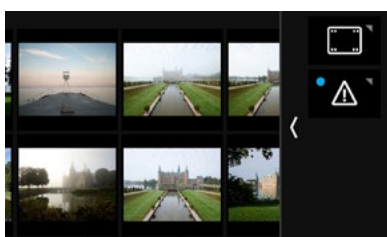
See next page for an explanation of the **Show Storage** icons.

XQD = The image is saved as RAW file on the XQD card

SD = The image is saved as RAW file on the SD card

Host = The image is saved as RAW file on the host computer (during tethering)

JPG = A JPEG copy of the RAW file is saved on the SD card



Browser Exposure Masks

You can display different kind of masks on the images to ensure that exposure is correct. This is done by swiping in from the right of the touch screen and tapping on the icon with the exclamation mark. Tap on it again to remove the information.

It is possible to toggle the different kind of masks on or off by long-pressing on the icon until the **Configure Masks** menu becomes available.

They work the same as with the exposure mask in the Viewer, so please see earlier in this chapter for formation on how to configure them.

Tools Viewer

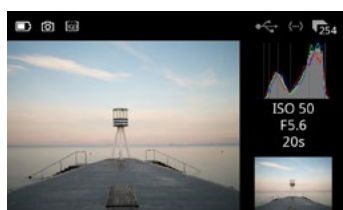


In addition to the Viewer, which is optimized to view the images as large as possible on the IQ4 touch screen, the IQ4 also have a Tools Viewer mode. This mode will provide you with the ability to view certain information — like a histogram or file metadata — side by side with the selected image. The Tools Viewer will also let you use certain Tools or information full screen, perfect for situations when you for example need to inspect a histogram in detail on the IQ4 screen.



Using the Tools Viewer

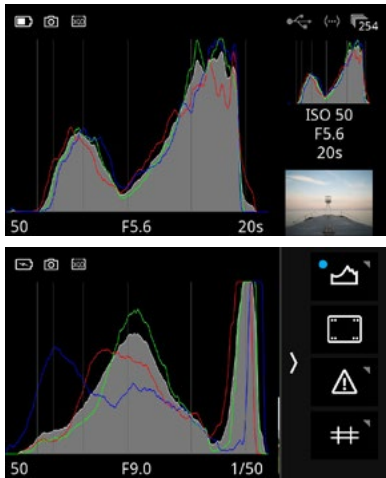
You activate the Tools Viewer by either pressing the top-left button on the IQ4 until the **Tools Viewer** icon is highlighted or by swiping up from the bottom of the screen and select the icon.



You can enlarge any of the information tools in column on the right side of the Tools Viewer by tapping on its thumbnail. Tap on the thumbnail again to close it and view the image instead.

There are three sections with tools on the right of the image.

Note that while in the Tools Viewer mode, you can still browse through the images by swiping with your finger either left or right on the image.

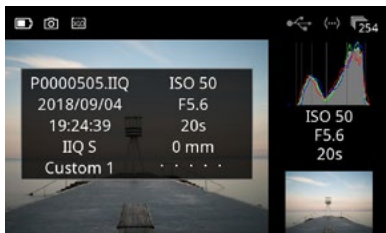


Histogram

The Histogram displays the brightness data per channel and allows the user to determine a level at which highlights start to clip. For improved accuracy, a custom white balance measurement should be performed first.

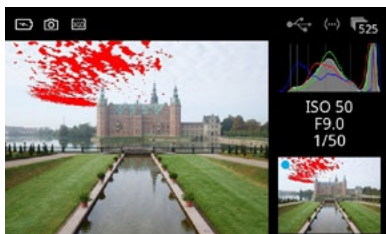
Press the Histogram thumbnail once to display it full screen. The EXIF information (ISO, f-stop and Shutter Speed) of the captured image is displayed below the Histogram. Press the screen again to return to the image view.

Swipe in from the right side and long press the Histogram icon to access a dialog box to alter the settings. You can choose between viewing the histogram with or without RGB information.



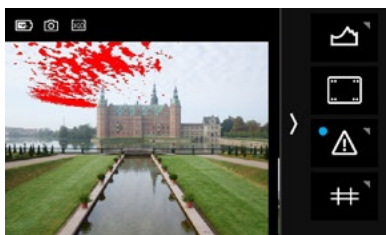
File Info

The File Info option displays the ISO, f-stop and Shutter Speed settings. Tap the File Info thumbnail to see more detailed information that includes the file name, date and time of capture, file format, white balance and the focal length of the lens.



Exposure and Clip Warning

The Exposure and Clip Warning display different kind of masks on the images to let you check whether the exposure is correct. Press on the image thumbnail to display any burned out areas of an image with a red color overlay and lost shadow detail with a blue color. This tool also features a Clip warning option with a pink colored overlay based on the raw data for the most accurate visualization of the level at which highlights will clip. Tap on the thumbnail again to remove the information.



It is possible to toggle the different kind of masks on or off by long-pressing on the icon until the **Configure Masks** menu becomes available.

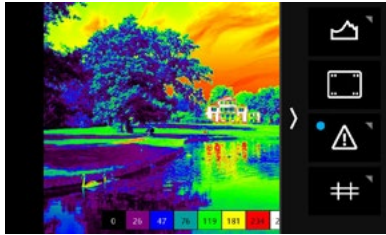
Then choose the **Show Highlights**, **Show Shadows** and **Show Clipping** as desired. Note that the Show Clipping option is based on the RAW data in the image file. This is a great feature as any clipping warning on an image will alert you that the highlight information is gone and cannot be recovered.



You can also adjust the threshold of Highlight (red color) and Shadow (blue color) warnings by selecting Thresholds...

Then move either the **Highlight Threshold** or the **Shadow Threshold** slider until they reach the desired level.

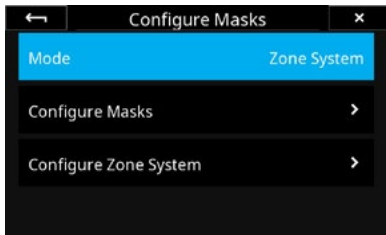
Close the menu by tapping on the arrow in the top-left corner.



Exposure Zone

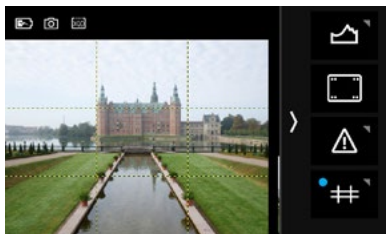
This tool displays a visualization of the exposure range of the captured image based on the raw luminosity data and is useful in determining the absolute point at which highlights will clip. It can also be a valuable tool when deciding how shadows are to be rendered. Color tones are used to indicate the exposure range in either EV steps or Luminosity values.

To enable the **Exposure Zone** tool, swipe in from the right of the screen and long press on the Exposure warning icon (the exclamation sign). Then select **Mode** in the menu and change from **Masks** to **Zone System**.



While in the menu, you can customize the appearance of the Exposure Zone tool by selecting **Configure Zone System** and choose whether you want to display a **Legend** and whether the exposure **Labels** should be denoted as **EV** steps, **Luminosity** values or turned off (**None**).

To toggle the visibility of the **Exposure Zone** tool on and off, tap at the bottom right thumbnail.

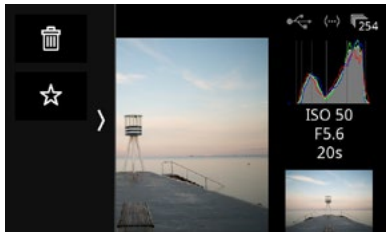


Displaying a Grid

You have the option to display different types of grid overlays as a composition aid.

You enable the grid by swiping in from the right of the touch screen and tap on the icon with the grid lines. Tap on it again to disable the grid.

You can change the grid type by long-pressing on the icon until the Grid Mode menu becomes available. Then choose either the Square, Golden Ratio, Center Cross, or 3x3 option and close the menu by tapping on the arrow in the top-left corner.



Additional tools

The Tools Viewer mode also have the same Actions as the regular Viewer mode, namely deleting and rating images, that you can access by swiping in from the left edge of the screen. Please see the Viewing Images chapter on how to use these.



File Storage Setup

File Storage overview

The file storage system on the IQ4 is designed to be very flexible. You can choose to save the images on the memory cards in the IQ4 as well as on the computer when shooting tethered.

There are in essence 3 storage points:

1. XQD memory card
2. Tethering to computer
3. SD memory card

These can be combined as you wish. Note that the 3 different options for tethering (Ethernet, USB-C and Wireless) share the same setting, called Host Storage.

Storage Mode

You control how to store the image files by going to the IQ4 Menu, accessed by swiping up from the bottom edge of the IQ4 touch screen, and selecting **Storage Setup**.

By default, Storage Mode is set to **Auto**. This means that the IQ4 will automatically detect if a given storage is available and save the captured images there. If you have inserted a XQD card and are shooting tethering, you will get two copies of each captured image; one on the XQD card and one on the host storage computer.

You can control this behavior by changing the **Storage Mode** to **Advanced**. It will let you set the storage rule individually for the XQD card and the Host Storage (tethering to computer).

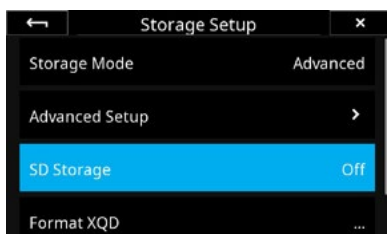
Note that the storage options for the SD card are a bit different and are covered on the next page in this chapter.



The options are the same for the **Host Storage** and the **XQD** card:

Disable. IQ4 will never save a copy of the captured image to the card or Host Storage even if it is available. Think of it as a way to turn the storage point off if you don't want to fill the XQD card, for example.

If Present. This is the default mode. IQ4 will save a copy of the captured image here if it detects that the card or Host Storage is available.



SD card Storage options

Storage on the SD memory card can be combined with the XQD card in a number of ways to ensure that you can always choose the optimal workflow. You can either save a RAW file version or a JPEG version of the captured images on the SD card. It is also possible to mirror the same RAW image to both the SD and XQD cards as a backup solution. Finally, you can combine the SD and XQD cards as one, single storage unit, where the images will automatically be saved on the SD card once the XQD card is full.

You can change the SD card storage options by going to the IQ4 Menu, accessed by swiping up from the bottom edge of the IQ4 touch screen, and selecting **Storage Setup > SD Storage**.

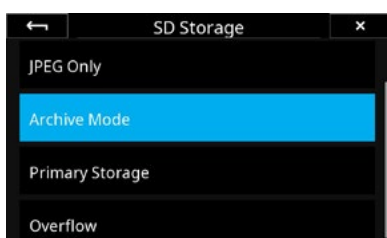


Saving a jpeg version

JPEG versions are reduced in resolution and can thus greatly speed up the workflow when needing to review the shots fast on location with clients or handing JPEG copies off to clients or an art director by giving them the JPEG versions on a SD card.

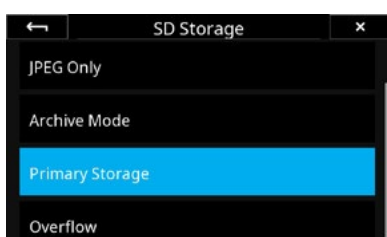
You enable the option to save a jpeg file version on the IQ4 by selecting **IQ4 Menu > Storage Setup > SD Storage > JPEG Only**.

Note that the IQ4 will need to save a RAW file to the XQD card to create the JPEG version from; it is not possible to only save a JPEG version of the captured image.



Saving a RAW backup on the SD card

If you want to save a RAW file to the SD card as a backup measure in addition to the RAW file saved on the XQD card, select the **Archive Mode** option in the **SD Storage** menu.



Saving the RAW file on the SD card

The **Primary Storage** feature ensures that you can capture the RAW files directly to the SD card instead of on the XQD card if you don't have an XQD card available or it is full.

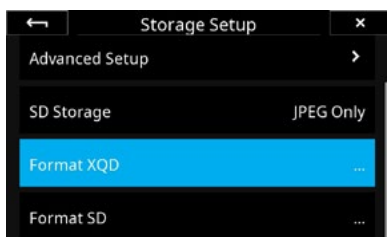
It is recommended to use SD card that has a write speed of at least 100 MB/s and is marked with speed class U3.



Using SD Overflow

The **Overflow** storage feature will enable you to concentrate fully on the shot at hand without having to worry about whether you might run out of space on the XQD card. This is facilitated by combining the XQD and the SD memory cards as one, single storage unit for RAW files, where the images will automatically and seamlessly be saved on the SD card once the XQD card is full.

Note that if the SD storage card has been set to **Off**, you will not be able to browse and view the images captured to the SD card.



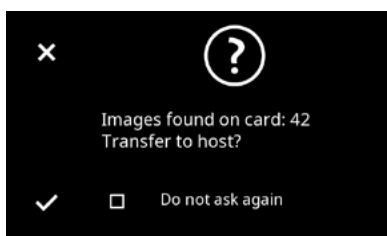
Formatting the memory cards

You can format the XQD or SD cards independently. Just go to the IQ4 menu and select **Storage Setup > Format XQD** or **Storage Setup > Format SD**. A warning is displayed as a safety measure, so just tap on **OK**.

If the IQ4 reports that it cannot format the XQD card, please do a reformat of the card on your computer first.

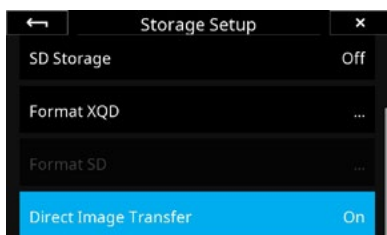
Direct Image Transfer

The Direct Image Transfer feature will automatically copy the RAW files on the XQD and SD cards from the IQ4 to the connected computer via Capture One Pro. This can be very convenient as you don't have to use a card reader to transfer the files and can thus save time.



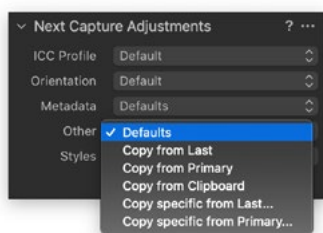
To initiate the Direct Image Transfer, first start Capture One Pro on your computer and then connect it to the IQ4 via the USB-C or Ethernet cable. The IQ4 will now ask whether you want to copy all the RAW files on the XQD and SD cards to the currently active **Capture** folder in Capture One Pro.

Tap on the checkmark to start the file transfer. A progress bar will be shown on the screen. You can disable the Direct Image Transfer pop-up dialog by enabling the **Do not ask again** option on the screen.



The Direct Image Transfer feature can be turned On and Off by going to the **IQ4 Menu > Storage Setup > Direct Image Transfer**.

If the images files are already present in the Capture folder in the computer, Capture One Pro will automatically rename the copied files by adding a "1" to the end of the file name so you don't have to worry about getting any files overwritten.



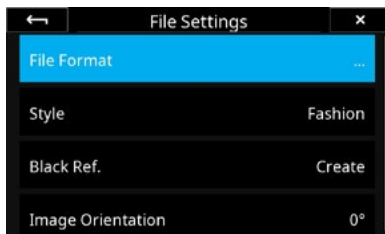
Note that the Direct Image Transfer feature basically works like any tethered capture. This means that the **Next Capture Adjustments** tool in Capture One controls whether the next transferred image will inherit the adjustments and Styles from the previous image. This will happen if the **Other** drop-down menu is set to **Copy from Last**.

If you want to ensure that each image retains their own applied Style only, please set the **Other** drop-down menu to **Defaults** instead of **Copy from Last**.

Be aware that if SD Storage is set to Off, the files on the SD card will not be transferred. Likewise, if the SD Storage is set to Primary Storage, the files on the XQD card will not be transferred.

Note that the IQ4 doesn't keep a record on what files it have transferred to the computer when it is turned off. It will therefore initiate a new full file transfer when you turn it on again.

File formats

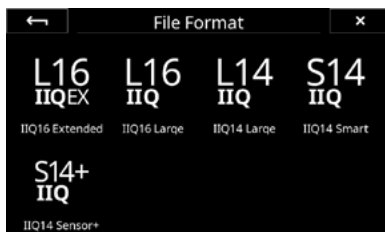


Phase One has engineered a clever RAW file format compression named Intelligent Image Quality (IIQ). The IQ4 provides five different versions of the IIQ RAW format to ensure that you can always pick the best depending on whether image quality, size, or workflow speed is the most important. In addition to saving the captured images as RAW, you can also add a IQ Style and save a jpeg version.

You choose between the different RAW file formats on the IQ4 by tapping on the **File Format** icon on the **Camera Controls** screen or by selecting the **IQ4 Menu > File Settings > File Format**.

RAW file formats

The IIQ RAW files are saved either in a 16-bit format for highest image quality or in 14-bit when storage space and speed are of importance too. These are the five options (**IIQ 14 Smart** is the default):



IIQ 16 Extended This format is an enhanced version of IIQ 16 Large (see below) that provides an even lower base noise. It offers the very best in image quality when you need to extract extra detail in the shadows. As a consequence of the lower noise readout from the sensor, the frame rate is cut in half. It is recommended to use this format at base ISO 50 to enjoy the full benefits.

IIQ 16 Large A completely lossless compression format that saves the full 16-bit signal from the CMOS sensor. It offers excellent image quality when you want to take full advantage of the dynamic range of the sensor.

IIQ 14 Large Saves a 14-bit version of the RAW file using a completely lossless compression. It provides a smaller file size and faster capture rate compared to IIQ 16 Large and strikes a good balance between high image quality and size.

IIQ 14 Smart Is an intelligently compressed RAW file format, which strikes an excellent balance between file size and image quality. It can be used in almost all applications as the "Smart" compression is so efficient that it can be difficult to notice any difference over the IIQ 14 Large. However, since there is a very small loss of data, Phase One does not claim that IIQ 14 Smart is completely lossless, but what we call "near lossless".

IIQ 14 Sensor+ This Sensor+ RAW format is the perfect solution when you need a lower resolution file but still want to retain all the advantages of the RAW file. When selected, the Sensor+ RAW file will be exactly a fourth of the normal 151-megapixel resolution, giving you a 37.7-megapixel file. You will maintain the advantages of the RAW format, like being able to adjust white balance.

Capture One supports the **Sensor+** RAW files from the IQ4 150MP and they will work just like any other RAW files.

It is worth to point out that the Sensor+ technology is more advanced than just traditional pixel binning since it is happening directly on the IQ4 150MP sensor where the pixel data is organized in a unique way to create "super pixels". Also, the Sensor+ technology on the IQ4 150MP do not have any effects on the chosen ISO values.



Fast, prerecorded Black Reference Frame

The new Prerecorded option for Black Reference Frame recording on the IQ4 150MP will provide a faster capture. The option is a parameterized, prerecorded method, thus removing the need for the black reference frame recording that is normally needed after each new image capture.

The option is particularly useful when shooting with the Electronic Shutter with technical cameras. Recording a black reference frame cannot be done fully automatically with technical cameras, since the IQ4 has no way of determining whether light is hitting the sensor or not. The new Prerecorded option will here lead to a much faster workflow.

Note that since the Prerecorded option is not based on your currently used camera settings and lighting conditions, it may not provide quite the same level of noise reduction at the pixel level as the traditionally recorded black reference frame.

It is currently not recommended to use the option for shutter speeds longer than 1/10 second.

You enable it by going to the menu and selecting **File Settings > Black Ref. > Prerecorded**. It is only available on IQ4 150MP models, not on the 100MP Trichromatic.



Setting image orientation

You can change the image orientation if the default setting doesn't work with the shooting view alignment. This can be useful if the XF IQ4 Camera System is pointing downwards or upwards, for example, and the images appear rotated the wrong way.

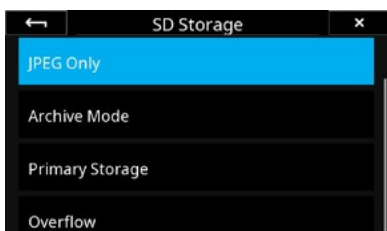
Go to the IQ4 Menu and select **File Settings > Orientation** and select the desired rotation.



Enter your Copyright information

You can enter your copyright information in order to save this as metadata in the files.

Go to the IQ4 Menu and select **File Settings > Copyright**. Then enter your copyright information and tap on the green checkmark to accept.



Saving a jpeg version

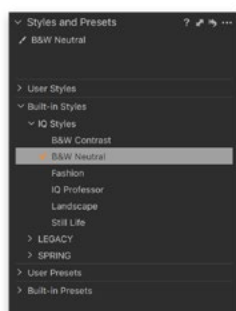
You can save a jpeg version on the SD card in addition to the RAW file version saved on the XQD card. This is done on the IQ4 by selecting **IQ4 Menu > Storage Setup > SD Storage > JPEG Only**.

Note that the IQ4 will need to save a RAW file to the XQD card to create the JPEG version from; it is not possible to only save a JPEG version of the captured image.

Capture One Inside Styles



The IQ4 has an advanced image processing engine based on the technology from Capture One, called Capture One Inside. With this technology you can add styles to the captured images, letting you preview your favorite look instantly on the IQ4 screen instead of seeing the typically flat-looking RAW preview. In addition to using one of the pre-defined Styles, you can also create your own look in Capture One Pro and transfer that Style to be use on the IQ4.



The selected IQ Style on the IQ4 will automatically be applied as a non-destructive metadata Style to the raw files during capture. When the files are imported in Capture One during tethering (or other means of image import), the Style will be automatically applied in the Styles and Presets tool. You can readjust the image adjustments based on the IQ Style to taste in Capture One, if need be. The selected Style on the IQ4 will also be baked into any jpeg file that is created on the back.

The IQ4 ships with six **IQ Styles** that each are optimized for specific image subjects or workflows.

1. Landscape aims to provide detailed landscape images in scenes with a high dynamic range. The style boost saturation slightly as well as recovering detail in the highlights and shadows. Finally, midtones are warmed slightly.

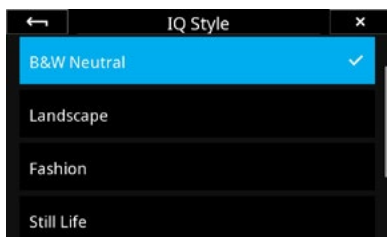
2. Fashion is optimized to ensure that you can evaluate that skin tones are neutral and smooth. Contrast is increased to add some pop to the image while saturation is reduced. In addition, the color balance applies a cold/warm split to the shadows and midtones.

3. Still Life provides an attractive alternative to the typical flat captures in Studio photography. The style applies a crisp contrast increase while lifting the brightness of the image without effecting saturation.

4. B&W Neutral replaces the “Black and White” view mode found in previous IQ digital backs. The effect basically mirrors enabling Black & White in Capture One.

5. B&W Contrast is a Black and White conversion style with some added contrast that makes the images pop more than B&W Neutral.

6. IQ Professor The Image Quality Professor’s choice of image adjustments. Please see the Image Quality Professor’s blog on phaseone.com for an explanation of the included image adjustments as this style is meant to showcase the possibilities of the IQ Styles and might change with a future firmware.



You choose between the different IQ Styles on the IQ4 by tapping on the **IQ Style** icon on the **Camera Controls** screen or by selecting the **IQ4 Menu > File Settings > IQ Style**.

Note: The Capture One engines in IQ4 and Capture One might render a slightly different look of the selected IQ Style, but the difference should be negligible.

Be aware that the selected IQ Style will not be applied to the Live View feedback as a fast refresh rate for the screen is prioritized.

Creating a Custom IQ Style

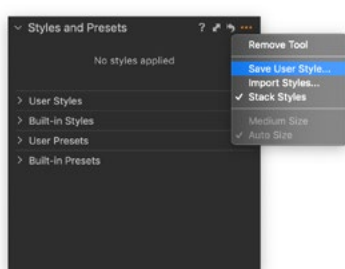
Start Capture One Pro and create the image adjustments that you want to include in your style. We recommend that you make the adjustments on a RAW file captured on the IQ4 with the kind of scene and lighting that you are going to use the style with, e.g. a landscape, wedding or fashion shot.

These image adjustments from Capture One Pro are supported on the IQ4 and can be included in your Style:

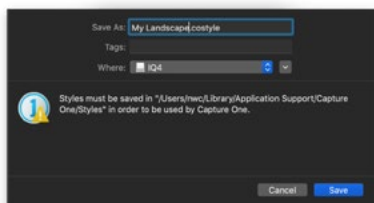
- Contrast (Exposure tool)
- Brightness (Exposure tool)
- Saturation (Exposure tool)
- HDR - Highlights
- HDR - Shadows
- Clarity (Natural/Punch/Neutral)
- Curves
- Color Balance
- Color Editor (Advanced)
- Levels
- Black & White (enable/disable)

Note that some image adjustments in Capture One like Film Grain and Vignetting will not show up on IQ4 as there are currently not supported, but you can still include them in the Style. All the included adjustments will be retained in the style metadata so even if IQ4 will not show them all on screen, they will be applied to the captures once you open them in Capture One Pro.

Once you are satisfied with the look, go to the **Styles and Presets** tool in Capture One Pro, click on the Action menu in the top-right corner and choose **Save User Style...**

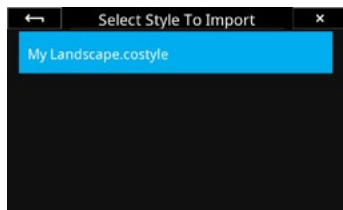


A Save Style dialog box is now shown. Select the image adjustments that you want to include in your Style and click on Save.



Give the Style a fitting name and select where to save it. You can save it directly to the memory card to save time. Otherwise copy the .costyle to the memory card.

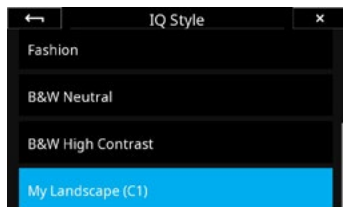
If you want to use one of the Capture One Styles that you have previously saved, you can locate those on Windows under %localappdata% > Capture One > Styles and on Mac under Library > Application Support > Capture One > Styles.



Once the Style have been saved to the XQD card, insert the XQD card in the IQ4. Then open the IQ4 Menu and select **IQ Settings > Import Custom Style** and choose your style.



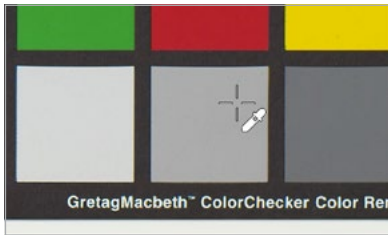
You can then choose which of the 3 custom style slots you want to load your Style into by tapping on the desired option. If it is empty, it will be labelled **Available**. Once ready, tap on the checkmark in the bottom-left corner to accept. Your Style is now saved on the IQ4.



Loading a Custom Style on the IQ4

Once your Style is loaded into one of the 3 Custom Style slots on IQ4, you can select it from Style menu as any other Style by tapping on the style icon on Camera Controls or by going to the menu and choosing File Settings > Style > Custom Style 1-3.

Custom White Balance



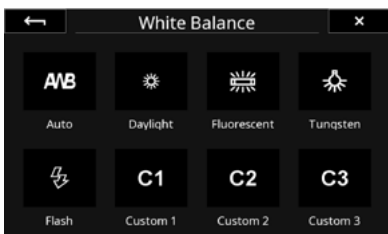
White Balance Picker



White Balance Custom save



White Balance Auto Save



White Balance preset options

Creating a Custom White Balance

Creating a custom White Balance setting on the IQ4 is achieved from either a captured image when in the Viewer or from the live view feed in Live View. It is recommended to capture a reference white balance image like a Gretag Macbeth Color Checker, or QP-Card displayed in the image under the intended light source.

Swipe in from the left and tap on the **White Balance Picker** icon to activate the tool. Then drag the White Balance Picker icon with your fingertip to the point on the image that you want to reference as a neutral tone (a gray patch, or a light gray neutral area in the image). The tool will now automatically adjust the white balance based on the color cast in that spot.

Next, tap on the White Balance Picker icon on the screen and you will get the option to save the white balance adjustment as either **Custom 1**, **Custom 2** or **Custom 3**.

The setting is automatically saved and all subsequent captures will use this white balance setting.

Saving the Custom White Balance automatically

It is possible to save the selected white balance automatically on the IQ4, saving you the step to select either **Custom 1**, **Custom 2** or **Custom 3** (see above). This is done by going to the IQ4 Menu and selecting **IQ Settings > White Balance > When Picking: Auto Save** and then choosing **On**. The white balance will now be applied and saved automatically when you deactivate White Balance Picker tool.

Note that you will not get the option on the screen to select whether the new white balance setting should be saved as either Custom 1, Custom 2 or Custom 3. This is controlled in the menu setting **White Balance > When Picking: Auto Save As**, so ensure that you select the desired white balance custom slot (C1, C2 or C3) when using the **Auto Save** feature.

You can also access the additional White Balance settings by long-pressing on the White Balance icon when in the Viewer or Live View.

Selecting a Custom White Balance Setting

You select the desired Custom White Balance Setting from the Camera Controls. Tap on the top right button of the IQ4 until it is selected, then press the White Balance icon.

Now you can choose the custom white balance by tapping on C1, C2 or C3. If you have only stored one custom white balance, select C1.

NOTES:

White balance and custom white balance settings are only necessary for a representative rendering of the color when displayed on the touch screen of the IQ4 or when saving JPEGs in addition to raw files.

The raw files will contain the white balance settings for correction in Capture One, so capturing a reference white balance file with a gray card under the intended light source will speed up the workflow.



Taking Advantage of Shift movements

The XT Camera System provides horizontal as well as vertical (rise/fall) movements that enables perspective control, image displacement and stitching of multiple captures. The workflow is greatly improved by that fact that any movement is automatically detected and recorded as metadata in each image file for advanced and seamless Lens Cast Correction (LCC) in Capture One.

The integrated Shift feature allows you to take advantage of the large image circle provided by certain lenses in the XT Camera System by shifting its optical center compared to the sensor's position. The XT Camera can be shifted up to 12mm left or right as well as accepting a 12mm rise or fall.

Note that since the tripod foot is mounted to the XT Lens/Camera and not the IQ4, it is in effect the sensor that is being shifted against the image circle.



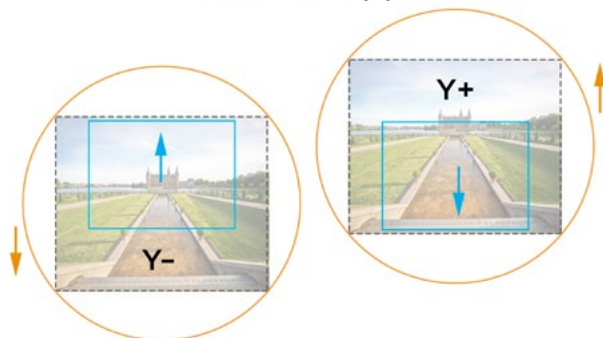
Using Shift on the XT Camera

The horizontal and vertical (rise/fall) movements are operated by the **Horizontal Shift Dial** on the top of the XT Camera Body and the **Vertical Shift Dial** located at the right-hand side of the camera.

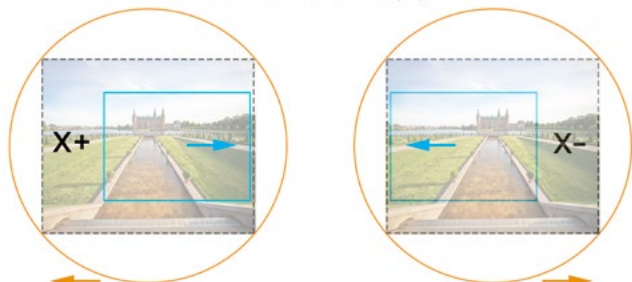
You can check the amount of X movements in millimeters at the top of the camera body with the **Horizontal Shift Scale** and amount of Y movements in millimeters at the side of the camera body with the **Vertical Shift Scale**. The dials have incremental steps to provide a tactile response when adjusting them and you can apply shift the XT Camera in both directions up to +/- 12mm.

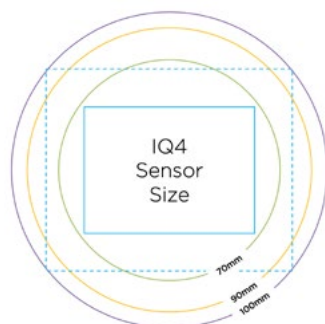
The shifted scale will also be visible on the IQ4 when using Live View and the Camera Controls screen and will – as mentioned – be recorded automatically in the captured image metadata. The illustration below clarifies how a horizontal (X) or vertical (Y) shift is recorded with a positive (+) or negative (-) value.

Vertical Shift (Y):



Horizontal Shift (X):





Lens Image Circle and Useable Movements

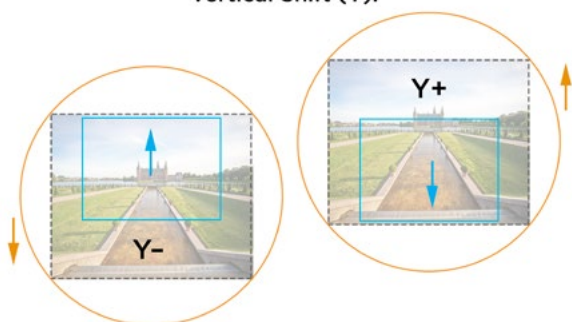
Each XT Lens has its own possibilities and limits regarding movements. The size of the lens' image circle dictates how much the lens can be shifted while still providing acceptable image quality at the borders and corners. This has been defined by Rodenstock where their Digaron W-series implies a Wide image circle.

The 100 mm image circle in the XT - Rodenstock HR 70mm f/5.6 lens provides full coverage for shifting the lens 12mm horizontally or vertically. It is even possible to combine a full 12mm horizontally and vertically shift, effectively reaching the border of the image circle. Note that some vignetting might appear.

The 90 mm image circle in the XT - Rodenstock HR 32mm f/4 lens provides full coverage for shifting the lens 12mm horizontally or vertically. It is possible to combine a horizontally and vertically shift, but not with both adjusted fully to 12mm as that would reach beyond the image circle. Note that some vignetting might appear.

The 70 mm image circle in the XT - Rodenstock HR 23mm f/5.6 lens provides limited coverage for shifting. It is not recommended to shift it more than 2 mm either horizontally or vertically. The Digaron S-series are optimized for extremely high resolution already at open aperture rather than for large movements on a medium format sensor.

Vertical Shift (Y):



Using Shift for Perspective Correction

Shifting provides you with superior perspective correction directly at capture. Vertical converging lines can be avoided since the image plane on the XT Camera System can be shifted relative to the sensor instead of having to tilt the camera upwards – perfect for photographing for example architectural buildings.

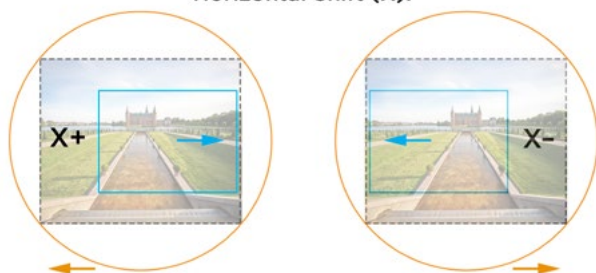
While the same effect can be obtained by tilting the camera upwards during capture and using Keystone correction in Capture One or Photoshop, you will lose resolution as the image is stretched and cropped. Another problem is that the proportions of the subjects can be skewed during image editing which is often unacceptable for professional architectural, furniture and other product photography.

Using Shift on the XT Camera for perspective correction solves all these image quality problems and saves post-processing time.

It is highly recommended to enter Live View while adjusting the shift in order to get a visual feedback for the required amount. Once the desired movement have been obtained, remember to recheck whether the exposure is still correct as the shifted image will cover new areas of the scene.

It is highly recommended to take advantage of Lens Cast Correction in Capture One when using Shift. Please read the Lens Cast Correction chapter in this User Guide for full instructions, including how you capture a lens cast reference image on location.

Horizontal Shift (X):



Using Shift for Stitching and Panoramas

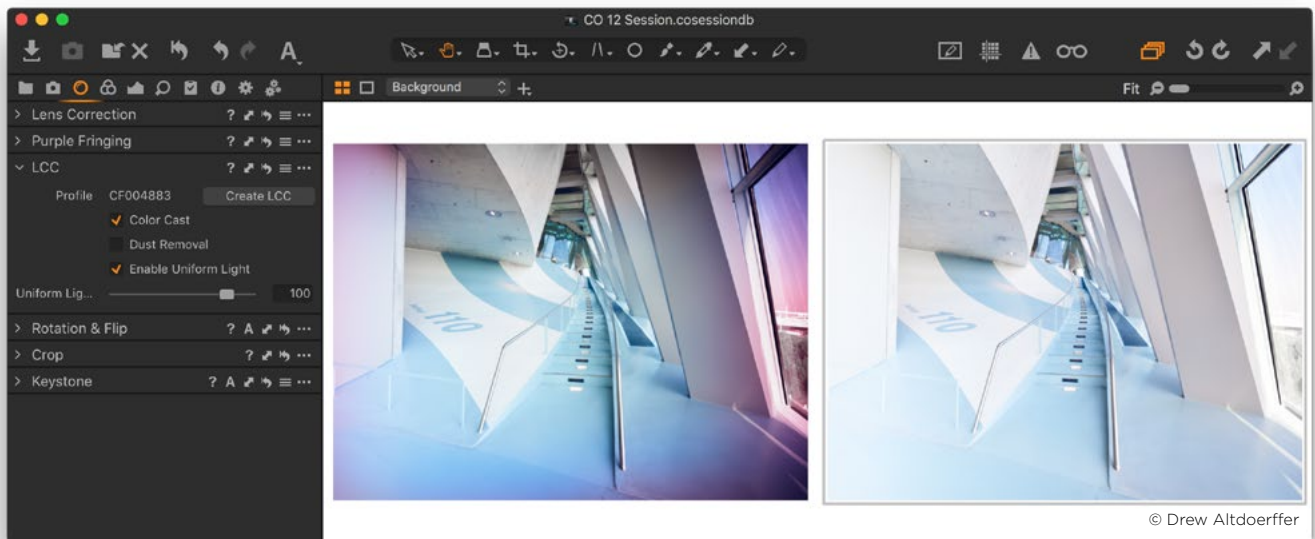
Since shift moves the image plane (IQ4 sensor) parallel to the lens, the feature is ideal for stitching multiple captures. Stitching can be used to create panoramas resulting in a wider viewing angle or to simply create higher resolution files with a normal image aspect ratio.

Since the XT Lens in XT Camera System stays anchored in position, while the IQ4 sensor is moved relative to the lens, there are no parallax issues. This provides optimal image quality when stitching the captures together since that is no need the "stretch" the pixels during the image post processing.

It is important to use a solid tripod when using shift for stitching in order to ensure that the lens stays in exactly the same spot. It is also recommended to set the exposure manually so that each image matches exposure wise when stitching them together.

Once ready, shift the XT Camera the desired amount horizontally and/or vertically and take the first capture. Then make the next shift movement, take the next capture, and so forth. It is important to have some degree of overlap between each capture for Photoshop to stitch the images correctly, but 2 captures horizontally and 2 captures vertically (4 in all) should be sufficient to take full advantage of the large image circle on the XT - Rodenstock HR 70mm f/5.6.

Using both horizontal and vertical shift at the same time can reach (or exceed) the border of the lens image circle and introduce notable vignetting or other image issues, but these can be cropped out after the stitching has been done.



Lens Cast Calibration

Lenses on XT Camera System have their rear element positioned close to the sensor surface of the IQ4 and is therefore projecting the light in a very steep angle, which can result in color cast and luminance uniformity issues effecting image quality. Shift (and tilt) movements can in addition introduce, or amplify, the problem. The LCC (Lens Cast Calibration) tool in Capture One Pro is designed to correct for the color and luminance uniformity issues by analyzing and applying a correction made from an LCC capture.



Phase One LCC Plate

To use the LCC tool, you will need to make an LCC capture. An LCC capture is a photograph of an evenly-lit semi-transparent card, used as a reference image within Capture One's LCC tool. The supplied Phase One LCC Plate (part number 70722) is made specifically for the purpose.

It is important to be aware that a lens cast is specific to the relationship between the lens and the sensor plane. If there are any changes to the angle or distance between these two planes, like adding a shift, the light rays will hit the sensor from new angles, and a new LCC reference image should be created. The same is true if you adjust the aperture as this will change the shape of the light.

A new LCC reference image needs to be created if you change any of the following parameters:

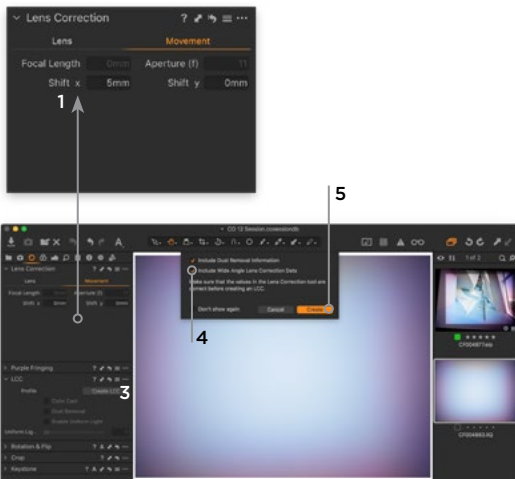
- Use a new sensor / lens combination
- Change the Focal Length
- Change the Aperture
- Adjust the Shift (X and Y)
- Adjust the Tilt or the Swing
- A change in the direction of the light in the scene
- Change the focus distance (less important, see below)

Changing the focus distance should only have a minimal impact. However, there might be a slight difference if you capture the LCC reference image at infinity focus while shooting the regular images at a close focus distance, or vice versa. The focus distance effect on the LCC calibration image will also dependent on the focal length, so a 90mm lens will show more variation than a 23mm lens. If you want to play it safe, then capture an LCC reference image at the working focus distance.

Changes to the shutter speed or ISO value will not have any notable impact on the creation of an LCC.

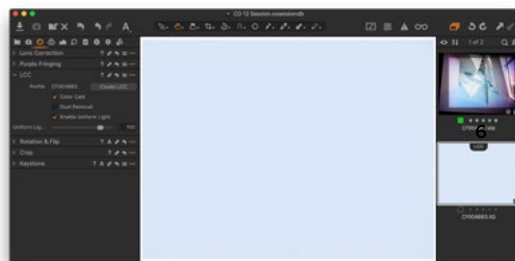
It is not an absolute necessity to capture the LCC reference image under the same lighting conditions as the real images, although it is recommended for best possible image quality. It is, however, important that the LCC plate is evenly lit, and in order to accommodate for the loss of light from the semi-transparent card, it is suggested to decrease your shutter speed by two stops.





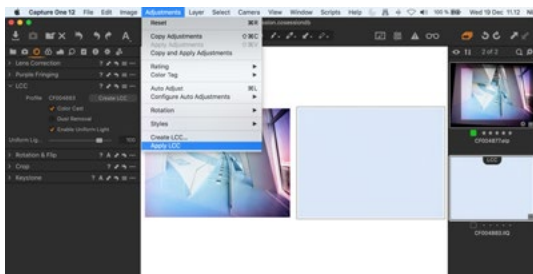
Creating an LCC profile in Capture One

1. Once you have made an LCC reference capture, select the RAW file in Capture One. Go to the **Lens Correction** tool and ensure that the correct lens is selected from the **Profile** menu. Then select the **Movement** tab. Make sure that the metadata **Focal Length**, **Aperture (f)**, **Shift x**, and **Shift y** is correct. These will be added automatically when using the XT Camera System. Otherwise, enter the correct values.
2. For future reference, it is always a good idea to rename the LCC file, so you can easily recognize it later by naming it for example "32mm_+10shift_f11".
3. Go to the **LCC** tool and click on **Create LCC**.
4. Enable the **Include Wide Angle Lens Correction Data** option if you are using a wide-angle lens and some degree of movements with a tilt or shift lens. This option initiates a special LCC process that is designed to correct for banding at the extreme edge of the image circle on higher resolution digital backs. You can also enable the **Include Dust Removal Information** option to create a map which automatically removes dust. Note that this will increase processing time and negates future use of the LCC.
5. Click **Create** in the dialog box. Capture One now analyzes the reference image and creates an Lens Cast Correction.



6. When completed, the reference image used will be labeled LCC in the Browser. The created Lens Cast Correction will be applied automatically to the reference shot, letting you check immediately whether it was successful. It should show an evenly exposed light grey image without a color cast, vignetting or dust spots (if you have selected that option). It may be necessary to adjust the white balance of the image to evaluate the proper application of the LCC.

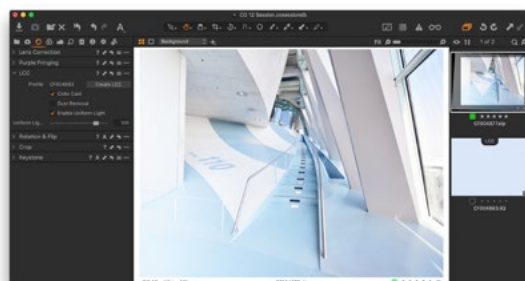
Workflow tip: If you have multiple LCC reference shots to calibrate, you can save time by selecting them all and click on Create, then Capture One Pro will work through them one by one.



Applying an LCC profile

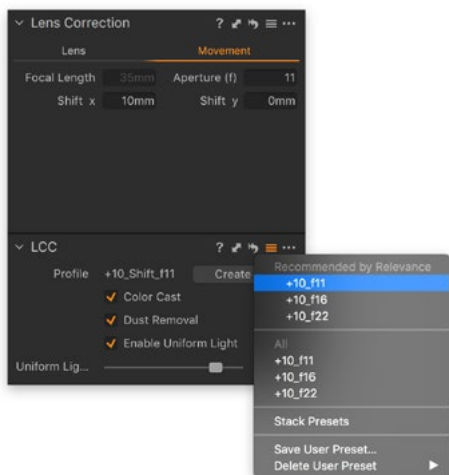
You apply an LCC profile to an image by first selecting the LCC reference shot and then the image in the Browser, next go to the **Adjustments** menu and select **Apply LCC**. You can also right-click on the image in the Browser and select **Apply LCC**. Notice how the used LCC profile file name is shown by **Profile**.

Workflow tip: You can select multiple images and apply one LCC profile to them all by using the same process.



Adjusting the LCC profile effect

Once an LCC profile has been applied, you can fine-tune its effect on the image with the LCC tool. You can turn the color cast correction on and off with the **Color Cast** option as well as the **Dust Removal** if any dust was found on the reference image. You can also control the correction of **Light Falloff** with **Enable Uniform Light** and the **Uniform Light** slider. You might, for example, want to dial the correction down a bit to 75% with the slider in order to retain some of the light falloff for artistic reasons.



Using Presets to speed up the LCC workflow

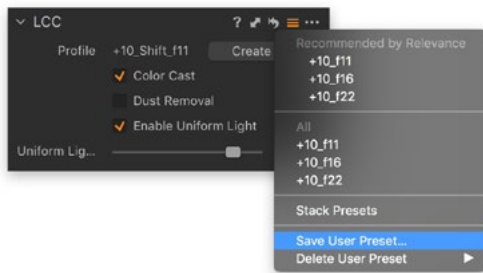
Saving a created LCC profile as a Preset is a great way to be able to quickly apply a Lens Cast Calibration to several images. As a new feature in Capture One 11.1, the LCC tool will look at metadata like focal length, aperture and shift x and shift y in the **Movement** tab and show a list of recommended Presets based on those that match the target image the best.

You can leverage this functionality to build a library of LCC Presets, ready to use if you didn't have the opportunity or time to shoot LCC reference images on location.

For best possible image quality, we recommended that you shoot the LCC reference image in the same lighting conditions as the target images, but the LCC Presets is a great solution when a fast workflow is important.

As mentioned in the start of this chapter, you will need to shoot a LCC reference image for each combination of Focal Length, Aperture, Shift X, Shift Y (and Tilt or Swing). The shooting matrix for a full LCC library can thus be rather wide-ranging when all the Shift values are to be included, for example, so consider concentrating on the most used combinations.

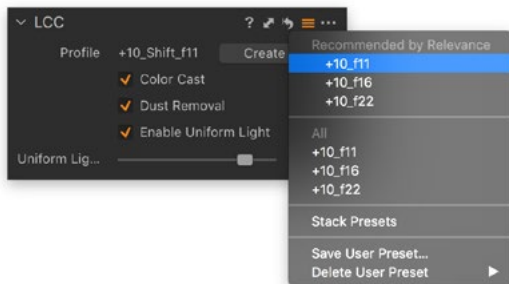
Saving a LCC Preset is also by far the most convenient way of sharing LCC profile between different Sessions and Catalogs.



Saving the LCC profile as a Preset

Once you have created a LCC profile, select the LCC file, click on the **Preset** icon and choose **Save as Preset...** You will now get the options to save the LCC **Profile** as well as the **Color Cast**, and **Uniform Light** corrections as part of the LCC Preset. Make sure to deselect Dust Removal as dust on the lens will change over time and should only be used when the LCC Profile is created on location.

Be aware that the Focal Length, Aperture, Shift x, and Shift y metadata in the **Movement** tab is saved during the creation of the LCC profile itself, so anything entered now will not be a part of the Preset. When ready, click **Save**.



Applying the LCC profile as a Preset

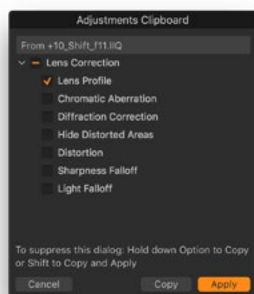
As a new feature in Capture One 11.1, the LCC Preset manager will show a list of the recommended Presets for the selected image based on what metadata that matches the best. Click on the **Preset** icon and select a LCC preset from the **Recommended by Relevance** list. The best match will be ranked at the top of the list. The list is sorted based on the Focal Length, Aperture, Shift x, and Shift y metadata in the **Movement** tab as well as the Lens Profile, which should all have been entered automatically for you with the XT Camera System. If using another system, remember to enter these correctly on the target image for the **Recommended by Relevance** list to work correctly.

If a Preset is greyed out and can't be selected, the sensor or serial number from the camera/digital back is different from the one used to generate the LCC profile.

Note that it is also possible to apply the LCC Preset during tethered shooting from the **Next Capture Adjustments** tool under the **Styles** drop-down menu as well as during import from the **Import Images** dialog box under **Adjustments** and **Styles**.

Copying and reusing lens metadata

Since the LCC Preset manager looks at the metadata from the **Movement** tab (Focal Length, Aperture, Shift X, and Shift Y values) in order to recommend the most suitable preset. If you are not using a XT Camera System, you will need to enter this metadata correctly for all images. This process can be speeded up by copying the metadata from one image to several others. First, select the image with the correct metadata entered in the **Movement** tab. Then hold down Shift and select the other images. Go to the **Lens Correction** tool and click on the copy adjustment icon, then select **Lens Profile**, and click **Apply**. The metadata from the Movement tab is now copied to the other images together with the selected lens from the **Profile** drop-down menu.





Automatic Frame Averaging

The Automatic Frame Averaging feature let you merge multiple captures into a single IIQ RAW files while averaging the exposures automatically. Think of the feature as a way to simulate longer exposures by combining a series of shorter captures. The benefits are two-fold; you can achieve long exposure without having to use a Neutral Density filter, which might add a color cast. The nature of the feature also means that any random captured noise will be cancelled out resulting in superior image quality with lower noise.

Automatic Frame Averaging relies on the Electronic Shutter (ES), which will be enabled automatically when you activate the feature on the XT Camera System. If you are using the IQ4 in tech camera mode, remember to enable Electronic Shutter.

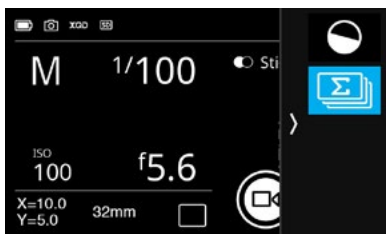
Using Automatic Frame Averaging

The feature is simple to use as the IQ4 will do all the complicated calculations and image merging automatically for you.

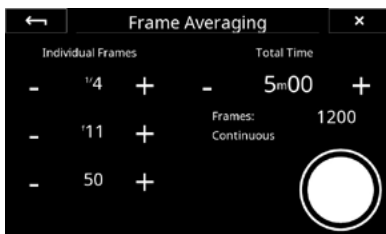
First adjust the Shutter Speed, Aperture, and ISO value from the **Camera Controls** to ensure that you get a properly exposed image without any blown-out highlights. It is recommended to take a test shot first and check the exposure before entering the Automatic Frame Averaging tool.

If you have a specific area with highlights you need to preserve, you can also use Live View with **Exposure Simulation**, zoom in to that area and use **Live RAW Clip Warning** to ensure that no pixels are being blown-out (See the **Live View** chapter for this workflow).

Once the proper exposure has been established, enable Automatic Frame Averaging from **Camera Controls** by sliding your finger in from the right and tap in the icon.

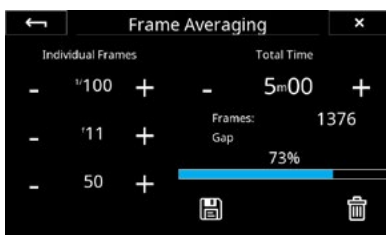


Then you just need to set how long you want the entire exposure sequence to be by moving the **Total Time** slider.



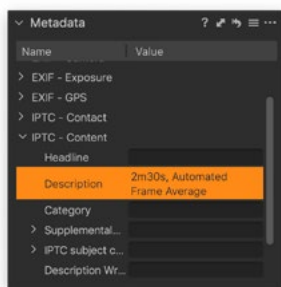
The feature works by continuously reading out the sensor during the entire sequence, so if you have chosen a Shutter Speed that is longer than the sensor readout time, the Automatic Frame Averaging tool will notify you that there will be a **Gap** between each captured frame. This is only worth to be aware of if you want to capture movement like waves perfectly smooth, otherwise the feature will still work fine. If the Shutter Speed is so long that there will be no gaps between each captured frame, you will be notified that the recording is in **Continuous** mode.

Finally, start the capture sequence by tapping on the **Capture** button.



The XT Camera System will now take a series of captures and average the exposures continuously in background.

A Progress bar will inform you how far the exposure sequence is from being completed. If you want to abort the entire capture, tap on the **trash** icon. If you instead want to stop the Automatic Frame Averaging sequence and save it as an image at that point in time, tap on the **save** icon.



When the desired total exposure time is reached, the final RAW file is saved on the memory card, ready to use in Capture One.

The IQ4 will append a note in the IPTC - Description metadata field to each RAW file so that you can find and differentiate the Automatic Frame Averaging files in Capture One Pro. It will note the Total Time and label the RAW file as a Automated Frame Average.

It is important to ensure that no highlights are burned-out when you establish the proper exposure. Specular highlights in for example waterfalls can introduce purple fringing which will be amplified by the additive nature of the feature. In these circumstances it is recommended to underexposure the image and then lift the shadows in Capture One after the fact. This workflow will work out very nicely because the Automatic Frame Averaging files are extremely clean and noise free.

Electronic Shutter (ES)



It is possible to capture the images using the Electronic Shutter which provides advantages for a number of capture scenarios. Since there are no vibrations from a mechanical shutter, it is easier to capture the finest details and fully enjoy the high resolution of the IQ4 150 MP. Another advantage of using the Electronic Shutter is that there is no mechanical wear when shooting a very large number of photos. Additionally, you can capture an image completely silently.

Note that it does take a noticeably longer time to read the entire image from the sensor when using the Electronic Shutter rather than the mechanical shutter. The full read-out time is typically a half second on the IQ4 150MP (three times longer on the IQ4 100MP Trichromatic), and as a consequence, large moving subjects, like a car, will be distorted in the image. For the same reason, Electronic Shutter only support a very slow flash synchronization, but it is a great choice when doing studio work or copy stand photography using continuous light.

The Electronic Shutter is also very useful for landscape images, where there are only small local movements in for example leaves, trees or waves. These kinds of movements are captured instantly at the specific location and will thus not represent a problem. We highly recommend using Electronic Shutter with a tripod.



You enable the Electronic Shutter on the XT Camera System by entering the IQ4 Menu and selecting **XT Menu > Shutter Mode** and ensure that it is set to **ES Only**.



Enable Antiflickering

When using the Electronic Shutter, there are certain shutter speed values that do not work well with light sources flickering at either 50Hz or 60Hz. You can enable this feature by going to the **IQ4 Menu** and selecting **IQ Settings > Antiflickering**. Then select either **50Hz** or **60Hz**.

Be aware that the fastest available shutter speed will be capped when using Electronic Shutter in combination with the Antiflickering feature. If you have selected **50Hz**, the fastest possible shutter speed will be 1/100 second, while **60Hz** sets the limit to 1/125 second.

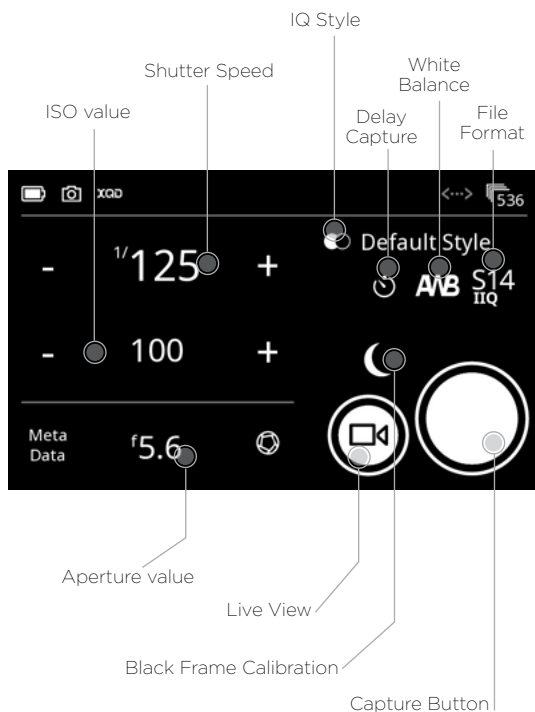


Using Electronic Shutter (ES) without the XT Camera Body

When using the Electronic Shutter on the IQ4 with another Technical Camera than the XT Camera Body, you can control the shutter speed and other exposure settings via the Camera Controls on the IQ4 touch screen.

As a new feature on the IQ4, you can now do the wake-up step directly from the IQ4 touch screen. This only requires using the new Multiport to PC-sync cable (part number 50300298). If you prefer to use a two-shot release operation instead, it can still be accomplished, and requires the new Multi Connector to Minijack adapter cable (Part number: 50300306) since the IQ4 now uses a 12-pin multi-connector port.

Please read the next page in this chapter on how to use these two cables with the IQ4.



Setting the Exposure

Using the **Camera Controls** to change the exposure settings are straightforward - simply touch the shutter speed or ISO value icons to change them. Please see the Camera Controls chapter for more information.

Note that since the aperture is set on the technical camera's lens (if not using a XT Camera), you will need to enter the used aperture value in order for it to be written correctly into the metadata of the image.

Be aware that you cannot adjust the Shutter Speed value in Camera Controls when Electronic Shutter (ES) is turned **Off**. This is by design, as the IQ4 will then assume that shutter speed is being controlled by the mechanical shutter on the Tech Camera.

Self Timer Delay

It is possible to specify a delay from when the **Capture** button on the screen is pressed until the image capture begins. Just tap on the **Self Timer Delay** icon and choose the desired value. The delay is then displayed on the Capture button. Once you press the Capture button, a countdown will appear until the image capture begins.

Black Frame Calibration

The new Prerecorded option for black reference frame recording on the IQ4 150MP will provide a faster capture. The option is a parameterized, prerecorded method, thus removing the need for the black reference frame recording that is normally needed after each new image capture.

The option is particularly useful when shooting with the Electronic Shutter with technical cameras where it will lead to a much faster workflow.

Note that since the Prerecorded option is not captured under the currently used camera settings and lighting conditions, it may not provide quite the same level of noise reduction at the pixel level as the traditionally recorded black reference frame. It is only available on IQ4 150MP models, and not the IQ4 100MP Trichromatic.

It is currently not recommended to use the option for shutter speeds longer than 1/10 second.

You toggle it on and off by tapping on the **Black Frame Calibration** icon (see the illustration on the left). If there is no blue dot by the icon, the IQ4 is using **Prerecorded**, while the blue dot indicate the use of a traditional black frame calibration.





You can also enable it in the menu by selecting **File Settings > Black Ref. > Prerecorded**.

If you cannot use the Prerecorded option - this is the case if you are using the IQ4 100MP Trichromatic - you will need to capture a black frame calibration after each image. This cannot be done fully automatically when the IQ4 is mounted on a technical camera, since the IQ4 has no way of determining whether light is hitting the sensor or not. So when a black frame calibration is needed, the IQ4 will prompt you to cover the lens during the black frame calibration capture.

Using Wake-up cables on the IQ4

When using a mechanical shutter on the Technical Camera lens, please ensure that Electronic Shutter (ES) is set to **Off** the IQ4 in the menu system under **Camera > Electronic Shutter**. When operating the IQ4 in ES mode, wake-up cables are not required.



Using the Multiport to PC-sync cable

1. Mount the IQ4 on the Technical Camera.
2. Connect the **Multiport to PC-sync cable** (part number 50300298) from 12-pin multiport on the IQ4 to the PC-sync connector on the Copal shutter, or to the flash connector on the Schneider Kreuznach, Rodenstock or Sinar electronic shutter system.
3. If you are using a flash system, connect it to the flash sync connector on the IQ4.
4. Select the Camera Controls on the IQ4, then press on the Capture button on the IQ4 screen to wake up the back.
5. Trigger the mechanical shutter on the lens, preferably by using a shutter release cable.



Using the Multi Connector to Minijack adapter cable

1. Mount the IQ4 on the Technical Camera.
2. Connect one end of the **Wake up Cable for Phase One one-shot backs** (part number: 50300131) to the flash-sync port on the lens' mechanical shutter and the other end to the new **Multi Connector to Minijack adapter cable** (Part number: 50300306). Then connect the sync cable to the 12-pin multi-connector port on the IQ4.
3. If you are using a flash system, connect it to the flash sync connector on the IQ4.
4. Once you are ready to capture, push the button on the Wake-Up cable to alert the IQ4 to get the sensor ready for the capture.
5. Trigger the mechanical shutter on the lens, preferably by using a shutter release cable.

Note that if the time span between pushing the Wake-Up button and the shutter release is too long, the capture will be abandoned and the IQ4 will show you a warning.

Power Connections



Power Connections Overview

The XT Camera System is designed to provide a number of flexible powering solutions by either Power over Ethernet, devices supplying power over USB-C cable or by using the XF Power Supply accessory.

Power over Ethernet (PoE)

The IQ4 supports the Power over Ethernet (PoE) which can deliver sufficient electric power to keep the XT Camera System running smoothly during normal usage without having to recharge the battery. The attached router/switch obviously needs to support Power over Ethernet (PoE) for the power delivery to work.

Note that if you have Live View running (or are using Live View over HDMI) for a prolong period, the IQ4 might use more power that can be delivered via PoE and the batteries will thus not be charged.

If your router/switch or computer doesn't support Power over Ethernet, you can add a Power over Ethernet injector device to the network. The PoE-injector plugs into an electric outlet and adds the power to the Ethernet cable loop. Make sure that the injector point is added between the IQ4 and the router/switch or computer to work.

The PoE standard supports up to 15.4 watts of output power, but in practice a POE Router or Injector and the cable connection will provide around 13 watts of power. As already mentioned, this will be enough to keep the XT Camera System running during normal usage without the need to recharge the batteries. However, if you are using Live View constantly, the XF Power Supply and the USB-C power delivery options can provide more power to the IQ4 so consider using one of those for this specific usage case.

Power over USB-C

XT Camera System will intelligently draw as much power as possible over the USB-C connection, which can be plenty to keep the system running without having to recharge the battery. This is done on the IQ4 by using the USB Power Delivery (PD) standard to negotiate with the power supply on the attached USB-C device (it can in theory draw up to 16V and 3A).

The IQ4 is thus capable of drawing plenty power over USB-C to keep the XT Camera System running under heavy usage with Live View while also being able to charge the battery. This means that USB-C connection can provide notable more power than Power over Ethernet, but please be aware that few computer USB-C ports are actually able to deliver this level of power. As an example, the USB-C port on a newer MacBook Pro will provide 5V with a maximum current of 1.5A, which translate into a maximum power of 7.5 Watt.

Even if the USB-C port on your computer only provides 7.5 W, it will obviously prolong the use of the XT Camera System before having to recharge the battery. The IQ4 might not use more than 5-6 watts when idle, so a bit of

charging the battery in between shots is feasible. However, the best way to provide sufficient power delivery from the port is to buy a USB-C device with its own power supply like the OWC USB-C Dock which can supply plenty of power via a USB-C cable.

You can also buy a USB-C power supply and plug it into the USB-C port on the IQ4, and it will serve as a power supply. As an example, you can use the power supply that comes with newer MacBook Pro's to power and charge the IQ4. The IQ4 will automatically take as much power as possible.

Using a USB-C Power bank

You can attach a USB-C based power bank to the USB-C port on the IQ4 to deliver power. The IQ4 will be using the USB Power Delivery (PD) standard to negotiate how much power it can draw from the power bank. Note that it can accept up to 16V as a max, so if your power bank can supply 20V, 9V and 5V, the IQ4 will draw 9V.

External XF Power Supply

You can get power delivery from the XF Power Supply accessory by connecting it to the 12 pin multi connector port on the IQ4.

If you need to have both a cable release and the XT Power Supply attached using the same 12 pin multi connector port, the Phase One Break Out Box (B.O.B.) accessory will solve that as you can connect the XT Power Supply to the B.O.B. accessory.

Note that IQ digital backs older than IQ4 uses an 8 pin multi connector port and thus need an adapter to use the XT Power Supply or the BOB accessories. With the IQ4, the port has been aligned to use a 12 pin multi connector like on the XT Camera Body.

Power input priority for the XT Camera System

1. **External XF Power Supply:** If the XF Power Supply is connected to the IQ4 through the 12 pin multi connector port, this power source will be used.
2. **Power Over Ethernet:** If you have a Gigabit Ethernet connection and no XF Power Supply is connected, the Power over Ethernet feature will be the preferred power source.
3. **USB-C:** If neither the XF Power Supply or Power over Ethernet is available, power deliver over USB-C will be used.

Charging LED indicators

The LED on the back of the IQ4 will indicate the charging status of the battery:

- An **orange pulsating** light indicates that the battery is charging normally.
- A **green-yellow pulsating** light indicates that the battery fully charged.
- A **red pulsating** light indicates that the battery is close to being depleted but is charging. It is not recommended to run the IQ4 with this battery level, and the IQ4 might in fact not power on.

Power Management Options

Auto Power Down

This option will ensure that the IQ4 powers down after a period without use to preserve battery power. It can be set from 5 minutes and up to 2 hours, and the feature can also be turned off. It is set to 15 minutes by default.

LiveView Auto Power Down

You can set the IQ4 to disengage from Live View after a period without use to preserve battery power. The period is set to 5 minutes by default. It can be set from 20 seconds to Off.

Display Off Time

This option will ensure that the screen on the IQ4 will turn off after a period without use to preserve battery power. It is set to 1 minute by default. It can be set from 5 seconds and up to Always on.



Tethering Connections

The XT Camera System provides two different options for powerful, fast, and reliable tethering via cable. In addition there is an option for wireless tethering, allowing you to choose the best possible workflows for your specific needs.

This chapter will cover how to set up and take advantage of the different tethering connections on the IQ4. The options are:

1. Ethernet
2. USB-C
3. Wireless

Gigabit Ethernet connection

The Gigabit Ethernet connection on the IQ4 allows for long cables (up to 90 meters).

Connection for tethering

Connect the supplied Gigabit Ethernet cable to the RJ45 port on the IQ4 and the other end to a network port on a router or switch. Connect another Ethernet cable between the computer and the router or network.

Launch Capture One version 11.2.1 (or later). IQ4 can automatically establish an IP connection over Ethernet (or WiFi) to Capture One on your computer via the built-in Bonjour feature. There is no need to configure the IP connection; you just select the IQ4 as the connected camera system from drop-down menu in the Camera tool in Capture One, and you are ready to start your capture session.

Note! The automatic IP connection feature works natively on the macOS, but if you're working on a Windows pc, you need to have Apple's Bonjour installed. This is done by downloading and installing either iTunes for Windows or Bonjour Print Services for Windows from Apple.

Be aware that while it is possible to connect the IQ4 directly to your computer with just an Ethernet cable, it is not recommended as the router will handle the network connection (like assigning IP addresses) automatically. If you connect directly, you will have to enter some network details manually.

Ethernet Cables

The IQ4 requires a Category 6a (or better) of highest quality to deliver a fast and reliable tethering experience. Use the supplied 5-meter cable or buy a longer cable as accessory. It is possible to use a length of up to 90 meters.

Power delivery

The IQ4 supports the Power over Ethernet (PoE) which can deliver sufficient electric power to keep the XT Camera System running smoothly during normal usage without having to recharge the batteries.

Please read the **Power Connections** chapter for more information about the PoE power delivery options on the IQ4.





USB-C connection

The IQ4 have a native USB-C connection that provides fast tethering. It is based on USB 3.1 Gen 1 which can transfer data up to 5 Gbps.

Connection for tethering

Use the supplied USB-C to USB-C cable (3 meters) to connect the IQ4 to a computer with a USB-C port like a newer MacBook Pro. Make sure that you insert the end with the transparent cover into the IQ4 port in order to make a firm connection that can't wiggle during use.



Launch Capture One version 11.2.1 (or later), and the XT Camera System will connect automatically. The IQ4 will show up in the Camera tool in Capture One, and you are ready to start your capture session. (See a later chapter for more information on shooting tethered with Capture One).

USB-C Cables

The supplied USB-C cable and the USB-C connection on the IQ4 is compatible with all standard USB-C connections, including the ports on newer Mac's that have additional support for Thunderbolt 3. They are also compatible with the USB 3.1 Gen 2 standard (data transfer up to 10 Gbps.). If you have a computer with an USB 3.0 Type A port, use the supplied USB-C to Type A cable.

We highly recommended that you use the supplied USB-C cables, but if you try to use another please note that USB cables on 3 meter should be a marked "Active". They have a chip built-in to amplify the signal. Otherwise the connection can become unstable.

In case you need to use longer cable distances, Phase One recommends that you use the Gigabyte Ethernet option instead of using USB-C as the Ethernet connection will provide superior reliability with longer cable lengths.

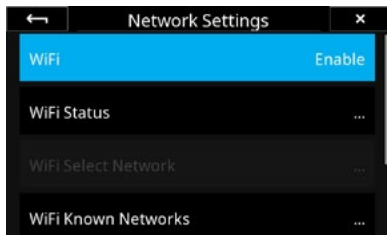
USB-C Power Delivery

While USB-C cables can carry sufficient power to keep the XT Camera System running without having to recharge the batteries, not all computer USB-C ports will deliver that level of power.

Please read the **Power Connections** chapter for more information about the USB-C power delivery options on the IQ4.

Wireless connection

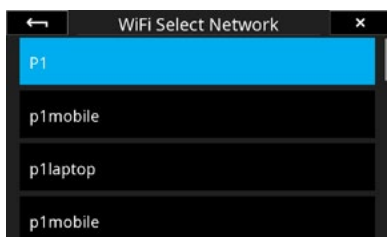
You can do wireless tethering on the IQ4 over Wi-Fi without any need for cables. The feature will facilitate a fast preview of the captured images in Capture One while a transfer of the full-sized raw image can happen in background. The feature requires that the captured raw files are also saved to a memory card in the IQ4 in order to provide a fast and reliable workflow.



Connection for WiFi tethering

IQ4 can automatically establish an IP connection over WiFi to Capture One on your computer via the built-in Bonjour feature. To activate the Wireless connection on the IQ4, swipe up from the bottom of the screen and select the IQ4 Menu.

In the Menu, select **Network Settings**, and set **WiFi** to **Enable**.



Once you have enabled WiFi on the IQ4, choose **Network Settings > WiFi Select Network**. The IQ4 will now scan for any available wireless networks and show them as a list. Select the WiFi network that you have access to on your computer. If the network requires a password, you will be prompted to enter it on the touch screen.

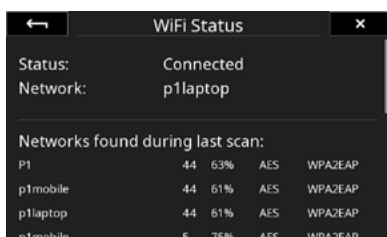
Note that all secure networks have a password, and the IQ4 will remember it the next time you select the same wireless network. Once connected, close the menu screen by tapping on the cross in the top-right corner.

The IQ4 will now connect to your wireless router. Ensure that your computer is connected to the same wireless router, and launch Capture One version 11.2.1 (or later).



Next, you just need to select the IQ4 as the connected camera system from drop-down menu in the **Camera** tool, and you are ready to start your capture session.

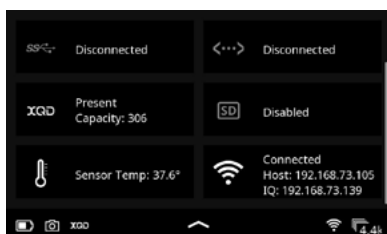
Note! The automatic IP connection feature works natively on the macOS, but if you're working on a Windows pc, you need to have Apple's Bonjour installed. This is done by downloading and installing either iTunes for Windows or Bonjour Print Services for Windows from Apple.



You can get an overview over the quality of the available wireless networks by choosing **Network Settings > WiFi Status**. The IQ4 will show the signal strength in percentage, and this can be useful to help choosing the wireless network that will provide the best connection.

Checking for Image Transfer

It will take time to transfer RAW images over your WiFi network and show up in Capture One, so here is a way to check whether the images are indeed being transferred: Swipe down from the top edge of the screen to reveal the Status Menu. At the bottom by the WiFi icon, a status text like this will be shown if there are images in flight: **Connected Images Pending: 2 81% (2,8 MB/s)**. Once this process is completed, the images will show up in Capture One.



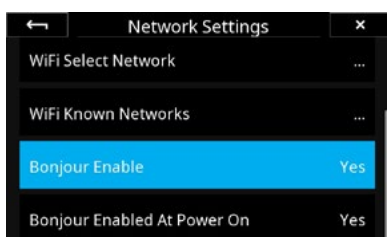
You can check whether the IQ4 has been assigned a DHCP Address by swiping down from the top Status Bar to reveal the full Status Menu. Under WiFi, the IQ4 will show two different IP addresses: **IQ** is the IP connection between the IQ4 and the router, while **Host** is the IP connection between the host computer and the router.

The **IQ** DHCP Address can be used if you need to establish a connection to the IQ4 manually. If no IP number is displayed, the router has not assigned one, and the IQ4 cannot establish a connection.



Managing Known WiFi Networks

The IQ4 will remember a wireless network and its access codes once you have connected to it. If you want to delete this network for future use, select **Network Settings > WiFi Known Networks** in the IQ4 Menu. Then tap on the trash icon to delete the network from the list.



Ensure Bonjour is enabled

Bonjour is enabled by default to ensure that IQ4 can easily and automatically establish an IP connection.

If you for some reason want to disable Bonjour, select **Network Settings > Bonjour Enable** in the IQ4 Menu and change it to **No**.



Save image copy to memory card during tethering

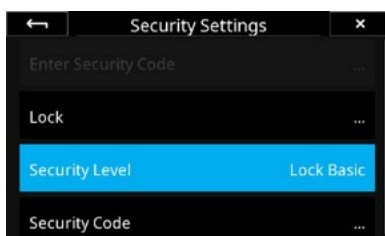
Note that in addition to transferring the RAW images to your computer while shooting tethering you can also save RAW copies to a memory card on the IQ4. This backup will provide extra security.

By default, the IQ4 will automatically detect if a XQD card is available and save copies of the captured images there too. Please read the File Storage chapter on how to change the Storage Mode on the IQ4.

Security Settings



The security code protection on the IQ4 is a safety measure to ensure that other people cannot gain access to the back without your consent. You can change the code as well as the level of protection by selecting **Menu > Security Settings** on the IQ4.



Changing Security Level

The IQ4 let you choose between four different security levels to suit your workflow the best. You select them by going to **Menu > Security Settings > Security Level**.

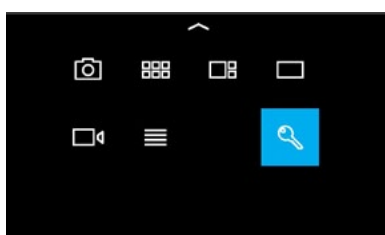
1. **No Lock.** This will disable the security code protection and is a convenient option when you are the only one with access to the IQ4.
2. **Lock Basic.** This option will ensure that nobody can update the firmware or restore the IQ4 settings to default without entering the security code. Those two options will be greyed out in the IQ4 menu system, but everything else will be available.
3. **Lock UI.** When you choose this option, you put the IQ4 into a capture-only mode. The user interface is locked (both the touch screen and the buttons), but it is still possible to capture images with the XT Camera or by tethering. Lock UI is useful when you want to lock all settings in a busy working environment or let another person shoot with the IQ4.
4. **Lock System.** This will lock the entire system, so that you will not be able to even capture an image without entering the security code first. This will also ensure that nobody can get access to the IQ4 by a tethering connection.

Note: You might need to select Security Settings > Enter Security Code and enter the security code to be able to change the Security Level.

Locking the IQ4

You can lock the IQ4 by swiping up from the bottom of the screen and tapping on the Lock icon.

You can also do this by selecting IQ4 Menu > Security Settings > Lock. Note that this feature requires that you have set the Security Level to Lock UI or Lock System. Once you have done this, the Lock option will ensure that you – or other people – have to enter the security code to gain access to the IQ4.





Creating a new Security Code

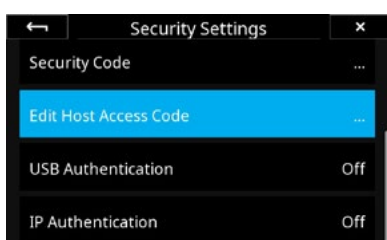
You can create – or change – the security code on the IQ4 by selecting **Menu > Security Settings > Security Code**.

Enter the new four-digit code by tapping on the desired numbers on the touch screen and press on the green checkmark icon to accept it.

Recovering a locked IQ4

You have up to ten attempts to enter the correct security code after which the IQ4 will be locked. This is done to ensure against usage after for example theft.

If you are locked out of the IQ4 after ten failed attempts, you will need to contact Phase One Support in order to regain access. The IQ4 will show a security key that you have to provide to Phase One support in addition to the serial number of the IQ4; they will then guide you through the process to unlock the IQ4 with a special code.



Tethering Access Code

It is possible to restrict tethering access to the IQ4 by setting an access code that needs to be entered in Capture One Pro before gaining access and control of the back. You can set whether this access code should be in effect for USB-C and/or IP (Ethernet and Wifi) connections separately. This feature needs Capture One 12.0.2 or later.

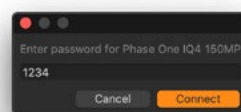
Select **Security Settings > Edit Host Access Code** and enter a four-digit code. Tap on the green checkmark to enable the code.



Then select **Security Settings > USB Authentication** and **Security Settings > IP Authentication** and set one of them or both to **On**.

It might make sense to have USB Authentication set to Off and IP Authentication to On, if you are shooting tethered via USB-C but want to ensure that others can't gain access to your IQ4 over WiFi (or remotely via an Ethernet connection).

Once the Host Access Code is enable, Capture One Pro will prompt you to enter the code when you try to gain access to the IQ4:



Capture One will remember the entered password even after you have disconnected the IQ4 or restarted the software. This is by design to ensure that you don't have to enter the same code several times during a busy shoot where you might want to run tethered capture on and off.

This also mean that you will have to change the Host Access Code if you want to ensure that new users of Capture One **on your computer** are prompted for an access key.

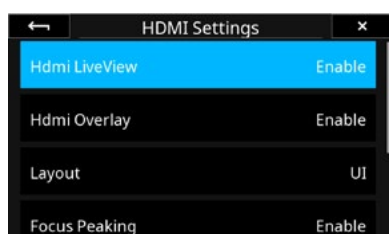
Live View over HDMI

The Live View feed as well as many of the Live View features mentioned in the prior chapter can be mirrored to a HDMI target device like an external monitor. This can be especially handy if you are working outdoor in bright sunshine where an electronic viewfinder can be a great aid. Just ensure that the monitor accept a HDMI cable as the input signal.

Connecting HDMI

The IQ4 uses a HDMI Type C port (also known as HDMI Mini) for HDMI connections. Plug the supplied HDMI C to A angled adapter into the HDMI C port, then attach a normal HDMI A cable to the adapter and the desired monitor or recording device.

NOTE: The HDMI adapter cable will adapt to any standard HDMI A male to male extension cable. If you want to replace the adapter with another standard HDMI C cable, please note that not all connectors might fit the port.



Enabling HDMI Output

Swipe up from the bottom edge of the IQ4 touch screen with a finger and select the menu icon. This will open the Menu system. Then select HDMI Settings, and set Hdmi LiveView to Enable.



Display Histograms and Clip Warning

Live View via HDMI has the option to show a normal RGB Histogram, a RAW Histogram as well as a Clip Warning tool. To enable these, Select HDMI Settings > Hdmi Overlay and set it to Enable.



Display Focus Peaking

The Focus Peaking feature is a great aid to get the focus right as it will highlight the areas in the Live View feed that endetails high contrast and are thus likely to be in focus. Focus Peaking will update continuously as you adjust focus manually and is especially useful when you are zoomed into the image.

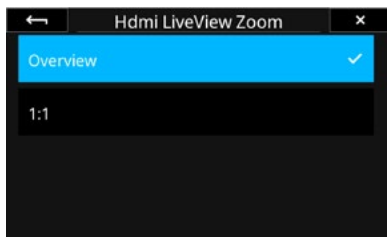
Ensure that Focus Peaking on HDMI is enabled by going to the menu and selecting HDMI Settings > Focus Peaking and set it to Enable.

Note that the feature looks for high contrast areas, so smooth zones like skin tones or a clear sky might not be highlighted, even if that part of the image is within the depth of focus.

You can change the sensitivity of the Focus Peaking feature by going to the menu and selecting HDMI Settings > Focus Peaking Threshold and change the level.

Showing the IQ4 UI over HDMI

The Layout UI option allows you to mirror what is currently shows on the IQ4 screen, including the menu system, on the HDMI target device like a tv screen. To enable this, Select HDMI Settings > Layout > UI. It is by default set to Layout.



Changing LiveView Zoom

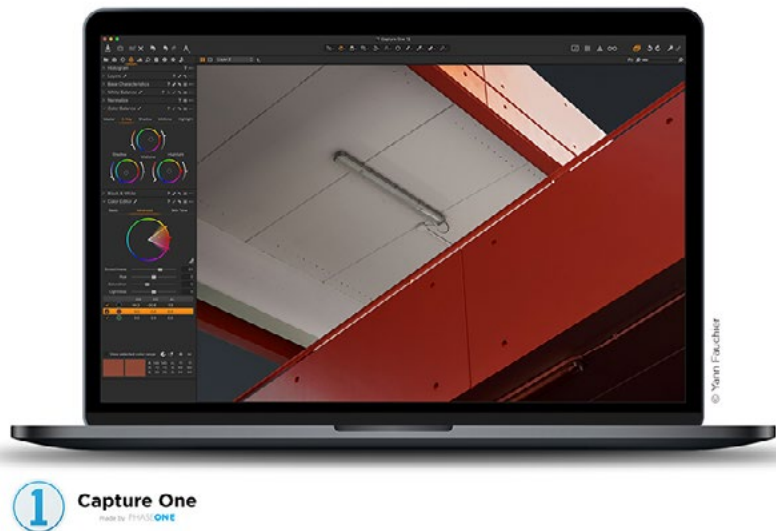
You can change the zoom level of the Live View feed with the hdmi LiveView Zoom option. By default, it is set to Overview which shows the full image. You can change this to view the Live View feed zoomed into the image at 1:1. To change this, Select HDMI Settings > HDMI LiveView Zoom > 1:1.

Controlling the HDMI in Capture One

The View Live functionality over a HDMI connection can also be controlled by Capture One. You will need to download and install version 11.2.1 to support the IQ4.

Once the IQ4 is connected to Capture One, go to the Camera Settings tool and open the IQ > HDMI panel. Here you will find the HDMI options.

Capture One Pro



The XT Camera System is bundled with Capture One Pro. You will need version 11.2.x or later to work with the IQ4.

Installing on Mac

Capture One 12 software includes an easy-to-use installer that will install all the software necessary to run the application on a Mac running macOS 10.12.6, macOS 10.13.6 or macOS 10.14.5.

1. Download the latest version of Capture One Pro from www.phaseone.com/download.
2. Navigate to the downloaded Capture One Disk Image and double-click on it.
3. Drag the Capture One icon to the Applications folder.
4. Open Capture One from your Applications folder.

NOTE:

On Windows, Capture One will initiate installation of Microsoft® .NET Framework, if it's not already installed on your computer.

Installing on Windows

Capture One includes an easy-to-use installer that will install all the software you need to run the application on a Windows based computer.

1. Download the latest version of Capture One Pro from www.phaseone.com/download.
2. Run the executable software install file.
3. Read and accept the license agreement presented.
4. Follow the on-screen instructions to complete the installation.

System requirements

Capture One may run on other and older equipment than those listed below, but to ensure the best possible results we recommend that your computer, at the minimum, conforms to the following specifications:

Microsoft® Windows® minimum requirements

- Intel or AMD CPU with 2 cores
- 8 GB of RAM
- 10 GB of free hard disk space
- Calibrated color monitor with 1280 x 800, 24-bit resolution at 96 dpi screen ruling
- Windows 7® SP1 64-bit, Windows 8.1® 64-bit, Windows 10® 64-bit*
- Microsoft® .NET Framework version 4.7 (will be installed if not present)

*Support for Capture One 12 on Windows 10 is supported for builds supporting .NET 4.7 - This is currently from Windows 10 Anniversary Update (build 1607) through to October 2018 Update (build 1809).

Apple® Macintosh® minimum requirements

- CPU with 2 cores
- 8 GB of RAM
- 10 GB of free hard disk space
- Calibrated color monitor with 1280 x 800, 24-bit resolution at 96 dpi
- macOS 10.12.6, macOS 10.13.6 macOS 10.14*

*Support for macOS 10.14 is supported for builds up to 10.14.4

Recommended system requirements

The above hardware specifications are to be considered as minimum requirements. If you work with high-resolution camera systems or simply want to optimize the performance, please follow the recommendations below:

- CPU with four cores or more, e.g. Intel® Core™ i7 or better
- 16 GB of RAM or more
- Leave plenty of hard disk space free for your images
- Solid State Disk (SSD)
- A fast graphics card from NVIDIA or AMD with 4 GB VRAM or more.

Note: Due to the significant additional calculation overhead, systems using 4k/5k monitors will require additional resources in addition to the above recommended spec (both in GPU and CPU power). For a Professional experience we recommend at least doubling the specification above for these configurations.

Activating Capture One Pro (Mac / Windows)

An Internet connection is required to activate and update Capture One Pro.

1. Launch Capture One and select Pro, then Activate from the respective product dialog boxes.
2. Enter the 16-character license code key provided on the supplied Capture One card and add your personal details to create a Profile in the required fields. (The Capture One Pro license code card is available inside the Capture One packaging).
3. Once you have entered the information, press the Activate... button and Phase One's server will validate the software.
4. Capture One should now be activated and ready for use.

NOTE:

A Phase One Profile is required for activation and future updates and upgrades. If you do not already have a Phase One Profile, please enter an email address and password to create a new Profile ID.

Updates to minor version releases of Capture One are free. For example, updating from Capture One Pro 11.0 to 11.2 is free. Upgrades to major version releases, for example, from Capture One Pro 11 to Capture One Pro 12, are paid for.

A Capture One Pro 12 key will activate earlier versions. For example if you prefer to use Capture Pro 11, the license code may be used for that instead. Please note this does not apply to subscriptions.

Capture One Pro DB supports Phase One backs only, but it does not require an activation key or a license. This means that you can always use the latest version of Capture One by selecting the Pro DB version during install and use that for free.

If you need support for other camera makes as well as Phase One, please use the paid Capture One Pro version.

Troubleshooting

If you are experiencing problems activating the software, follow the instructions provided in the application, read the Capture One help manual online, or visit our website for inspiration and troubleshooting: <http://www.phaseone.com/support>



Capture One Tethered Use



NOTES:

A battery must be installed in the IQ4 for it to function properly, regardless of whether it is exhausted or not. If it is flat and the data-bus is powered, the battery will start to be charged.

Shooting Tethered

As a professional tool for working photographers, the IQ4 can be tethered to a Mac or PC running Capture One Pro raw workflow solution. In addition to being able to select and control a wide range of camera functions including exposure, focus confirmation and Live View, images can be saved to the computer's hard disk as well as the XQD and SD memory cards, as a back-up.

Connecting to a Computer

The IQ4 can be tethered to a computer using either Gigabit Ethernet or USB-C cables or WiFi. Please see the previous chapter Tethering Connections for more information.

Online Support

For more information on shooting tethered with Capture One please consult the online user guide available in the Capture One Help menu or go direct to <https://help.phaseone.com/en/CO12/Tethered-Capture.aspx>

Charge when tethered

The IQ4 has an integrated battery charger to ensure that the batteries are charged when shooting tethered to a computer.

Import Images into Capture One Pro

The IQ4 captures proprietary RAW files which require processing in Capture One or similar software to output these files as TIFFs. The IQ4 can also save captured images as JPEG versions, but you will need to process the RAW files to JPEG in Capture One if you want full resolution JPEGs.

Import Images

Inserting a memory card into a card reader attached to a computer will automatically display the Import Images dialog window, when Capture One Pro is running.

Manual Import of images

1. Go to File and select "Import Images..." The dialog box will open to browse files.
2. Navigate to the "Import From" folder, card or disk in the Locations tool.
3. Select Capture folder (import location) and type in the job name and Metadata (copyright, caption) if desired.
4. If you want to select a naming format for the imported files, press "Format" in the Naming tool.
5. Select all or specific images to import.
6. Press "Import" or "Import All". You can continue working while images are imported in the background.

Capture One User Guide

Available in the Capture One Help menu or go direct to:
<http://help.phaseone.com>



Capture Pilot

When shooting tethered to Capture One, the IQ4 can be remotely controlled by the Capture Pilot app from Phase One. A direct wireless connection between the IQ4 and the Capture Pilot app is not supported on the current firmware. You will need to run Capture One as a connection hub between the IQ4 and the app.

Capture Pilot enables the user to remotely control the camera's exposure settings and trigger the shutter on the XT Camera System. In addition, Capture Pilot allows browsing and geotagging of images, and even supports remote live view. Capture Pilot is available on Apple iOS devices like iPhone, iPad and iPod touch.

The free to download app can also be a useful solution for clients wishing to view images away from computer screen, either in the studio or on location.

Note raw files are not transmitted to, or stored on, the iOS device. The original files remain on the camera's memory card and/or the tethered computer's hard disk, depending on the setup.



Download Capture Pilot from App Store

Download the free Capture Pilot app

Please download the free Phase One Capture Pilot app from the Apple App Store and install it on your iOS device.

Version 1.12 requires iOS 10 or later.

Capture Remote, the remote camera operation function of Capture Pilot, is free and automatically enabled upon a connection with the IQ4 via Capture One.

For control of other makes of DSLRs, an in-app purchase of Capture Remote is required. Please check compatibility, before making a purchase. Note for other makes, remote control applies to cameras tethered to a computer running Capture One Pro.



Connecting an iPad or iPhone to Capture One

Ensure that there is a tethering connection between the IQ4 and the computer running Capture One.

In Capture One, open the **Capture Pilot** tool, type in a **Server Name** and from the **Folder** drop-down menu select which folder you want to share the captured images from. This will typically be the folder location where you are capturing the images to.

It is possible to type in the password if you are on a large, shared network but it is not required. Then choose **Mobile Device** (or Mobile and Web) from the **Publish To** drop-down menu and finally click on **Start Image Server**.



Using the Capture Pilot app

Open the Capture Pilot app on the iPad or iPhone and select the name Server from the Server List.

Tap on an image to view it full screen. You control the app by tapping on the icons at the bottom. The Camera icon opens the Camera window where you can adjust basic settings and capture the next image.

The next icon opens a histogram that you can select and move to another location on the screen. The Star icon opens a little row that let you set the color tag and star rating of the current image. Finally, you can set the white balance by tapping on the picker icon. Once activated, you tap on a specific area on the image to set the white balance from that part. On the right side, you can move through the captured images.

Using Capture Pilot



Adjust exposure settings

Capture

Toggle Camera Controls off



Enable Camera Controls

Show Histogram

Rate and Color Tag images

Move through captured images

Backup System Setup

You can easily make a backup of the System Setup to the memory card. This backup will include all of your settings on the IQ4. The feature makes it easy to quickly load your preferred settings if you frequently share the XT Camera System with other photographers. It is also a convenient way to quickly be able to reuse all of your settings if you often rent an XT Camera System.

The backup file is stored at the root of the memory card. From there, it can be copied to your computer for further backup or sharing. Note that the file will get erased if you format the memory card.



System Setup has been saved to the XQD card

Save System Setup to XQD or SD Card

The backup of the System Setup is done from the IQ4. Select **IQ4 Menu > System Settings > Save/Restore System Setup**, then select either **XQD** or **SD**, and finally **Save Setup to XQD** (or **SD**) and press the check mark to accept. The system will now confirm that the System Setup has been saved to the XQD (or SD) card.



Loading the System Setup from a XQD card

Load System Setup from XQD or Sd Card

To load your saved System Setup, select **IQ4 Menu > System Settings > Save/Restore System Setup**, then select either **XQD** or **SD**, and finally **Restore Setup From XQD** (or **SD**) and press the check mark to accept. You will need to turn the system off and back on before all the changes are applied. If there is no valid backup file present on the XQD card, you will get a warning.



You can choose to keep certain settings during a Restore to Default

Restore to Default

You can easily restore all of the settings to the default values. This is done from the IQ4 Menu, selecting **System Settings > Restore to Default**. As a convenient feature, you have the option to choose whether Custom White Balance values and Network Setup should be reset or kept during the restore. Select only those you want to reset to default values, and press the check mark to accept. This feature makes sure that you do not have to reenter some common settings each time you need to restore the system to default settings.

System Maintenance

Keeping your XT Camera clean

Your XT Camera System generally needs very little maintenance. However, as this is a professional tool it should be treated with proper care and caution. Always perform test shots before a photographic session if the camera, for any reason, has not been used for a long period of time.

Note: If the XT Camera is suddenly taken from a cold to a warm place, condensation may form on internal parts. In this case, do not use the camera. Instead remove the lens, memory cards and battery from the IQ4. Then wait until the condensation has evaporated before using the camera again.

XT Camera Body

Keep the electronic contacts and mount of the XT Camera Body clean and free of dust with a dry microfiber cloth, but do not re-use the cloth on the lens' surface. If the camera has been exposed to salty air, wipe it clean with a well-wrung wet cloth.

To clean the screen on the IQ4, wipe it using a microfiber cleaning or soft dampened cloth. This will remove dust, dirt and fingerprints from the screen without scratching or streaking.

WARNING: Do not use any solvents or liquid-based cleaners as these substances may damage the lcd screen coating. Never touch the electronic contacts with your fingers as this can lead to corroding of the contacts and camera system malfunction.

Lens

If there is any dust on the surface of optics, first try to remove it with a rocket air blower. Never use compressed air unless the product is made specifically for photographic equipment, since the propellant can leave residue on the glass surface that can be very difficult to remove.

If there are smudges on the lens surface, use the dry lens cloth that was supplied with the lens. Make sure to remove as much debris as possible with an air blower first, so you do not end up grinding the debris into the glass. It might be necessary to moisten the lens cloth with a fluid lens cleaner. Then use a circular motion to gently remove smudges from the lens surface, working from the center outward. Dust and smudges on the rear element of the lens will have the most impact on image quality so make sure to clean this part regularly.

Please note the lens is not waterproof. If it becomes wet, it should immediately be dried with a cloth. If the lens is exposed to salt spray, moisten the cloth and carefully clean the lens.

WARNING: Never touch the optics of the lens with your fingers. Do not use chemicals on a lens tissue or cleaning cloth that are not specifically made for lens cleaning. Facial tissue is not recommended, as some brands are abrasive and others contain oils and lotions that can streak your lenses. Do not touch the electronic contacts with your fingers.

Cleaning the Sensor on IQ4

The Phase One IQ4 Digital Back should always have the protective sensor cover fitted when not attached to a camera. Dust may accumulate on the IR filter of the sensor, which will degrade the image quality if not removed. When cleaning the sensor, please use the Phase One Sensor Cleaning Kit that is supplied with the IQ4.



Instructions for sensor cleaning:

1. First try to remove any dust or debris with a rocket air blower. This will ensure that no hard particles like sand can scratch the IR filter during the following steps.

WARNING: Never use compressed air unless the product is made specifically for photographic equipment, since the propellant can leave residue on the surface that can be extremely difficult to remove.



2. Locate the small scraper in the supplied Sensor Cleaning Kit and use either the wide (42 mm) or normal (38 mm) end that matches the width of your sensor. Ensure that no dust or loose material is present on the edge of the scraper.

3. Select a cloth from the Sensor Cleaning Kit and fold it over the scraper so that you have two layers of cloth.



4. Apply 2-3 drops of Eclipse® cleaning fluid from the Sensor Cleaning Kit to the edge of the folded cloth.



5. In one motion, swipe the surface of the sensor from one end to another. Do not swipe a second time in the opposite direction.

6. Inspect if the sensor is clean by holding it into the light. If necessary, move the cloth layer one cm on the scraper and repeat the process. Never swipe two times with the same area of the cloth as the removed dirt could risk being reapplied to the sensor.

For quick sensor cleaning during work in the field you can use an air blower or the supplied e-wipe® wet tissues. These can be used with same procedure as outline above, just skip adding the Eclipse® cleaning fluid.

Note: The IR filter (Infrared Reduction Filter) is permanently mounted on top of the sensor. The filter may not be removed for several reasons:

1. Focus accuracy is dependent on the presence of the IR filter.
2. It is only possible to remount the filter without dust degrading the sensor if you have access to special clean room facilities.
3. The Phase One Product Warranty will be void.

Updating the XT IQ4 System Firmware



Updating Firmware from the IQ4

How to update the XT Camera System Firmware

To install a Feature Update, simply download it from the Phase One website and copy the camera package file (with the file extension .fwp) to the root folder of a XQD card.

1. Place the IQ4 on the XT Camera Body.
2. Make sure your installed battery is fully charged on the IQ4.
3. Insert the XQD card into the IQ4.
4. On IQ4 select Menu > System Settings > Firmware > Update Firmware.
5. The XT IQ4 Camera System will now update with all relevant firmware updates.

Please do not interrupt the updating process. Should this happen by mistake, the update will fail and you will have to run the update again.

Phase One Information

For various articles on Phase One products, including system and software documentation, as well as additional resources such as training and tutorials, or the user forum, please consult the online Knowledge Base at support.phaseone.com

Warranty and Uptime Guarantee

Phase One camera systems come with either a 1 Year Classic Warranty, or a 5 Year Limited Warranty* and 5 Year Uptime Guarantee. The Warranty options are available at the time of purchase.

5 Year Limited Warranty*

Items covered by the 5 Year Limited Warranty* and 5 Year Uptime Guarantee:

Phase One XT IQ4 Camera Systems, including:

Phase One IQ4 digital back

Phase One XT Camera Body

An optional number of XT Lenses purchased on the same system order.

*The 5 Year Limited Warranty consist of a 1 year warranty and 4 additional years of warranty that are granted after registration of the product(s). To activate the 4 additional years of Phase One warranty, customers are required to register the product(s) online at www.phaseone.com/My-Pages, or through the registration option when the camera is tethered through Capture One Pro.

See next page for General Conditions.

To activate the Phase One warranty, customers are required to register the product online at www.phaseone.com/My-Pages, or through the registration option when the camera is tethered through Capture One Pro.

General Conditions

Subject to the terms contained here and below, Phase One warrants the mentioned products manufactured by Phase One against defects in materials and workmanship for a period of five (5) years* from the date of purchase, covering parts and labor for repairs.

This limited warranty gives you specific legal rights and you may have other rights that vary from region to region. You are urged to verify whether any additional rights may or may not exist dependent upon your jurisdiction. However, Phase One shall not be liable for consequential damages or loss of data.

During the warranty period, Phase One undertakes at its discretion to repair or replace defective items at no charge to the customer, when such defects are reported to Phase One within the warranty period, and the defective part(s) are returned to Phase One no later than thirty (30) working days after expiry of the warranty period. The customer shall cover the cost of transportation to Phase One and Phase One shall cover the transportation costs for returning the products after repair.

The warranty is limited to the repair or replacement of the faulty part. The warranty does not cover faulty items, where the customer or a third party has attempted without authorization from Phase One to make alterations or repairs, or if the fault is caused by any other circumstances or equipment than the Products themselves or if it is determined that the cause of a failure is the result of customer action or neglect (e.g., dropping or other accident), in which case all costs will be invoiced to the customer. The warranty shall cover only such defects that are due to faulty materials or workmanship. Phase One carries no responsibility for any indirect loss, e.g. consequential loss; loss of profit; loss of data; additional costs etc. as a consequence of deficiencies in Phase One's deliveries.

Phase One shall have no obligation to make repairs or replacements required through normal wear and tear or necessitated in whole or in part by catastrophe, fault or negligence of the user, improper or unauthorized use of or attempt to repair the Products by user or others, or by causes external to the products of part thereof such as, but not limited to, power failure or unusual environmental conditions.

Procedure for Warranty Repairs

Upon experiencing a problem with a Phase One product, an authorized Phase One Partner must be contacted by you to assist you in troubleshooting the problem and if necessary in obtaining a Return Merchandise Authorization (RMA) number from Phase One. Upon receipt by Phase One, Phase One reserves the right to determine and will determine whether the problem lies within the warranty. When you deliver the product to the Phase One Partner, you must bring the original purchase information and serial numbers, including a copy of the sales invoice. The product must be shipped for the attention of the RMA number. Shipping costs to Phase One for RMA warranty repair are borne by you, and any damages in shipping will be billed to you. We recommend that you obtain insurance to cover potential damages during transportation. RMA numbers are only valid for four (4) business days from the date of issuance so you must ship within that period. If a product is returned to Phase One (a) without an RMA number from Phase One; or (b) beyond the four (4) business day period; or (c) without proper packaging, Phase One retains the right to refuse delivery of such return and thereby to void the warranty. Thus, we suggest that you exercise great care in this process. If the product is within warranty, shipping costs in connection with the shipping of the repaired product to you will be borne by Phase One. Otherwise shipping costs are borne by you.

If you are having image quality problems, you should always enclose image samples so that Phase One can determine the reason underlying the problem you believe you are having. All repairs completed within warranty are covered by a normal 90-day guarantee or the balance of the original or extended warranty, whichever is longer. Repairs completed outside warranty are covered by six (6) months warranty on the repaired part.

5 Year Uptime Guarantee

Using the Uptime Guarantee you may request a component loan unit be sent to you within 24 hours*. We will ship the loan unit to you using next business day morning service at our expense.

Phase One allows you one (1) business day to verify the operation of the loan unit and return the defective product to Phase One. If the defective product is not returned within one (1) business day, a penalty fee of USD250 / EUR200 per day for using the loan unit will be invoiced.

Under the 5 Years Limited Warranty* and 5 Year Uptime Guarantee, a loan unit (camera body, digital back, lens or viewfinder) will be available as long as the repair lasts.

After the repaired product is returned to you, the loaned product must be returned to Phase One. Instructions for shipping the loaned product will be included with your repaired product. Shipping and insurance costs in connection with the shipping of the repaired product to you will be borne by Phase One. Return shipping costs of the loaned product are borne by you and must be made within 48 hours after delivery of the repaired product. Failure to return the loaned product in a timely manner will result in Phase One invoicing for the loaned product in accordance with our current list price.

*Uptime Guarantee might be impractical to achieve due to heavily

enforced tax regulations, in some countries. Phase One will not be liable for carrying out the Uptime Guarantee shipments to countries where such taxation is enforced. Please ask your Phase One representatives if you are in doubt.

Coverage of Warranty

This Limited Warranty is the complete and exclusive statement of warranty coverage, and it supersedes all prior oral, written, express or implied proposals and communications pertaining to the subject matter hereof. ALL EXPRESSED OR IMPLIED WARRANTIES FOR PHASE ONE PRODUCTS INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY WAIVED subject solely to the limited warranties indicated in this document. No warranties, expressed or implied, will apply after the warranty period has lapsed.

*The 5 Year Limited Warranty consist of a 1 year warranty and 4 additional years of warranty that are granted after registration of the product(s). To activate the 4 additional years of Phase One warranty, customers are required to register the product(s) online at www.phaseone.com/My-Pages, or through the registration option when the camera is tethered through Capture One Pro.

Notices

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XT Camera System User Guide version: 1.00

Feature descriptions in this manual are referring to:
XT Camera System with firmware IQ4_4.00.xx.fwr and Capture One 12.1
Colorspace images created in CROMIX ColorThink.
Photos by: Søren Jonesen (Photo+Co) and Carsten Esbensen
(Erik Bjørn & Kompagni)
Insert images by Reuben Wu, Niels V. Knudsen and Drew Altdorffer.

On Liability

The information in this manual is provided "as is".
Under no circumstances, including negligence, shall Phase One be liable for any incidental, special, direct, indirect or consequential damages arising out of or relating to use of the information provided in this guide with or without the software and/or hardware described in the guide.
Phase One reserves the right to change this documents information at any time without prior notice.
All agreements, oral or written, based upon information within this document will be null and void by the replacement or update of this document.

Trademarks and Acknowledgements

Capture One and Phase One are either registered trademarks or trademarks of Phase One A/S in the European Union and/or other countries.
All other trademarks are the property of their respective owners.
This product includes DNG technology under license by Adobe Systems Incorporated.

The Phase One IQ Digital Back firmware includes:

Libjpeg:
=====
This software is based in part on the work of the Independent JPEG Group.
zlib:
=====
Interface of the 'zlib' general purpose compression library
Copyright (C) 1995-2012 Jean-loup Gailly and Mark Adler
This software is provided 'as-is', without any express or implied warranty. In no event will the authors be held liable for any damages arising from the use of this software.

Permission is granted to anyone to use this software for any purpose, including commercial applications, and to alter it and redistribute it freely, subject to the following restrictions:

1. The origin of this software must not be misrepresented; you must not claim that you wrote the original software. If you use this software in a product, an acknowledgment in the product documentation would be appreciated but is not required.
2. Altered source versions must be plainly marked as such, and must not be misrepresented as being the original software.
3. This notice may not be removed or altered from any source distribution.

Jean-loup Gailly Mark Adler
jloup@gzip.org madler@alumni.caltech.edu177

FCC Regulations:

\$ 15.19 (a)(3)

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

\$ 15.21

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

\$ 15.105 (b)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

\$ 15.407 (e)

Operation on the 5.15-5.25 GHz frequency band is restricted to indoor use only. The FCC requires indoor use for the 5.15-5.25 GHz band to reduce the potential for harmful interference to co-channel Mobile Satellite Systems.

\$ 2.1093

RF Exposure Information (SAR)

This device is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission of the U.S. Government. The exposure standard for wireless devices employs a unit of measurement known as the Specific Absorption Rate (SAR). The SAR limit adopted by the FCC is 1.6W/kg for an uncontrolled environment. Tests for SAR are conducted using standard operating positions accepted by the FCC with the device transmitting at its highest certified power level in all tested frequency bands. The FCC has granted an Equipment Authorization for this device with all reported SAR levels evaluated as in compliance with the FCC.

IQ4 Digital back FCC ID: XO2SBP209A

RF exposure guidelines.

Although the SAR is determined at the highest certified power level, the actual SAR level of the device while operating can be well below the maximum value. This is because the device is designed to operate at multiple power levels so as

