Rico Pfirstinger

THE Fujifilm X-Pro2

115 X-Pert Tips

to Get the Most Out of Your Camera

rockynook

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Rico Pfirstinger
rico@fuji-x-secrets.de

Project editor: Maggie Yates
Project manager: Lisa Brazieal
Marketing manager: Jessica Tiernan
Copyeditor: Maggie Yates
Translation by: Rico Pfirstinger
Layout and type: Petra Strauch
Cover design: Rebecca Cowlin
Indexer: Maggie Yates

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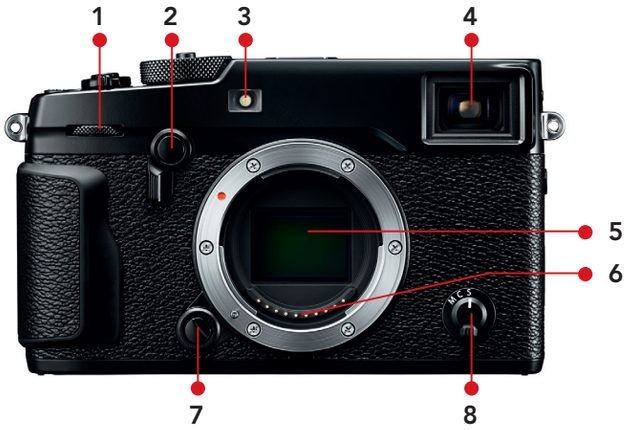

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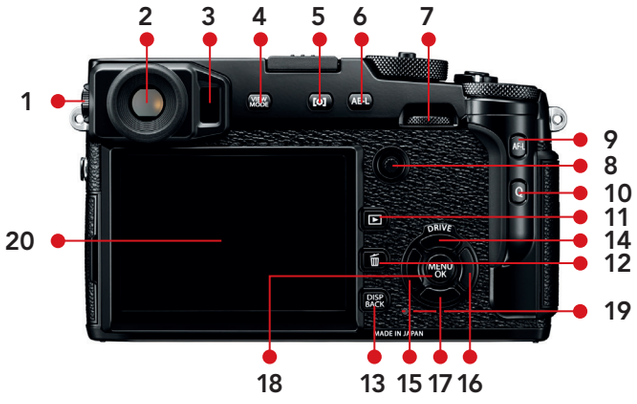

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NOTE

Throughout this book, you'll see a series of numbers within brackets incorporated into the text. These numbers correlate to reference websites, a list of which can be found in this book on page 200. For an updated version of this reference list, please visit http://www.rockynook.com/fujifilm-x-pro-2-online-references/.

1.1 THE BASICS (1): THINGS YOU SHOULD KNOW ABOUT YOUR CAMERA

TIP 1

RTFM! Read The Fuji Manual! It is included with your camera. You have a choice between the printed version and the PDF version on the CD that comes with the camera.

In case you have misplaced your printed user manual and camera CD, or you want to update to a newer edition of a manual, you can click this link [01] to obtain downloadable PDF versions in all supported languages. You will also find supplementary material that covers new features and changes based on firmware updates.

Please do yourself a big favor and thoroughly study this manual in order to get acquainted with the different functions of your X-Pro2, and don't forget that your lenses come with a user manual, as well. This book doesn't replace the X-Pro2 camera manual; it serves as an *enhancement* to the existing manual, and offers valuable tips and background information about how to use the various features and functions of the X-Pro2 and make the most of your equipment.

TIP 2

Get a few **spare batteries**. You can buy suitable batteries from Fujifilm or from a third party.

The X-Pro2 is quite a compact camera, which means that the rechargeable battery is also rather small. Depending on how you use your camera, a fully charged battery will last for 250 to 400 shots.

I recommend always setting the camera to High Performance Mode (SET UP > POWER MANAGEMENT > POWER MANAGEMENT > HIGH PERFORMANCE) in order to secure maximum autofocus and overall performance.

TIP 7 Working with **Dual Card Slots**

Your X-Pro2 offers two SD card slots numbered "1" and "2". This means that you can use two SD cards at the same time.

Please note:

- The primary SD card slot of your X-Pro2 is always slot #1. If you are only working with a single SD card, always put it in this slot.
- Firmware upgrades and video recording are only supported in slot #1.
- Slot #1 supports UHS-II, making it suitable for very fast memory cards such as *Lexar Professional 2000x, Toshiba Exceria Pro,* or *SanDisk Extreme Pro UHS-II (280 MB/s)*. Slot #2 only supports the slower UHS-I standard. If you use a UHS-II card in this slot, it will only operate in its UHS-I compatibility mode. The recommended (and probably fastest) card option for this slot is the *SanDisk Extreme Pro UHS-I (95 MB/s)*.

Using two memory cards at the same time gives you three different options to configure how image data is transferred to your SD cards. To do so, select SET UP > SAVE DATA SET UP > CARD SLOT SETTING (STILL IMAGE) and pick one of the following options:

- **SEQUENTIAL:** In this default mode, the camera saves all image data (RAW and JPEG) to a manually selected card slot. To change the slot, choose SET UP > SAVE DATA SET UP > SWITCH SLOT (SEQUENTIAL).
- **BACKUP:** In this mode, the X-Pro2 is sending all image data (RAW and JPEG) to both slots at the same time, creating a backup copy that can be useful when one of the cards gets lost or suffers data loss. However, in this mode, the overall data transfer rate is limited by the card in slot #2, which is the slower of the two slots and only supports UHS-I. This can become a performance issue in situations that require many images with high burst rates while shooting FINE+RAW.
- **RAW/JPEG:** This setting splits the image data up by saving RAW files to slot #1 and JPEGs to slot #2, so this setting is only useful when you are shooting FINE+RAW or NORMAL+RAW. If you shoot RAW-only or JPEG-only, RAW/JPEG mode turns into BACKUP mode, saving your RAW or JPEG data to both cards at the same time.

I always recommend shooting FINE+RAW. If you follow this advice, selecting RAW/JPEG mode (and using the fastest UHS-II and UHS-I cards available in slots #1 and #2, respectively) will give you the best camera performance in terms of continuous burst rates.

However, RAW/JPEG data save mode also has its quirks:

- Splitting up RAW and JPEG image data to slots #1 and #2 only works in regular shooting mode (i.e., when you take a new picture), not when you are using the camera's built-in RAW converter to create a JPEG from a RAW file on card #1. JPEGs generated from RAWs on card #1 are also saved on card #1 (the "RAW" card) instead of card #2 (the "JPEG" card).
- In playback mode, the X-Pro2 will display small HD-sized JPEG images that are embedded in the RAW files on card #1 instead of showing the full-resolution JPEGs on card #2. To access the full-res JPEGs (e.g., in order to zoom in and check critical focus), you have to manually switch slots in playback mode by pressing and holding the playback button until the camera confirms the switch. Sadly, this switch is only remembered until you take another picture, so you'll have to go through the motions of switching slots in playback mode all over again once you take another shot.

TIP 14 Decoding XF18–135mmF3.5–5.6 R LM OIS WR

This tip is of the "what you always wanted to know but never dared to ask" variety:

- **XF:** "X" means X-mount or X-series; "F" means Fine, for Fuji's premium line of lenses. There's also the smaller, more affordable XC line ("C" stands for Compact or Casual).
- **18–135mm:** This is the focal length range of the zoom lens. To translate the numbers to their full-frame equivalents, you have to multiply them by the APS-C crop factor [08] of 1.5. Hence, the field-of-view (FOV) of an 18–135mm zoom on your X-Pro2 is identical to the FOV of a 27–202mm zoom lens on a full-frame camera.
- **F3.5–5.6:** This range describes the maximum aperture opening at the low and high end of the focal-length range. In this case, the lens offers a maximum aperture of f/3.5 at 18mm and f/5.6 at 135mm.
- **R:** This stands for Ring and simply means that the lens features an aperture ring. This is a standard feature of all Fujinon XF lenses, with the exception of the XF27mmF2.8 pancake lens. XC zooms don't offer an aperture ring, either. With those lenses, the aperture setting is controlled with the rear command dial (thumb dial) when you are using exposure modes A or M.
- **LM:** This stands for Linear Motor, which ensures quick and silent autofocus operation.
- **OIS:** This is the Optical Image Stabilizer [09]. This feature allows you to perform handheld shots at up to five stops slower of a shutter speed than you would usually need to eliminate camera shake. For example, in situations that would normally require a shutter speed of 1/80s to ensure a clear image, you could shoot with 1/4s and still get usable results. It's important to remember that motion blur often plays a role at slower shutter speeds since many subjects tend to move. Obviously the OIS cannot reduce motion blur [10]—only blurring that occurs due to camera shake (i.e., the shaky hands of the photographer).
- **WR** denotes weather resistant lenses. These lenses are a great fit for your weather resistant X-Pro2.

Fig. 13: The **XF35mmF2 R WR** is the new standard prime lens for your X-Pro2 (and its predecessor, the X-Pro1). It's weather resistant, and its lean design doesn't obscure the optical viewfinder.

The **optical image stabilizer (OIS)** has its quirks! TIP 15

With the exception of the XF16–55mmF2.8 R LM WR zoom, all XF and XC zoom lenses feature built-in optical image stabilization (OIS). Switch on the OIS to prevent camera shake and blurry images in situations that require you to take handheld shots at a slower-than-usual shutter speed. XF lenses offer a dedicated OIS on/off switch on the lens barrel. The OIS in XC lenses is controlled through a camera menu.

For handheld shots, an old rule of thumb recommends using shutter speeds that are at least as fast as the reciprocal of the full-frame-equivalent focal length that is in use. For example, with a 50mm lens and an APS-C crop factor of 1.5, the minimum safe shutter speed for handheld camera use would be *[1/(50 × 1.5)]s = 1/75s*. In other words, when you are shooting handheld with a 50mm lens and don't want shaky images, you should use shutter speeds at least as fast as 1/75s. Or you can use the OIS to add a few more stops.

Of course, rules of thumb don't apply to everybody. Some users have quite steady hands and some have rather shaky hands. The settings and equipment that work for me may not work for you. However, the OIS will always give you a few extra stops of shutter-speed headroom.

In SHOOTING SETTING > IS MODE, you can choose between two basic OIS modes:

- **OIS mode 1** (CONTINUOUS) is the default setting. It's always stabilizing the image, even when you are just looking through the viewfinder before you press the shutter button.
- **OIS mode 2** (SHOOTING ONLY) only engages when you fully depress the shutter button to take an image.

Please note that the OIS can also *introduce* camera shake, especially at fast shutter speeds. This adverse effect is more likely to occur in OIS mode 1 than in mode 2. However, OIS mode 1 is more effective when used at very slow shutter speeds, such as 1/15s, 1/8s, or even 1/4s.

Fig. 14: The **optical image stabilizer** of the XF50–140mm in action: Thanks to a slow shutter speed of 1/6s, I could still use ISO 800 for this night shot. Even at a full-frame equivalent of 210mm, the OIS was able to successfully compensate for any camera shake caused by my hands.

These are my recommendations for using the OIS:

- Only use (switch on) the OIS when necessary. When you are using fast shutter speeds that don't require image stabilization, you can safely turn the OIS off to eliminate it as a potential interference.
- I prefer to use the OIS in mode 2 ("shooting only"). Mode 1 is useful at very slow shutter speeds and when you are using very long focal lengths because the camera will also stabilize the live view image, making it easier to compose and focus a shot.
- Turn off the OIS when you are working from a sturdy tripod or with shutter speeds that are slower than a second. You should also switch it off for panning [11] shots.

TIP 17 Use the **Lens Modulation Optimizer** (LMO)!

The X-Pro2 supports the so-called LMO or Lens Modulation Optimizer. This feature premiered in the X100S and X20 fixed-lens cameras, and it counteracts common optical phenomena (like diffraction [13] and corner softness) when the camera converts the RAW data into JPEG images. To make it work, the firmware in the attached lens sends the LMO correction data to the camera.

- Neither Fujinon XC lenses nor Zeiss Touit lenses support the LMO.

If your lens supports the LMO (all Fujinon XF lenses do), you should enable the function by selecting LENS MODULATION OPTIMIZER > ON in the IMAGE QUALITY SETTING menu.

You can also use the built-in RAW converter of your X-Pro2 (PLAYBACK MENU > RAW CONVERSION) to enable or disable the LMO for a specific image. With this method it is easy to create (and compare) versions of a shot with and without LMO enhancements.

In its current incarnation (May, 2016), the LMO takes care of the following two optical effects:

- **Diffraction softness:** This effect increasingly occurs when the lens is stopped down beyond a certain point. APS-C cameras like the X-Pro2 typically exhibit diffraction at apertures of 10 and smaller. While stopping down increases the overall depth of field (DOF), it also reduces the maximum resolution of the lens/camera combination. The LMO counteracts this effect and reconstructs some of the lost detail.
- **Corner softness:** Even the best lenses aren't as sharp in the corners as they are in the center. The LMO in the X-Pro2 is able to digitally compensate for that loss of quality.

LMO corrections are based on complex deconvolution [14] algorithms. Currently, this is only supported in-camera with the built-in RAW converter. External converters such as Lightroom, Adobe Camera Raw, Capture One Pro, Silkypix, Iridient Developer, Photo Ninja, and AccuRaw can't process LMO data. This means that LMO corrections are only visible in JPEGs that are generated in the camera.

Things you should know about **digital lens corrections** TIP 18

Most modern lenses achieve their optimal image quality through a combination of optical and digital corrections. Corrections are mostly applied to the three following phenomena:

- **Vignetting:** This effect results in a loss of brightness from center to corner. Vignetting [15] is more pronounced at large apertures.
- **Distortion:** There are pincushion- and barrel-type distortions [16], both of which make straight lines seem curved. Premium primes like the XF14mm, XF23mm, XF35mmF1.4, XF56mm, and XF90mm are fully optically corrected for distortion. Others (such as the Zeiss Touit range, compact pancake lenses, the XF35mmF2, or zoom lenses) require a combination of optical and digital distortion correction.
- **Chromatic aberration:** Chromatic aberration [17] results in color fringing. This effect can be corrected (or mitigated) with apochromatic lenses, or digitally corrected during RAW conversion.

Some camera makers rely on dedicated correction profiles that have to be provided by each RAW converter maker. Fujifilm isn't one of these companies: all current Fujifilm cameras store digital corrections as metadata in the RAW file. RAW converters can access this lens-specific metadata

TTL is an abbreviation for "Through The Lens," which means that the camera determines the appropriate flash output by measuring a scene through the lens with a weak pre-flash. In order to work in TTL mode, TTL flash units have to be connected with the camera's hot shoe, and strangely enough, there's still no Fujifilm-branded TTL extension cable on the market that allows you to use a TTL flash off-camera. A simple solution is using a **Canon OC-E3** extension cable, which is pin-compatible with Fuji's own flash contacts. With such a cable (or a compatible third-party product), it is possible to use an EF-20, EF-X20, EF-42, or another Fuji TTL compatible flash off-camera in TTL mode. Please note that Canon OC-E3 cables are only compatible with Fuji's TTL flash *connectors,* not with Fuji's TTL flash *protocol*. This means that it isn't possible to use Canon TTL flash devices with an X-Pro2 in TTL mode. The protocols won't match.

Fujifilm's compact (and retro-styled) EF-X20 flash features an optical slave mode and can be wirelessly triggered by another flash unit. However, this is no automated TTL mode, so the output of the EF-X20 has to be manually controlled while in slave mode.

Fig. 18: A **Canon-compatible TTL extension cord** also works with the X-Pro2. However, since the extra power line for Fuji's tiny EF-X8 flash unit isn't looped through, this flash can only be used directly on the camera's hot-show mount.

Issues regarding **Canon TTL flash devices** TIP 24

Canon-compatible flash devices (e.g. flash units or radio transmitters) can lead to an overload of the X-Pro2's processor and result in overheating (you'll see the related overheating warnings). The reasons behind this are incompatible Canon/Fuji TTL flash protocols that are routed through compatible flash contacts (as described in the previous tip).

This problem can even occur when you are using your Canon-compatible flash gear in full manual mode without any expectation of TTL exposure control. You might want a simple trigger signal, but what you get are colliding protocols with adverse side effects.

Should you encounter these problems with your gear, you have three basic choices:

- Stop using your Canon-compatible TTL flash or transmitter and replace it with simpler devices that only use a central trigger contact.
- Tape the TTL contacts of your flash devices, leaving only the central trigger contact. This ensures that the only electric connection between the camera and the flash or transmitter is the flash trigger contact.
- Use an adapter that isolates the flash sync signal and blocks all other hot-shoe pin connections to your flash device. This is like taping TTL pins, just more convenient. Suitable adapters are available for only a few dollars.

Please note that flawless flash operation is only guaranteed when you use devices that explicitly support the Fujifilm X flash system and protocol. Alternatively, you can also use simple, manual flash devices and transmitters that only use the camera's central trigger contact. Other flash devices (that were originally made for other camera brands and

TIP 26 Recommended settings for your X-Pro2

There is no perfect set of basic camera settings that could suit all users in all situations. However, the following settings will allow you to use the X-Pro2 in a flexible manner with good overall performance:

- **Auto-ISO** is a convenient option with three presets that can be selected by setting the ISO dial to "A" and selecting one of three Auto-ISO choices (AUTO1–3) with SHOOTING SETTING > ISO AUTO SETTING. The corresponding Auto-ISO fine-tuning is available for each Auto-ISO preset by pressing the right selector button. There, you can adjust DEFAULT SENSITIVITY (I suggest 200), MAX. SENSITIVITY (I suggest 12800) and MIN. SHUTTER SPEED. Don't worry: even at the upper limit of ISO 12800, images made with the X-Trans sensor are quite good. When you are using Auto-ISO, you should pick a suitable minimum shutter speed with MIN. SHUTTER SPEED. A popular setting for the minimum shutter speed is 1/60s, but you can change this parameter to anything between 1/4s and 1/500s. Using a stabilized (OIS) lens, speeds slower than 1/60s are definitely a realistic option for this camera. With fast-moving objects, faster speeds are recommended to avoid unwanted motion blur. My personal minimum shutter speed settings for AUTO1, AUTO2, and AUTO3 are 1/60s (landscape), 1/160s (portraits), and 1/500s (action).

- Always select **FINE+RAW** under IMAGE QUALITY SETTING > IMAGE QUALITY or in the Quick menu. This will get you high-resolution out-of-camera JPEGs (digital prints) *and* flexible RAW files (digital negatives). Using the RAW files, you can create a variety of diverse JPEGs with different looks and settings using the camera's built-in RAW converter (PLAYBACK MENU > RAW CONVERSION). Specifically, you can adjust JPEG parameters such as white balance, film simulations, contrast, brightness, noise reduction, and color saturation. This enables you to create different versions of a shot from a single RAW file; for example, you can make both color and black-and-white versions of the same image, including different contrast settings. You don't have to worry about choosing the perfect JPEG settings prior to taking a shot because you can always change and optimize those settings afterward in the camera's internal RAW converter.

- As a typical standard setting, most photographers use **single shot drive** (press the DRIVE button and select STILL IMAGE) and **single shot autofocus** (AF-S; select S with the focus selector at the front of the camera).

- The most flexible AF-S setting is **Single Point AF** (AF/MF SETTING > AF MODE > SINGLE POINT). This mode allows you to select the area of the image where the camera should be focused. To accomplish this, use either the focus stick or select AF/MF SETTING > FOCUS AREA, then use the selector keys (arrow keys) to pick one of the 77 or 273 available AF frames. You can change the size of the selected AF frame by turning the command dial. *Pressing* (not turning) the rear command dial resets the frame to its default size. Pressing the DISP/BACK button selects the central (default) AF frame. Press OK or half-press the shutter button to confirm your selection. The camera will use this frame in AF-S and AF-C modes as its focus area as soon as you press or half-press the shutter button.

- Unlike most DSLR cameras, the X-Pro2 uses a **hybrid autofocus system:** a blend of contrast detection autofocus (CDAF) and phase detection autofocus (PDAF). The main burden still rests on the CDAF, which covers all AF frames (most of the sensor area). The PDAF is only covered by the central AF frames (about 40% of the sensor area). It's faster, but only works in sufficiently good light. Both AF methods work most precisely with a small AF frame, but work faster and more reliably with a large AF frame. This

leads to an obvious conflict of interest. My basic AF frame size rule is: always select an AF frame that is as large as possible, but as small as necessary.

- Set your X-Pro2 to maximum performance by selecting SET UP > POWER MANAGEMENT > POWER MANAGEMENT > HIGH PERFORMANCE. This option is *not* enabled by default, so you have to manually select it. Only **high-performance mode** unleashes the full potential of the camera, offering the fastest available live view readout and best autofocus performance. This mode also uses up more energy, so make sure to always carry one or two fully charged replacement batteries.

- To further improve AF performance, you can select AF/MF SETTING > PRE-AF > ON. **Pre-AF** makes the camera focus on whatever is covered by the currently selected AF frame or zone, even when the shutter button is *not* pressed or half-pressed. This can save valuable split seconds when you actually take a shot, but it also means that the camera is using up more energy. Worse, in this mode the lens is always focusing on something, so it may make distracting noises. For these reasons, I *don't* recommend using Pre-AF as your default setting. Only use it under special circumstances.

- Set AF/MF SETTING > RELEASE/FOCUS PRIORITY to FOCUS for both AF-S and AF-C. **Focus Priority** makes sure that the camera records a picture only when the autofocus thinks that it has locked onto a target. In RELEASE mode, the X-Pro2 will take the shot even if the autofocus couldn't find a lock. Please note that if you are using AF+MF mode, AF-S will always operate with release priority. By the way: my recommended default setting for AF/MF SETTING > AF+MF is ON.

- If you want to quickly take a series of single shots, I recommend selecting SET UP > SCREEN SET UP > IMAGE DISP. > OFF in order to not interrupt your flow. However, I *normally* set **Image Display** to 0.5 SEC, because I like to see a quick preview of the final image that represents the camera's dynamic range (DR) settings. To cancel an ongoing image preview and continue shooting, simply half-press the shutter button.

- By pressing the DISP/BACK button, you can choose between two live view display modes: one with and one without an information overlay. The overlay option offers essential tools like the electronic level, the live histogram, or the electronic distance and DOF scale. To choose which elements you want displayed, select SET UP > SCREEN SET UP > DISP. CUSTOM SETTNG. Then select either the optical viewfinder (OVF) or electronic live view (EVF/LCD), and pick the desired elements from the list. Make sure to enable the live histogram! Personally, I select *all* available options in this menu. Please note that you can select the display mode *independently* for the viewfinder (EVF or OVF) and the LCD. Pressing the DISP/BACK button only affects the currently active view (either the viewfinder or the rear LCD). In order to change the display mode of the viewfinder, it must be active when you press the DISP/BACK button—this means you must be looking through the viewfinder while the eye-sensor is active.

- Use the VIEW MODE button to activate the **eye sensor,** which will allow the camera to automatically switch between the hybrid viewfinder (EVF/OVF) and the LCD depending on which view is in use. There's also an alternative mode called VIEWFINDER ONLY + EYE SENSOR, which is an energy-saving mode. This mode can make it more difficult to operate the camera, because the LCD won't be available for changing menus while in shooting mode.

- For **exposure metering,** I recommend using MULTI as your default mode. Intelligent matrix metering usually delivers results that don't require a massive amount of

- In playback mode (while viewing an image), use the front command dial to browse through the images that are on file.
- During playback, you can turn the rear command dial to zoom in and out of an image. By pressing the DISP/BACK button, you can always directly return to the standard-size view. Press the rear command dial to zoom into a 100% view of a shot. When you are zoomed-in, pressing the dial again returns the camera to its regular view, displaying the full image.
- While displaying a RAW image in playback mode, you can press the Q button to directly access the built-in RAW converter. This function allows you to create new JPEG versions of your image with different settings.
- In playback mode, press the upper selector button (DRIVE button) to view the first of two information pages that show additional shooting parameters and the position of the focus point. This function is not available when you are using the FAVORITES display mode.
- In playback mode, you can use the focus stick as an alternative to the selector buttons and the MENU/OK button.
- Press and hold the playback button in playback mode to directly switch between the two memory card slots (while using two cards at the same time).
- For direct access to the format menu, press and hold the DELETE ("trash") button for about three seconds. Keep the DELETE button depressed and press the rear command dial.
- Pull the viewfinder selector to the right to switch between the optical viewfinder (OVF) and the electronic viewfinder (EVF).

- Pull the viewfinder selector to the right and keep it there for a few seconds to manually switch the magnification level of the hybrid viewfinder.
- Pull the viewfinder selector to the left to switch the Electronic Range Finder (ERF) window on or off.
- In ERF mode (Electronic Range Finder), press the rear command dial to change the magnification level of the small ERF window in the lower-right corner of the OVF display. There are three levels: a full view of the scene and two magnification levels.

Suggested Fn button assignment TIP 28

Smart assignment of your X-Pro2's six Fn buttons will save you many cumbersome trips to the camera menu. To display and change the assignment of all Fn buttons in one convenient menu, press and hold the DISP/BACK button in shooting mode until the configuration page called FUNCTION (Fn) SETTING appears.

Here are my suggested Fn button assignments:

- **Fn1: PREVIEW PIC. EFFECT.** With this assignment, this Fn button button turns into an on/off switch for the Natural Live View. Unlike the standard What You See Is What You Get (WYSIWYG) display, Natural Live View (NLV) emulates the display of an optical viewfinder with increased dynamic range in highlight and shadow areas. Basically, it's more representative of how our eyes see a scene. PREVIEW PIC. EFFECT ON is the camera's normal mode with WYSIWYG simulating (almost) all camera settings in the live view display. PREVIEW PIC. EFFECT OFF activates the Natural Live View, which displays flat colors and shows additional dynamic range. The latter is particularly useful for high-contrast scenes with dark shadows. Natural Live View will reveal more detail in

TIP 36 WYSIWYG – What You See Is What You Get!

The EVF and LCD monitor of the X-Pro2 operate in WYSIWYG mode [23]: What You See Is What You Get. This means that the viewfinder and monitor are always trying to display a live view [24] image that closely resembles how the resulting JPEG will look. The live view simulates exposure, colors, contrast, and white balance. Plus, when you half-press the shutter, the camera will set the selected working aperture, so the live view will also display a preview of the depth of field.

The live view's exposure simulation is quite helpful because it allows you to recognize exposure errors before you take the picture. Please note that the live histogram is always based on the current live view image.

The live view's WYSIWYG simulation is available in all four of the camera's exposure modes: program AE P, aperture priority A, shutter priority S, and manual exposure mode M.

In manual mode M, you can switch the exposure simulation off by selecting SET UP > SCREEN SET UP > PREVIEW EXP./WB IN MANUAL MODE > OFF. That way, the X-Pro2 will always display a bright live view image in manual mode, regardless of the chosen exposure parameters (shutter speed, aperture, and ISO). This can be useful in a studio setting with flash photography. For example, you may want to eliminate the surrounding light component by stopping down the aperture and fully illuminating your subject with flash lights.

Please note that both the live view and the live histogram aren't representing the actual exposure in this mode, so don't forget to switch the exposure simulation back on with SET UP > SCREEN SET UP > PREVIEW EXP./WB IN MANUAL MODE > PREVIEW EXP./WB if you want to work with a proper exposure simulation and live histogram in manual mode M.

The live view's exposure simulation is limited in situations with very low light and slow shutter speeds of several seconds. In these cases, the live view and the live histogram may appear darker than the actual result. In such scenarios, you should first take a test shot and review it in playback mode. The detail information display (which you can select with the DISP/BACK button) will show you a playback histogram of the recorded JPEG image. This includes a preview with "blinkies," which indicate blown (overexposed) highlights. Sadly, the playback histogram only shows the picture's luminance (overall brightness distribution), not its three distinct RGB color channels.

Using the Natural Live View TIP 37

The so-called Natural Live View is a display mode that disables the WYSIWYG simulation of JPEG settings such as Film Simulation, Highlight Tone, Shadow Tone, or Color. Instead, it will display a live view image with increased dynamic range in the highlights and shadows, and with natural colors that are supposed to resemble what our eyes would see through an optical viewfinder. It will also set the live view to Auto white balance, so there will be no simulation of any white balance settings or presets. However, all current JPEG and white balance settings will still be applied to the *actual image* that's recorded.

To set the camera to Natural Live View mode, select SET UP > SCREEN SET UP > PREVIEW PIC. EFFECT > OFF. This setting enables generic-looking previews for color, black-and-white, and sepia shots that do *not* reflect the look of the actual JPEG results. This makes Natural Live View particularly useful: you can see what's going on in the dark parts of a high-contrast scene while composing the shot.

Important: *The Natural Live View of the X-Pro2 extends highlight dynamic range by two stops, rendering the live histogram inaccurate when shooting with DR100%, DR200%, or DR-Auto dynamic range settings.*

- **Center-weighted** metering is a crossbreed between average and spot metering. While it encompasses the entire image area, it puts special emphasis on the image center.
- **Multi** or **matrix** metering calculates a weighted average of the total light that hits the sensor. The weight is a result of 256 metering areas (the matrix) that the camera evaluates and compares to typical scenarios, which is why multi metering is considered "smarter" than the other methods. For example, multi metering is designed to recognize when you are shooting against the sun.

Average, spot and center-weighted metering return exposure recommendations based on middle gray. In other words, when you take a picture of a black wall and then a picture of a white wall, the results will look middle gray. This means:

- If you want the black wall to actually look black in the resulting image, you have to manually adjust the exposure downward.
- If you want the white wall to actually look bright white in the resulting image, you have to manually adjust the exposure upward.

Fig. 20: This illustration shows a black sheet of paper and a white sheet of paper. Both were photographed with the camera's spot metering without any exposure correction. As you can see, the camera delivered a **middle-gray exposure** in both cases. In order to get an image that reflects the actual brightness of the subject, the metered exposure has to be adjusted.

Since you have read the owner's manual, you know that Fujifilm offers a few recommendations regarding exposure compensation in certain scenarios. For example, it recommends a correction of +1 EV when you are shooting in snowfields, or −2/3 EV when you are shooting subjects in spotlight. Instead of these rules, I recommend a more precise and methodical course of action using the live view and the live histogram. To minimize corrective adjustments, it's best to select a metering method that fits the subject or the job at hand:

- **Multi** metering is a general-purpose method. Since it is supposed to be "smarter" than the other methods, there's a good chance that you won't have to apply any corrective adjustments to the proposed exposure.
- **Average** (and, to a lesser degree, **center-weighted**) metering are rather neutral metering methods that will likely stay more consistent despite small changes in composition (or framing) than multi metering and spot metering. I recommend average metering if you want to take a series of shots of the same subjects under similar conditions. In such cases, average metering will help you keep the exposure consistent.
- **Spot** metering bases its measurements on one particular spot of the overall image. This means you have to work very precisely to make sure you are metering the appropriate part (spot) of the scene. The resulting exposure recommendation will expose this spot with middle-gray brightness. For example, if you spot meter a backlit face against the sun, the metered exposure will display the face with middle-gray brightness (or zone 5 in the famous Ansel Adams zone system [26]). If that's too dark for your taste, you can use the exposure compensation dial to lift the exposure by +1/3 EV or +2/3 EV. On the other hand, if the person has dark skin, you may want to reduce the exposure with a correction in the opposite direction. It's

Fig. 22: A **long exposure** of nine seconds taken in T mode. Make sure to use a solid tripod and a remote shutter release for these kinds of shots.

TIP 50 Long exposures in bright daylight

In order to achieve long exposure times under normal daylight conditions, you can't just stop down the lens—even at f/22, your shutter speed would still be too fast. Besides, diffraction blur is kicking it beyond f/10, so stopping down beyond this point is only recommended when it cannot be avoided.

To realize long shutter speeds in good light, it's best to use a so-called ND filter [36], or Neutral Density filter. This is a fancy name for a simple gray filter that you can put in front of the lens to block a portion of the light from reaching the sensor.

For example, a filter with an ND 3.0 specification will extend your exposure time by a factor of about 1000 (or 10 f-stops). This means that by using such a filter, a scene that would normally require a shutter speed of 1/50s at f/8 can be shot at the same aperture with an exposure time of 20 seconds.

However, there's a catch: since your X-Pro2 is equipped with a rather weak infrared cut filter in front of the sensor, long exposures (typically one minute or longer) in bright daylight should be performed with a regular neutral density (ND) filter and a dedicated IR cut filter in front of the lens. This will help you avoid false colors. A few ND filters already include an IR cut filter.

ISO settings—what's the deal? TIP 51

The meaning of ISO in the digital realm is often misunderstood. Higher ISO settings *don't* increase the sensor's sensitivity. The sensor in your X-Pro2 is calibrated to its native ISO 200 (based on the popular SOS standard) [37], and this remains the same no matter what ISO you set in the camera.

To be clear, there's no difference between taking a shot with f/5.6 and 1/60s at either ISO 100 or at ISO 25600. In both cases the sensor is exposed to the exact same amount of light (or photons). The amount of light (the real exposure) is solely determined by aperture and shutter speed.

So what exactly is ISO doing? ISO determines the amount of *signal amplification* that's applied to the image. ISO 200, the sensor's native setting, is equivalent to the camera's basic calibration. At ISO 400, the signal (or sensor data) is amplified by one aperture stop to brighten the image and increase its exposure. At ISO 800, the amplification amounts to two stops, and so on. At ISO 25600, the additional amplification of the light recorded by the sensor amounts to seven stops. It's not surprising that image quality decreases when ISO amplification increases; noise and artifacts are amplified along with the actual image data.

using the camera's built-in RAW converter to generate a second JPEG with the PULL command, and a third one with the PUSH command.

A better alternative to ISO bracketing is AE BKT. This option actually takes three different exposures and keeps the corresponding RAW files.

TIP 56 Extending the dynamic range

If the dynamic range of a subject is larger than the dynamic range of the camera's sensor and image processing, one of the following phenomena occurs:

- The highlights of the image are blown out or appear too bright (overexposed).
- Midtones appear too dark (underexposed) and shadows lose detail in the blackness.

In both cases, the shot's exposure is imbalanced. Sadly, it's very difficult (if not impossible) to restore blown highlights. It's much easier to lift underexposed midtones and blocked shadows. This procedure is called tone-mapping. Certain tonal values of the original exposure are reassigned and changed, either by employing a tone curve or by using a more complex mathematical procedure known as adaptive tone-mapping.

In order to record the full tonal range of a high-contrast subject, it's best to expose the image in a way that preserves the color and texture of the bright parts of the photo. Of course, doing so can lead to an image with underexposed midtones and blocked shadows that need further processing in order to look natural and realistic. You can correct these issues with most external RAW converters.

While every RAW converter is different, most programs offer functions to selectively change the exposure of a shot. For example, you can change the overall exposure with the exposure slider, and you can restore blown highlights with a highlight recovery slider. Most converters also offer sliders that only target shadow tones.

The DR function of the X-Pro2 can help you automate this tone-mapping procedure. It works in two stages:

- The RAW file is exposed one (DR200%) or two (DR400%) stops darker in order to preserve bright highlights of a scene.
- During the following RAW conversion in the camera, the underexposed shadows and midtones are digitally amplified by one (DR200%) or two (DR400%) stops to restore their natural brightness, while the (already correctly exposed) highlights are mostly left alone.

The resulting JPEG from the camera has undergone a selective exposure correction. The DR function restores the shadows and midtones of a shot that was initially exposed one or two stops darker to preserve the highlights of the scene. Looking at the resulting JPEGs, this leads to an effective gain in dynamic range (DR): one additional stop of highlight DR at DR200%, and two stops of additional highlight DR at DR400%.

In DR-Auto mode, the camera will automatically select a suitable DR setting. Please note that in this mode, the X-Pro2 will choose either DR100% (no highlight DR expansion) or DR200% (one stop highlight DR expansion). DR400% (two stops highlight DR expansion) is only available when it is manually selected.

You can change the DR settings of your camera in the Quick menu or by selecting IMAGE QUALITY SETTING > DYNAMIC RANGE and then either AUTO, DR100%, DR200%, or DR400%.

Fig. 26: The example on the left shows an image that has been exposed to the highlights. The sky is perfectly exposed, but this means that the unlit foreground is literally left in the dark. If that's what you want, great! If not, you have to apply some tone-mapping to the RAW file.

The example on the right shows the same image after some tone-mapping in Adobe Lightroom. The dark shadow regions have been lifted, revealing plenty of detail where the previous image only displayed a dark patch. This method is also known as applying adaptive ISO, because different parts of the image received a different degree of exposure push. While the shadows were pushed up (ISO increase), the highlights mostly remained as they were.

TIP 58 JPEG settings for RAW shooters

The previous tip explained the procedure to capture, compress, and later decompress scenes with high dynamic range. Since our exposure relies on the live view and the live histogram, it's useful to find camera settings that force the live histogram and live view to display as much dynamic range as possible. After all, we are shooting RAW and aren't really interested in the JPEGs from the camera, so we want the live view and live histogram to closely represent the data that will be recorded in the RAW files. This goal can be achieved by choosing JPEG parameters in the IMAGE QUALITY SETTING menu that display as much dynamic range as possible:

- Set FILM SIMULATION to PRO NEG. STD. This setting results in JPEGs with less contrast than the other film simulation modes.
- Set HIGHLIGHT TONE to –2. This setting reduces the highlight contrast of the JPEG—in the live view and in the live histogram.
- Set SHADOW TONE to –2. This setting reduces the shadow contrast of the JPEG in both the live view and the live histogram.

The above JPEG settings give you a live view and live histogram with maximum dynamic range. JPEGs that are generated with these settings may look flat, but we don't care because we don't want to keep them anyway. We are only interested in the RAW file, which isn't affected by JPEG settings at all. However, the live view and live histogram are fully affected, and a flat image live view with a correspondingly flat image live histogram is exactly what we want in order to better fine-tune our exposure to preserve highlights.

You can save these JPEG settings in a custom profile (C1 to C7) so you can quickly retrieve them to set your X-Pro2 to RAW shooter mode. Select IMAGE QUALITY SETTING > EDIT/SAVE CUSTOM SETTING to edit your custom settings.

Fig. 31: **Turning the DR function into a virtual high-key studio:** The example on the left illustrates a regular exposure of a flower at ISO 200, DR100%, f/5.6, and 1/1000s. The exposure was designed to protect the structure of the white petals. The example on the right is the same scene shot at ISO 400, DR200%, f/5.6, and 1/1000s. This means that while the RAW data remains the same, only the JPEG from the ISO 400/DR200% version delivers the desired high-key look while leaving the structure of the petals intact. Doubling ISO and DR settings in tandem (leaving all other exposure parameters untouched) moves the histogram of the shot to the right, but without blowing bright highlights. Instead of cutting them off, the tonality of the bright highlights is compressed. You can fine-tune such results with the camera's built-in RAW converter, for example, by reducing the highlight contrast (HIGHLIGHT TONE settings). Additionally, you can revert a high-key shot that was taken (for example) at ISO 400/DR200% into a regular ISO 200/DR100% JPEG by reprocessing the RAW image in the built-in RAW converter using PULL –1 EV and DR100% settings.

Tone-mapping and tonality compression can also be used to improve portraits. It can reduce contrast and harsh shadows on faces that are illuminated by a single light source, such as the sun. With our high-key technique, dark eyes and shadows under the nose can be lifted without blowing the bright parts of the skin. At the same time, the tone-mapping and highlight tone compression makes skin blemishes almost disappear.

Fig. 32: **Using virtual high-key in a portrait:** This example illustrates a difficult portrait situation with strong contrast and harsh shadows on the face.

The upper-left sample shows a JPEG that was created by exposing for the highlights with the CLASSIC CHROME film simulation and ISO 200. This resulted in a rather dark face with strong contrast and shadows.

The upper-right image shows the same shot two stops brighter, and with extended highlight dynamic range to protect the highlights. This means using ISO 800 and DR400% while maintaining the exposure (aperture and shutter speed) of the upper-left sample. Additionally, I set HIGHLIGHT TONE to –2 to pull back the brightest (skin) tones. As you can see, the eyes are now much brighter and the harsh contrasts are gone.

Too much? Don't worry! Using the X-Pro2's built-in RAW converter, you can always create more realistic versions of your high-key shots. In this case (lower-left image), I used PULL –1 (effectively pulling the shot from ISO 800 down to ISO 400) along with DR200% (to compensate for the pull), SHADOW TONE –2 (for more shadow detail), and HIGHLIGHT TONE –1 (to bring back the brightest skin tones).

Alternatively, you can also process the RAW file in any external RAW converter. In the case of the lower-right example, I used Adobe Lightroom.

Please note that the slowest shutter speed in all AE modes is 30 seconds, so your basic exposure (with 0 EV correction) should not be longer than 2 seconds. If you require shots that exceed 30 seconds of exposure time, it's better to use manual mode M in concert with the Bulb (B) setting of the shutter speed dial.

TIP 62 HDR: the handheld way

Thanks to the ISOless sensor in the X-Pro2, you can effectively take handheld HDR shots by combining two vastly differently exposed RAW files to one HDR-DNG file in Adobe Lightroom or Adobe Camera RAW.

Let's start with how to prepare the camera for this endeavor:

- Set the X-Pro2 to aperture priority A.
- Select a low ISO setting, such as ISO 200. Don't set ISO 100.
- Make sure the dynamic range is set to DR100%.
- Pre-select a suitable aperture setting.
- Press the DRIVE button and select AE BKT with a variation of ±2 in the bracketing menu to activate the camera's auto exposure bracketing.
- Select AVERAGE exposure metering.
- Use the "JPEG settings for RAW shooters" setup from tip 58: FILM SIMULATION > PRO NEG. STD, SHADOW TONE –2 and HIGHLIGHT TONE –2.
- Select SET UP > BUTTON/DIAL SETTING > AE/AF-LOCK MODE > AE&AF ON/OFF SWITCH.

Now let's take our HDR shots:

- Expose to the highlights! Using the live view and live histogram, frame your scene, and turn the exposure compensation dial until critical highlights aren't blown. When you are finished, memorize the shutter speed that is displayed.
- Save the exposure from the previous step by pressing the AE-L button, but do so without changing the framing of your shot. Make sure that the locked exposure has the same shutter speed as the one from the previous step.
- Now correct the exposure by +2 EV using the exposure compensation dial: simply turn it six clicks in the plus direction. This will shift your locked exposure up by two stops.
- Focus and press the shutter button to take the shot. Hold the camera very steady while the X-Pro2 takes a quick burst of three consecutive AE bracketing shots (each with a different exposure). We are only interested in the last two of these three shots because their exposure differs by 4 EV.
- Import the RAW files of the last two of the three bracketing shots into Adobe Lightroom or Adobe Camera RAW, where you can merge them into a single HDR-DNG file using the HDR function. You can process the HDR-DNG file in Lightroom like any normal RAW file.

This trick combines several functions and techniques that were discussed in previous tips, such as AE bracketing, exposure compensation, and AE-Lock. By combining two shots with the vast exposure difference of 4 EV, we dramatically enhance the overall dynamic range of the image. Since the two shots in question were taken in a quick burst with maximum continuous drive speed, there's also little or no motion blur in the resulting DNG composite. This trick can even work for (slowly) moving subjects, especially since Lightroom's HDR merge tool includes automatic deghosting.

Fig. 35: Shooting with minimal depth of field, you can't afford to use a focus and recompose habit because it would quickly lead to soft results that appear out of focus. Instead, compose the shot, and then focus using a single autofocus frame (there are 77 or 273 to choose from in Single Point AF mode) that covers the part of the image that is supposed to be in focus.

- You can think of **Zone AF** as an extension of Single Point AF. Basically, an AF zone is a particularly large AF frame that consists of a set of smaller AF points. Zones are available in sizes that cover 3×3, 5×5, or 7×7 out of a total of 77 AF points. Like Single Point AF frames, AF zones can be moved around within the image area. Since they are larger, AF zones make it easier to focus on moving subjects. In Zone AF mode, the camera will start looking for something to focus on in the center (crosshairs) of the selected zone and then expand its search toward the edges of the zone until it finds a target. Like Single Point AF, Zone AF works in concert with either AF-S or AF-C.

- When you combine **Wide/Tracking AF** mode with **AF-S,** the camera scans the entire image frame and automatically selects up to 9 out of 77 available AF frames. It's a bit like rolling dice, since the camera is looking for areas with a lot of contrast. It doesn't know what's important in a scene. This changes when Wide/Tracking is used in concert with **AF-C:** This combination offers real 3D tracking of moving objects; that is, objects that not only move toward or away from the camera, but also left, right, up, or down within the image frame. In order to track such an object, select Wide/Tracking and AF-C and pick one of the 77 available AF points. To start the tracking process, make sure the selected point covers the moving object you want to track. Half-press the shutter button to start the tracking process. As long as you keep the shutter-button half-pressed, the camera will automatically follow the selected subject with a cloud of small AF frames as it moves across the image area.

Please note that Fujifilm has released a free *AF Handbook* detailing the autofocus modes and mode combinations that come with your X-Pro2. You can download this useful brochure as a PDF by clicking here [44].

In addition to that, I have published a blog article describing the new AF features that came with firmware 4 for the X-T1. These features are also found in the X-Pro2. Click here [45] to read it. This article also contains links to short videos with examples of Single Point AF, Zone AF, and Wide/Tracking AF.

Selecting an AF frame or AF zone

TIP 67

The X-Pro2 offers an indirect and a direct method for selecting one of its 77 or 273 available AF frames in Single Point AF and for moving an AF zone around in Zone AF:

- The *indirect* method requires you to *first* press the AF button and *then* use the selector buttons to pick an AF frame or move an AF zone. Since the X-Pro2 doesn't feature a hard-wired AF button, you have to assign this function to one of the Fn buttons by pressing and holding the desired Fn button until its configuration menu appears. Then you can select FOCUS AREA.

TIP 69 **Manual focus** and DOF zone focusing

To set the camera to manual focus, move the focus selector at the front of your X-Pro2 to the **M** position. There are several manual focus aids available:

- A magnification tool with two magnification levels
- Focus peaking (Focus Peak Highlight) with two strength levels and optional colors (red or blue)
- Digital split image
- An electronic distance scale with depth-of-field bars that can be based on two formats: PIXEL BASIS and FILM FORMAT BASIS
- One-Touch-AF (or Instant AF): autofocus in MF with the AF-L button

The digital distance scale can help you define a focus zone with pre-determined depth of field (DOF). As long as you opt for PIXEL BASE in AF/MF SETTING > DEPTH-OF-FIELD SCALE, everything within the DOF zone will look pixel-sharp even when the image is magnified to a 100% view. Please don't confuse manual zone focusing with Zone AF—they are completely different.

Here's a zone-focusing example: using an 18mm lens, manually set a distance of 15 feet and stop down to f/6.4. The DOF bars will show a depth-of-field zone that begins at around 12 feet and ends at around 30 feet. This means that everything located in this zone (between 12 and 30 feet) will appear equally in focus in the final image. All you have to do is make sure that your subject is within that zone when you press the shutter button.

A special case of manual zone focusing is setting the hyperfocal distance [46]. This is the distance setting with the maximum DOF (all the way to infinity). Again, the electronic DOF scale can be very helpful: all you have to do is manually set the distance where the blue DOF bar on the right touches the infinity mark. For example, using an 18mm lens at f/16, the hyperfocal distance is at about 16 feet, with the pixel-sharp DOF zone extending from nine feet to infinity.

Fig. 37: Setting the **hyperfocal distance** with the electronic distance and DOF scale: instead of focusing on a predetermined distance, manually change the focus distance until the blue DOF bar touches the infinity mark on the right end of the scale. This gives us the hyperfocal distance for a given aperture and focal length. This image shows the hyperfocal distance for a XF35mmF2 lens at f/16 and both the PIXEL BASIS format (left) and FILM FORMAT BASIS format (right).

Please note that depth of field is very much dependent on the circle of confusion [12] (CoC). Fujifilm uses a very conservative CoC that guarantees pixel-sharp results even when the DOF zone is viewed at 100% magnification on a computer screen. Fuji is literally using the sensor's maximum resolution as a benchmark. In PIXEL BASIS mode, everything that's located within the electronic DOF zone will be rendered at least as sharp as the sensor can resolve it. In the age of pixel peeping, this is as good as it can get.

able when you are using lenses with manual focus clutches (XF14mmF2.8, XF16mmF1.4, and XF23mmF1.4).

One-Touch-AF normally works like AF-S, but you can also set it to continuous focus with AF/MF SETTING > INSTANT AF SETTING > AF-C. In this mode, One-Touch-AF will track an object as long as you keep the AF-L button depressed in manual focus mode. Unlike normal AF-C, One-Touch-AF-C can focus with a wide-open aperture (instead of the set working aperture) when the light is poor, making it an option for stage and concert photography with moving subjects. Just keep the AF-L button depressed for continuous instant autofocus as you press the shutter button in the right moment.

TIP 73 Using AF+MF

AF+MF enables you to focus in AF mode, then adjust the focus manually by turning the focus ring, all while holding the shutter button half-depressed. Select AF/MF SETTING > AF+MF > ON to enable this feature. In order to use AF+MF, your X-Pro2 has to be in AF-S autofocus mode.

Here's how it works:

- Autofocus on your subject as usual in AF-S mode by half-pressing the shutter button.
- Once the autofocus has been confirmed (green square[s]) or not confirmed (red AF warning), keep the shutter button half-depressed and rotate the focus ring of your lens to *manually* adjust the focus distance until you are satisfied. If Focus Peaking is enabled, it will automatically engage as soon as the focus ring is rotated and manual focus (MF) kicks in. You can also use the Focus Check function (AF/MF SETTING > FOCUS CHECK > ON) to automatically magnify the focus area as soon as you turn the focus ring. For this to work, make sure that AF-S and SINGLE POINT AF are set. You can also combine Focus Check magnification with Focus Peaking. Turn the rear command dial to change the magnification factor and press the rear command dial to manually enable/disable the live view magnification. Remember that all this needs to be performed while you keep the shutter button half-depressed, so this might need some practice.
- When you are happy with your manual focus adjustments, fully depress the half-pressed shutter button to take the shot.

I see three main applications for AF+MF:

- **Manual focus in situations when autofocus fails:** Instead of losing time by changing the focus mode from AF to MF, you can immediately focus manually when the camera's AF fails to acquire the subject. Simply adjust the focus manually using the focus ring.
- **Correcting the camera's autofocus:** There are instances when you might want to fine-tune the autofocus of your camera by adjusting it manually. Again, Focus Peaking is available to make things easier, and you can enable Focus Check to automatically show a magnified view of the focus area when you turn the focus ring.
- **Shifting the depth-of-field (DOF) zone or setting the hyperfocal distance:** After half-pressing the shutter button, AF+MF lets you quickly shift the DOF zone toward or away from the camera by turning the focus ring. The digital distance scale on the screen can be quite helpful here. For example, you can shift the right tip of the blue DOF bar to just touch the infinity mark of the digital distance scale to set the hyperfocal distance [48].

At first glance, the MF component of AF+MF may look like your usual manual focus, but it's not. While genuine MF is always performed at wide-open aperture, the MF part

TIP 75 Using face detection and eye-detection

Face detection is a combined autofocus and exposure metering mode. It even affects auto white balance. You can activate it with AF/MF SETTING > FACE/EYE DETECTION SETTING and picking one of the four FACE ON options.

Here's what it does:

- The camera scans the scene and detects one or more human faces. In AF-S mode, it automatically focuses on one of the faces when the shutter button is half-pressed. When more than one face is detected, the camera tends to focus on the face that's closest to the center. That face will be highlighted with a green frame. The other detected faces will be highlighted with a white frame.
- Face detection uses a custom version of weighted multi metering that puts an emphasis on the selected face. The goal is to deliver an exposure with correct skin tones. It may also influence the camera's auto white balance.

Face detection is both a blessing and a curse. It's a blessing when it works because it focuses directly on a face and makes sure that it's correctly exposed. It's a curse when the detection goes wrong, because it doesn't just mean that the focus might miss; it may also mess up your exposure metering.

The good news is that in most cases, face detection works, even with people who only show their profiles to the camera. The bad news is that face detection may not work well on folks wearing glasses.

- I don't recommend using face detection in burst mode (it only works in the slower CL mode, anyway) because the exposure metering may change during the series of shots, depending on whether or not a face is detected.

- If you want to take face detection exposure metering out of the equation, you can set the camera to manual exposure mode M. While metering will still be affected in this mode, the exposure itself will not.
- Face detection works with the full sensor area, and thus only employs CDAF. PDAF and its predictive capabilities aren't available. This means that AF-C tracking of moving objects doesn't work as well as it could. In other words, face detection isn't the best option to use when tracking an athlete or a child running toward the camera. It's better to use the camera's conventional AF-C mode with one of the central AF frames or an appropriate AF zone.
- Spot, center-weighted, and average metering aren't available when face detection is active. The camera is always using a derivate of multi metering.
- When face detection fails to detect a face in the scene, the camera will automatically fall back to the selected AF mode: Single Point, Zone, or Wide/Tracking. At the same time, exposure metering reverts back to regular multi metering.
- Neither AF-Lock nor AE-Lock is available when face detection is active.
- Face detection is not available in manual focus mode. However, you can still use it with adapted lenses as long as you set the camera to an AF mode and activate face detection. In this case, face detection will only work as an exposure metering mode.
- Face detection can be assigned to one of the X-Pro2's function (Fn) buttons. Personally, I tend to assign it to the lower selector button.

The X-Pro2 has improved face detection accuracy due to an added, optional eye-detection feature. Eye detection is only available in AF-S mode. To activate it, select either FACE ON/

The X-Pro2 also improves the predictive capabilities of the CDAF. This means that subject tracking is also available with AF frames that surround the central PDAF points, as long as the burst rate in continuous shooting mode doesn't exceed 3 frames per second. It's important to note that the hit rate of such predictions is never near 100%, but it's accurate enough to deliver good results in concert with the camera's burst mode settings.

Let's start with the **Single Point AF** and **Zone AF** modes:

- Set the focus mode selector switch to AF-C and make sure that high performance mode is on. Also make sure that the shutter type is set to the mechanical shutter (MS) in the shooting menu.
- Set the camera to burst mode (set the DRIVE button menu to CL or CH). I recommend using the slower CL mode, since it displays a real-time live view image between shots and supports all AF frames.
- If you are using Single Point AF, select one of the central PDAF-enabled autofocus frames. If you use one of the outer AF frames, the camera will only use CDAF. In concert with one of the outer AF frames, you can only use the slower of the two burst modes (CL). You should still get pretty good results, though.
- If you are using Zone AF, select a zone that doesn't extend beyond the central 7×7 AF point matrix. If you use a zone that includes AF points beyond this PDAF-enabled area, the camera can only use CDAF, and only the slower of the two burst modes (CL) is available.
- Position the selected AF frame or AF zone to directly cover the subject or part of the subject that you want in focus. Half-press the shutter button, and the camera will start tracking the subject covered by the AF frame or AF zone.

- Keep the shutter button half-depressed as you follow the moving subject with the selected AF frame or AF zone.
- Fully depress the shutter when you want to start taking a series of exposures. The actual burst speed (frame rate) depends on how well the camera is able to track the subject. As the camera is taking pictures, keep the selected AF frame or AF Zone over the part of your image that is supposed to be in focus. This may be challenging at first, so practicing is important.

In the above configuration with burst mode and AF-C, the X-Pro2 is still adjusting the exposure between shots. However, white balance and dynamic range settings are determined with the first shot and remain constant throughout the series.

Fig. 44: **AF tracking** with AF-C and burst mode: The predictive autofocus was tracking one of the kids with the selected AF zone while they were running toward the camera. To make this kind of shot work, it's vital to follow the subject with the active AF frame or AF zone, making sure it's always covering the part of the subject that is supposed to be in focus.

In principle, AF tracking also works in single shot mode. In this case, the camera takes a single frame when the shutter button is fully depressed, then ends the tracking.

By the way, it is perfectly normal for the hybrid AF to continuously hunt in the viewfinder during focus tracking (in AF-C mode). Don't be irritated by the live view image changing between in focus and not in focus. It's all about the results.

As an alternative to Single Point and Zone AF, you can also use **Wide/Tracking AF** in concert with AF-C to track a moving subject. This mode enables real 3D tracking, meaning the camera isn't merely tracking a subject's changing distance to the camera (z-axis), but also its left/right (x-axis) und up/down (y-axis) movement within the image frame.

Here's how it works:

- Set the focus mode selector switch to AF-C and make sure that high performance mode is on. Also make sure that the shutter type is set to the mechanical shutter (MS) in the shooting menu.
- Set the camera to **Wide/Tracking AF** and select the slower of the two burst modes (set the DRIVE button menu to CL). That way, 3D tracking will be available for the *entire* image frame, but it will only track objects using CDAF. If you set DRIVE to CH, tracking will use PDAF, but will be limited to the smaller PDAF-enabled central area. In my experience, CDAF tracking works quite well— that's why I recommend using the slower (but wider, and hence more flexible) CDAF option.
- Select one of the 77 available tracking AF points. The point you select will serve as a starting point for your tracking action, so position it in a way that suits your composition.
- To identify your target, make sure that the selected AF point covers the object you want to track and half-press the shutter button. As long as you keep the shutter button half-pressed, the camera will use pattern recognition to automatically follow the object as it moves around the frame (or as you move the camera around) with a cloud of small green AF frames.
- Fully depress the shutter button and keep it pressed to take pictures at the selected burst rate.

Fig. 45: AF-C in concert with WIDE/TRACKING and burst mode can track a subject in 3-dimensional space. To accomplish this, the X-Pro2 is using pattern recognition to follow the designated subject as it moves.

Focus priority vs. Release priority TIP 82

The autofocus in your X-Pro2 will *always* try to focus on a subject before the camera takes the shot. In this context, release priority vs. focus priority only refers to how the camera is behaving when the AF *fails* to lock on a target:

- Fully press the shutter button to meter and set the new custom white balance. The live view will change accordingly and simulate the adjusted color temperature. If you are happy with the result, confirm it by pressing the OK button.

You can use the same procedure with a firing flash unit. In this case, the custom white balance will meter the mix of flash light and surrounding light that hits your neutral reference surface.

Don't worry! You are under no obligation to use the custom white balance later during RAW conversion. It's simply one of many options, and you can always adjust it later as you please. For example, you can use the built-in RAW converter with a manual KELVIN setting or one of seven white balance presets (FINE, SHADE, FLUORESCENT LIGHT 1–3, INCANDESCENT, and UNDERWATER). You can even use AUTO white balance anytime later because the camera will always save its automatic white balance metering for later use in the internal RAW converter.

Fig. 47: A **custom white balance** setting was used to take this shot. The wall behind the sofa served as a neutral reference.

Infrared photography — TIP 84

Since the X-Pro2 features a weak IR-blocking filter in front of its sensor, it's quite suitable for infrared photography. You'll need an infrared filter in front of your lens, typically of the R72 kind, which is available from Hoya and other filter vendors. This filter blocks all light wavelengths except infrared, making sure only infrared light reaches the sensor.

To minimize the resulting red tint in the live view (and JPEGs), set the color temperature to a minimum of 2500 Kelvin. You can also select one of the eight different black-and-white film simulation modes to completely eliminate colors in the viewfinder (and JPEGs).

Since the R72 filter blocks a large amount of light, it's useful to shoot with a tripod.

Fig. 48: (Next page) This **infrared image** by X-Photographer Mehrdad Abedi was processed in Adobe Lightroom and shot with a R72 filter (Credit: www.qimago.de)

Changing color tints with **WB SHIFT** TIP 85

WB SHIFT offers the opportunity to correct (or introduce) color tint in any shot. You can adjust the color tint as an add-on to every white balance setting—either before you take a shot or in the built-in RAW converter.

You can set a *different* white balance shift for each of the X-Pro2's white balance options (Auto, Kelvin, the seven presets, and the three Custom white balance settings). You can do this by changing the tint between green and red on the X-axis and between yellow and blue on the Y-axis of the display that automatically appears when you select one of the twelve white balance options.

I recommend a neutral setting here to avoid confusion. As mentioned before, there's a different white balance shift setting for each of the white balance options, meaning the camera can store twelve different white balance shift settings at once. This makes it easy to forget a previously set correction, which is why I recommend introducing white balance shift during RAW conversion. Here's where you can actually see, for example, that the skin tones in a portrait may require an adjustment.

Fig. 49: **WB SHIFT in action:** The example on the left shows the image with AUTO white balance and factory JPEG settings. On the right you can see the same image, again with AUTO white balance and factory settings, but with a manual WB SHIFT of Blue +6 and RED –3 to make it look colder than the original.

Fig. 53: Even at ISO 25600, the noise shaping of the X-Pro2's new **ACROS film simulation** delivers a natural-looking result with high resolution and fine details

The best way to learn about film simulations is to use and compare the different options. The easiest way to do so is with the camera's internal RAW converter. Take the RAW file of a shot and process it with all available film simulations, then import the JPEGs into your computer and compare them on your monitor.

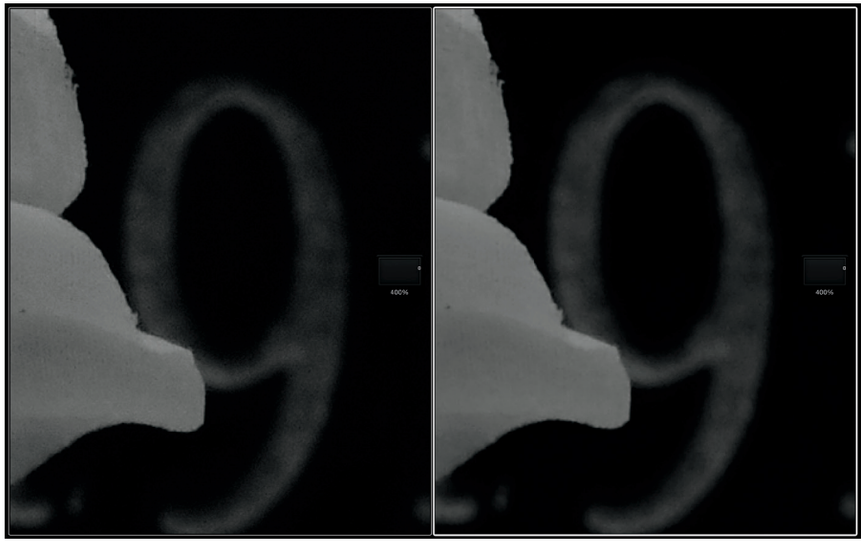

Fig. 54: ACROS offers ISO-dependent **analog film grain simulation** based on innovative noise shaping. Even at base-ISO 200, there's already a subtle difference between ACROS (left image) and the regular MONOCHROME film simulation (right image).

Using the **Grain Effect** TIP 87

Fujifilm is all about great film simulations with an organic look, so adding "analog film grain" to a digital image can be useful to achieve a more natural look with enhanced micro contrast.

The X-Pro2's JPEG engine offers two GRAIN EFFECT options: WEAK and STRONG. Unlike ACROS, these options don't transform noise into analog-looking film grain; they simply add a layer of randomized, simulated film grain to the image. It's an ISO-independent add-on effect that can be used with all film simulations.

For this reason, I do *not* recommend using GRAIN EFFECT in concert with the ACROS film simulations—it would mix the different grain effects. After all, ACROS already brings its own ISO-dependent grain to the table.

Fig. 57: Comparing **Shadow Tone** settings: The image on the left shows a SHADOW TONE +2 version; the image on the right shows the same RAW file processed with SHADOW TONE –2. As you can see, shadows and midtones are lifted up by the reduction of the JPEG's shadow contrast, while the highlights remain untouched.

TIP 89 **Skin tones:** smooth or with texture?

The smoothness of surfaces (such as skin tones) at high ISO settings is best controlled by reducing NOISE REDUCTION. To reveal more detail and achieve less skin smoothening, you can decrease the noise reduction to –2 or lower.

If this still doesn't meet your demands, you can switch to an external RAW converter to turn RAW files into JPEGs or TIFFs. Current versions of Adobe Lightroom/ACR and Iridient Developer offer similar versions of the camera's internal film simulation modes. This means you can replicate the famous Fuji Colors and enjoy more control over many processing parameters.

Please note that RAW files recorded with extended DR settings (DR200%, DR400%) may require additional processing when you use external RAW converters. You'll have to tone-map the image and manually recover blown highlights using suitable exposure slider settings. In Lightroom and Adobe Camera Raw, you can combine the sliders for exposure, highlights, shadows, whites, and blacks to get the job done. In Iridient Developer, things are much simpler because this RAW converter offers a single Highlight Recovery

slider with results that very much resemble the JPEGs from Fujifilm's internal DR function.

Color saturation TIP 90

After picking a suitable film simulation mode, you still might want to change the color saturation [53] of an image. You can do so with the COLOR setting.

Too much color saturation can obscure texture and details. For example, VELVIA is a very saturated film mode that may sometimes require a reduction in color saturation.

Fig. 58: **Color saturation:** The left image shows a PROVIA version with COLOR –4; the right image show the same RAW file processed with COLOR +4

Choosing a **color space: sRGB or Adobe RGB?** TIP 91

A color space [54] is a way of organizing available colors. Your X-Pro2 offers two options: sRGB [55] and Adobe RGB [56]. Both of these color spaces contain the same *number* of colors, but not the *same* colors—their gamuts [57] are different.

Adobe RGB covers a larger gamut than sRGB because its colors are optimized for CMYK printing. On the other hand, sRGB is optimized for computer monitors and all kinds of high-resolution displays, such as HDTVs, smartphones, and tablets. Since Adobe RGB encompasses a wider gamut than

sRGB, the gaps between neighboring colors and tones are wider because both color spaces contain the same number of colors. Adobe RGB has to spread this number over its larger gamut. This larger gamut (compared to standard sRGB) is why Adobe RGB is also known as an extended color space.

Users often misunderstand and assume that "extended" means "better." It does not. The additional colors in Adobe RGB are only useful if you intend to print images with a commercial CMYK printer. This requires a calibrated workflow and a wide-gamut monitor that is capable of displaying the Adobe RGB gamut, but the majority of computer monitors are only capable of displaying the sRGB gamut. Using Adobe RGB on such a monitor would be like working with closed eyes because you wouldn't be able to see many of the colors you are using.

For most users (including me), sRGB is the best choice of color space. Images rendered in this color space can be viewed, processed, and printed on a wide variety of devices without unpleasant surprises. In any case, you should calibrate your computer monitor with hardware like Spyder. Uncalibrated screens will not give you an accurate representation of the colors in your images.

TIP 92 Using **custom settings** (usage profiles)

As you know, the X-Pro2 offers seven custom settings (or usage profiles) that can hold full sets of camera settings for quick access. The available settings are:

- Dynamic range
- Film simulation
- Grain effect
- White balance
- Highlight tone
- Shadow tone

- Color
- Sharpness
- Noise reduction

I'm sure you have noticed that these are the usual JPEG parameters with the addition of dynamic range.

The seven available custom settings (C1 to C7) or usage profiles aren't camera modes. They are storage spaces for seven sets of settings than can be quickly retrieved (usually via the Quick menu) to replace the currently active camera settings. Custom settings are mere shortcuts, a simple time-saver that allows you to quickly change all your camera's current settings at once instead of changing parameters one by one.

The best way to use custom settings is via the Quick menu:

- Pull up the Quick menu by pressing the Q button and select one of the seven available custom settings (C1 to C7).
- At this point, you can make changes to individual items of the retrieved parameter set using the Quick menu. Once you change a parameter, it is marked with a red dot.
- When you are happy with your settings and changes, you can make them your new current settings by pressing the OK button or by half-pressing the shutter button. In the upper-left section of the Quick menu, the currently active settings are always marked with the word BASE. You'll also see the custom setting that was last retrieved; for example, C1.

What kind of custom settings may be useful? Here are a few suggestions:

- Make sure to save your favorite all-purpose default settings in one of the seven user profiles (such as C1). This enables you to quickly revert to your default settings.

formatted card, make sure to take at least one shot in order to create the X-Pro2's directory structure.

The directory where you must place your RAW files is located in a folder called DCIM. It's named "xxx-FUJI," with "xxx" being a 3-digit number that reflects the overall number of shots you have already taken. An example would be 104-FUJI.

Please remember that file transfers to the camera aren't available via USB, so make sure to insert the SD card directly into your computer or use a card reader.

By the way, your X-Pro2 cannot process RAW files from other camera models, including other X-series models. However, you can process RAW files from other X-Pro2 cameras. In this case, your camera will display a parcel symbol indicating that the RAW file was created with another X-Pro2.

Fig. 59: The **built-in RAW converter** in action: The left image shows an overexposed sample shot that was recorded with the camera's default settings and DR400%. On the right, you can see the same shot processed with a PULL of –2 EV, maximized shadow contrast (SHADOW TONE +4), and VELVIA film simulation.

TIP 94 Comparing RAW converters

So far, we have talked a lot about the X-Pro2's built-in RAW converter. It's the perfect tool to create JPEGs. It's a JPEG shooter's paradise! It's also super-easy, because the built-in RAW converter utilizes the same functions and parameters

available in the shooting menu. That's no surprise, because the built-in RAW converter is the JPEG engine of the camera! If you are a JPEG shooter, ignoring the internal converter that turns RAW files to in-camera JPEGs means overlooking the aspects of the camera that make the X-Pro2 so special. That's why even diehard JPEG fans should shoot with FINE+RAW. You need the RAW files to feed the engine that generates JPEGs with the colors, tonality, and overall look that you like from your Fuji camera.

What about the other half—diehard RAW shooters who don't care much about JPEGs, Fuji colors, or in-camera conversion? Those guys (I tend to be one of them from time to time) require an external RAW converter to process the RAW files on a computer. The results are often saved as uncompressed 16-bit TIFF files of more than 100MB each. Such files can be further processed in Photoshop and similar applications.

In this tip, I'll compare how certain popular external RAW processors handle specific features of the X-Pro2:

- **RAW File Converter EX** came free with your camera (have a look at the CD). This software is based on an older version of the Japanese Silkypix [58] RAW processor that is currently available in version 7. If you want to use all the features of this software, you should definitely upgrade to the latest version of Silkypix. As a Fujifilm camera user, you are eligible for an upgrade discount in many territories. Please note that the new RAW File Converter EX *version 2* also supports Fujifilm's film simulation modes. This software is available as a free download [59].
- The most popular RAW converter is **Adobe Lightroom**. Its processing module is also available in Photoshop as **Adobe Camera Raw**. This website [60] will provide more information and a free trial version.

- **Capture One Pro** is similar to Lightroom and deeply rooted in the professional community. It's made by PhaseOne [61], the same folks who are building medium format cameras and digital camera backs.
- A great RAW processor for Mac OS users is **Iridient Developer** from Iridient Digital [62]. Like Lightroom/ACR, this converter features profiles that match Fuji's built-in film simulation modes.
- **Photo Ninja** from PictureCode [63] is another fine option. Like Iridient Developer, it is able to extract a great amount of sharpness and detail from Fuji's X-Trans RAWs. It also contains a module for adaptive tone-mapping and features a special algorithm to restore blown highlights.

Which RAW converter is right for you? I don't know! But I do know that you can download free trial versions of all mentioned programs to find out for yourself. That said, it can be helpful to make a quick comparison that tells you how well specific Fuji features are supported by each software.

Those features are:

- Original Fujifilm film simulations
- Exposures taken with extended DR settings (DR200%, DR400%)
- Digital lens corrections (distortion, vignetting, etc.)

Let's have a look...

FUJIFILM FILM SIMULATIONS

Provia, Astia, Velvia, Classic Chrome, Pro Neg. Hi, and Pro Neg. Std make up the color backbone of the X-Pro2. Together, they constitute the Fuji Colors. However, the makers of external third-party RAW converters often have their own ideas about the look of Fuji RAWs. Your mileage may vary, as they say.

- The **built-in RAW converter** is the benchmark reference for external RAW converters when it comes to emulating Fuji Colors.
- **RAW File Converter EX** and **Silkypix** feature a healthy amount of film emulations, but they all look different from Fuji's film modes. However, the new version 2 of the free RAW File Converter EX software *does* support Fuji's own film simulation modes for the X-Pro2, and these film simulations are also available in the commercially sold Silkypix 7.
- **Adobe Lightroom** and **Adobe Camera Raw** feature camera profiles that closely emulate Fuji's film simulation modes—as long as you are shooting in DR100% mode.
- **Capture One Pro** doesn't officially support Fuji's film modes, but it offers users the opportunity to create their own profiles. A few users have taken up the challenge, so you may find free film mode profiles in Fuji-related camera forums and blogs.
- **Iridient Developer** offers full support for Fuji's film simulation modes, but hasn't yet provided new files that are optimized for the new X-Trans III sensor. However, even the current simulation files work with the X-Pro2.
- **Photo Ninja** doesn't support Fuji's film modes, yet.

EXTENDED DYNAMIC RANGE (DR200%, DR400%)

Using the DR function results in RAW files that are initially exposed 1 EV (DR200%) or 2 EV (DR400%) lower than normal in order to protect critical highlights. The darker exposure is compensated during RAW conversion by a partial ISO push of the same amount that only affects shadows and midtones.

- The **built-in RAW converter** is the benchmark here, since it fully automates the tone-mapping process of partially pushing the shadows and midtones back to where they belong.

recording. However, you can bias the exposure with the camera's exposure compensation dial before and during recording within a range of ±2 EV.

- **Focusing** is possible with all three modes: AF-S, AF-C, and MF. You can also switch modes during filming. AF-S sets the focus before recording starts, so there's no AF tracking during video recording. AF-C continuously adjusts the focus during video recording, always targeting the center of the screen. In MF mode, you can adjust the focus with the focus ring before or during video recording. One-Touch-AF (Instant AF) is available, but only before you start recording.
- **Face detection** is also available in movie mode. Face detection operates like AF-C, so it's continuously adjusting focus and exposure with respect to the detected face closest to the center of the scene.
- Sadly, there is no support for the **DR function** in video mode. There also are no "zebras" or "blinkies" to mark overexposed areas. You have to trust the live view (there is no live histogram during video recording) and adjust the exposure as necessary.
- With automatic **white balance** (AUTO), the X-Pro2 is continuously adjusting the white balance during video recording. You can also use one of the white balance presets or a Kelvin setting. Custom white balance is available, too.
- You can adjust the look of your videos by selecting one of the camera's 15 **film simulations**. That's it. Contrast or color settings don't have an effect.
- In movie mode, the X-Pro2 also records **audio**. You can either use the built-in stereo microphone or attach an external microphone. The latter is recommended if you don't want to record camera sounds like the AF motor or aperture changes. An external microphone is available from Fujifilm, but you can also use third-party offerings. The latter requires a 3.5mm to 2.5mm adapter in order to fit into Fuji's microphone socket. Using an external microphone also requires you to set MOVIE SETTING > MIC/REMOTE RELEASE > MIC. Otherwise, the camera will think that you are using a remote shutter release. You can adjust the sensitivity of the audio recording with the MIC LEVEL ADJUSTMENT menu option.
- Using a lens with **optical image stabilization** (OIS) reduces camera shake during video recording. Just make sure that the OIS is switched on.
- Since video is recorded in a **16:9 format,** it may be useful to set the live view for still images to 16:9 to facilitate the framing of your shot before you hit the record button.
- The **optical viewfinder** isn't available during video recording.

Using the **self-timer** TIP 98

The camera's built-in self-timer delays the shutter release (exposure) after you press the shutter button. This function isn't available in the DRIVE menu; you have to find it in the SHOOTING SETTING menu (or the Quick menu). You can select one of two delay options:

- A 10-second delay is typically used when you want to make sure that you are also in the picture when the shot is taken. Press the shutter button and run.
- A 2-second delay replaces a remote shutter release when you are working on a tripod. The delay helps the camera to settle down, so there's no camera shake or vibration when the actual exposure begins.

TIP 100 Controlling the surrounding-light component of flash photography

When you are metering a scene with your X-Pro2, you will quickly realize that it doesn't make any difference whether the flash is turned on or off while doing so. The metering result will always be the same. In other words, the X-Pro2 is always metering the surrounding-light component in the same way, with or without flash. In case you choose to use a flash, the flash-light component will simply be *added* to the surrounding-light component.

This is important because it tells us that we don't have to fear some camera voodoo that may or may not influence the metering of the surrounding light as soon as we switch on a flash. Instead, we can be sure that the camera's metering will always deliver consistent results. This also means that it's our job to balance both components, for example by reducing the surrounding-light components to make room for more flash light in the composite exposure.

Typically, if you want to use the flash as a fill-in light to brighten a dark foreground (such as a backlit person), you wouldn't have to change much, since the flash-light component would brighten the dark foreground simply by filling in the light that's missing. However, if you use the flash on a scene that's already correctly exposed by natural light, the camera's TTL flash metering would come to the conclusion that no additional light is needed. The forced flash would still fire, of course, but with minimal output; it would probably be almost invisible in the resulting shot. In order to emphasize the flash-light component, reduce the exposure of the surrounding-light component.

Here's how it works:

- You can control the exposure of the surrounding light component either with the exposure compensation dial or by setting an appropriate manual exposure (ISO, aperture, shutter speed). Less surrounding light will prompt the TTL flash metering to add a stronger flash-light component, since the TTL flash system will always try to deliver balanced results. Changing the exposure compensation dial has no effect on the flash component of the shot; it only affects the exposure of the surrounding light components.

- To control the surrounding light component in manual mode M using the live view and the live histogram, make sure to set SET UP > SCREEN SET UP > PREVIEW EXP./WB IN MANUAL MODE > PREVIEW EXP./WB.

- In a studio, you often want to minimize the surrounding-light component and illuminate your subject entirely with flash light. In such cases, I recommend small aperture settings (large aperture numbers), base ISO 200, and a fast shutter speed. The fastest official flash synchronization speed of the X-Pro2 is 1/250s, but some flash units allow you to go a little bit faster. In order to view such a scene with little surrounding light in mode M, set SET UP > SCREEN SET UP > PREVIEW EXP./WB IN MANUAL MODE > OFF. Otherwise, it will be hard to see anything in the viewfinder other than darkness.

- Sometime the fastest flash sync speed (1/250s) will still overexpose the surrounding-light component, even at base ISO 200. Sure, you could stop down the aperture, but this might negate the purpose of achieving a nice subject-to-background separation with little depth of field. In such a case, it's useful to attach a neutral density filter [36] to the lens to reduce the amount of light that hits the sensor by 3 to 6 stops.

- Similar to the DR function, flash light is often used to reduce contrast between a dark subject and a bright background. You can combine both features, which may be useful if the background—when viewed isolated from

TIP 103 **Flash synchronization:** where's the limit?

Officially, the fastest flash sync [66] speed of the X-Pro2 is 1/250s.

- In exposure modes P and A, the camera will never offer a shutter speed faster than 1/250s. If this is too slow for the current light conditions, the surrounding-light component will be overexposed. In this case, the shutter speed of 1/250s will be displayed in red. To avoid overexposure, stop down the lens, reduce ISO (but never below 200), or use a neutral density (ND) [36] filter in front of the lens.
- In exposure modes S and M, you are able to select shutter speeds faster than 1/250s. The X-Pro2 will honor these settings in flash mode, but there will be a price to pay: the resulting images will display some partial shadowing of the flash. It's often possible to use shutter speeds that are a little bit faster than 1/250s without visible negative effects—it depends on the type of flash you are using. Its power setting plays a role, as well. Proceed at your own risk!

Fig. 65: Many photographers wish to use a **flash sync speed** faster than 1/250s with their X-Pro2. That said, it's also possible to deliberately use very slow synch speeds to create a blurry background behind a more contoured flash-lit foreground.

- As of May 2016, high-speed synchronization (HSS) is not officially supported by the X-Pro2. However, it's already possible to achieve manually controlled HSS up to 1/8000s with the Nissin i40 flash.

Fig. 66: This manually controlled **HSS** shot using a Nissin i40 hotshoe flash used a shutter speed of 1/3200s

attached lens. In fact, you will see two bright frames in the OVF: one for infinity and a dimmer frame with parallax correction for subjects that are closer to the camera.

TIP 109 Exposing with adapted lenses

Adapted lenses can be used in exposure modes A (aperture priority) and M (manual mode). There are also a few notable differences between exposing with native lenses and adaptive lenses:

- Native lenses close to working aperture only when the shutter is half-pressed. Adapted lenses always operate with the aperture set by the user. As soon as you stop down an adapted lens, less light reaches the sensor and the camera's exposure metering.
- Stopping down also increases the depth of field in the viewfinder. Since less light reaches the sensor, the camera has to more strongly amplify the live view image in order to display an accurate WYSIWYG simulation of the scene. This decreases the quality of the live view image and can also negatively affect the live view's frame rate.
- Since the camera thinks there's no lens attached at all, the aperture is always displayed as F0 in the viewfinder. There's no way for the camera to know which aperture has actually been set on an adapted lens.
- Shooting in poor light with adapted lenses can be tricky when you stop down the aperture. It's easy to reach the live view's amplification limit. Once this limit is reached, the live view and live histogram cannot display the actual brightness of the scene, so it appears darker than the image that will be actually exposed. However, exposure metering will still work correctly and the camera will display the correct shutter speed. In mode M, the ±3 EV light scale in the display will also work correctly.

- Since the electronic viewfinder cannot control the aperture of an adapted lens, it takes longer for the camera to adjust to abrupt brightness changes. You can test this yourself by quickly panning the camera from a bright scene to a dark scene and vice versa. With adapted lenses, the camera will need a few seconds for the live view to adapt to the changing brightness levels.

Important: *Do* ***not*** *use multi metering in concert with adapted lenses. Instead, use spot, center-weighted, or average metering. The "intelligent" multi metering is easily tricked by stopping down adapted lenses in poor light. It gets confused by the diminishing light and changes its exposure bias to accommodate night scenes.*

Focusing with adapted lenses TIP 110

Adapted lenses can only be focused manually. Here are a few tips to make things easier for you:

- Set the focus selector of your X-Pro2 to manual focus. This makes sure that MF assistants such as focus check, focus peaking, and digital split image are available.
- The electronic distance and depth-of-field (DOF) scale of your X-Pro2 is useless in concert with adapted lenses. Instead, you have to rely on analog scales and markers that may be engraved on the barrel of your adapted lens. Remember that the DOF scale on your lens is probably less conservative than what you're used to from the electronic scale in your X-Pro2. This scale doesn't guarantee pixel-sharp results at 100% magnification. Instead, it will more likely resemble the FILM FORMAT BASIS option of the X-Pro2's electronic DOF scale.
- The most important tool for focusing with adapted lenses is the magnifier tool. You can activate it by pressing the rear command dial. Turn the rear command dial to cycle

Fig. 70: Fujifilm's own **M-mount adapter** features electronic contacts and a function button that opens the camera's adapter menu

TIP 112 Quality considerations

Pixel peeping is en vogue, but many classic lenses rooted in the area of analog film weren't made for high-resolution digital sensors. While some very expensive Leica lenses may be outright disappointing when used on an X-Pro2, some really cheap old lenses can deliver excellent results.

How can we explain that?

The lens design plays a major role. Some compact lenses (typically for M-mount cameras) feature a symmetrical design that tends to be more problematic with digital sensors than telecentric SLR designs.

Also note that most adapted lenses are intended for full-frame [70] cameras. Attached to an X-Pro2 with its smaller APS-C [71] sensor (23,7×15,6 mm), the format of the lens is cropped. If you could extend the size of Fuji's older 16MP APS-C sensor to full-frame (36×24mm), its resolution would be 36 megapixels, just like the Nikon D810 or Sony's A7r. Obviously, there aren't many older full-frame lenses that can actually use this kind of resolution. Instead, many older lenses offer something else: character. Because maximum sharpness and resolution weren't as important then as they are today, the designers of legacy lenses could put their priorities elsewhere, for example by designing lenses that provide outstanding bokeh [72].

Fig. 71: Good legacy lenses don't have to be expensive: this shot was taken with a Russian **Helios 44M-4,** a 58mmF2 lens with an M42 screw-mount. You can often find this lens online for less than 25 dollars. In fact, the Novoflex adapter to attach the lens to the camera cost me much more than that.

Speed Booster: miracle or trick? TIP 113

Speed Booster and Speed Booster Ultra from Metabones are very special adapters. They convert the focal lengths of full-frame lenses to their APS-C equivalents. This means that the adapted lens covers the same angle of view on your X-Pro2 as it would on a full-frame camera.

Important: *Make sure you use the* ***Cam Remote App*** *and not the older* ***Camera App****.*

Here's how Camera Remote works with iOS devices (it shouldn't be much different for Android users):

- Select SHOOTING SETTING > WIRELESS COMMUNICATION on your camera. The X-Pro2 now enters wireless mode and emits a Wi-fi signal.
- Hook up your smartphone's or tablet's Wi-fi with the camera's Wi-fi network. Each camera comes with a unique network name that you can customize in SET UP > CONNECTION SETTING > WIRELESS SETTINGS > GENERAL SETTINGS > NAME.
- Open the Cam Remote app and select Remote Control. The mobile device will now assume control over the camera and display a live view image along with options to adjust shutter speed, aperture or exposure compensation. There's also a virtual shutter button and a small shooting menu that allows you to adjust parameters like ISO, film simulation, white balance, macro, flash mode, or self-timer.
- In order to autofocus on a specific part of the live view image, double-tap with your finger on it. Focus will be confirmed with a green rectangle, and the camera will issue a confirmation beep. If no focus lock can be established, the rectangle will appear in red.
- Adjust your exposure parameters as required. The brightness of the live view will change accordingly. Please note that there's no live histogram.

Fig. 73: Camera Remote offers a simple interface to control your camera with a smartphone or tablet. To autofocus, double-tap on a specific part of the WYSIWYG live view and wait for the green confirmation rectangle to appear. Sadly, there is no live histogram, and you can't magnify the live view. There is a rudimentary shooting menu, a virtual shutter button, and a playback button that allows you to review images and transfer JPEGs to your mobile device.

Here are a few things you might want to know about Camera Remote:

- Fuji's Camera Remote app allows you to adjust exposure parameters (aperture, shutter speed, ISO, exposure compensation), but you can't remotely change the camera's exposure mode. This means that you have to manually set the camera to either P, A, S, or M mode *before* you select WIRELESS COMMUNICATION in the camera menu. In order to change the exposure mode during remote shooting, you have to first disconnect Camera Remote, make the desired changes in the camera, and then start over with a new connection as directed above.
- There's no electronic level indicator and no live histogram in the Camera Remote live view on your mobile device.

Besides remote controlling [76] the X-Pro2, the Camera Remote app offers additional functions that allow you to transfer JPEGs from the camera to your mobile device (one by one [77] or in groups [78]) and to copy GPS location data [79] from your smartphone or tablet to the camera. Click on the links for further information and instructions.

2.10 ANYTHING ELSE?

Hopefully, this book was able to answer many of your questions that went beyond the manual of your camera. However, this isn't the end: you can read my X-Pert Corner blog, participate in Fuji X forums, or join one of my Fuji X Secrets workshops.

TIP 115 **Forums, blogs, and workshops:** be a part of it!

- High-resolution versions of selected images in this book are available in this Flickr album [38].
- My free X-Pert Corner blog covers a variety of topics about the Fujifilm X series. You will find everything from service articles that go beyond this book to First Look previews of new cameras and lenses. You can read X-Pert Corner here [80].
- There are several online forums that focus on Fujifilm's X series: The Original Fuji X Forum [81]; The Ultimate Fuji X Forum [82]; the Fuji X-Series Forum [83]; and FujiXSpot [84]. The latter forum contains a special section where I'm personally available to answer questions or discuss Fuji X-related issues.

- For questions and comments that you don't want to post in public, you can contact me at rico@fuji-x-secrets.de.
- Books, blogs, and forums are great, but what about a more personal touch? Fuji X Secrets [65] is a series of advanced workshops for Fuji X-series users. My workshops cover topics that are similar to those in this book, but on a more in-depth level, including practical demonstrations and plenty of sample images. We work in small groups, and our delegates set the agenda. It's everything you always wanted to know about X, but were afraid to ask. We are also organizing travel workshops to great photo locations: In 2015, we went to Istanbul, and in November 2016, we will host an exclusive week-long Fuji X Secrets workshop in Phuket, Thailand.
- At Fuji X Secrets [65], you will also find articles for this book that deal with new firmware features of the X-Pro2.

ONLINE REFERENCES

Websites are not run by Rocky Nook, and are subject to change without our knowledge.

For an updated version of this reference list, please visit
http://www.rockynook.com/fujifilm-x-pro-2-online-references/

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