Fringer EF-GFX Pro User's Manual

(Firmware v2.10)

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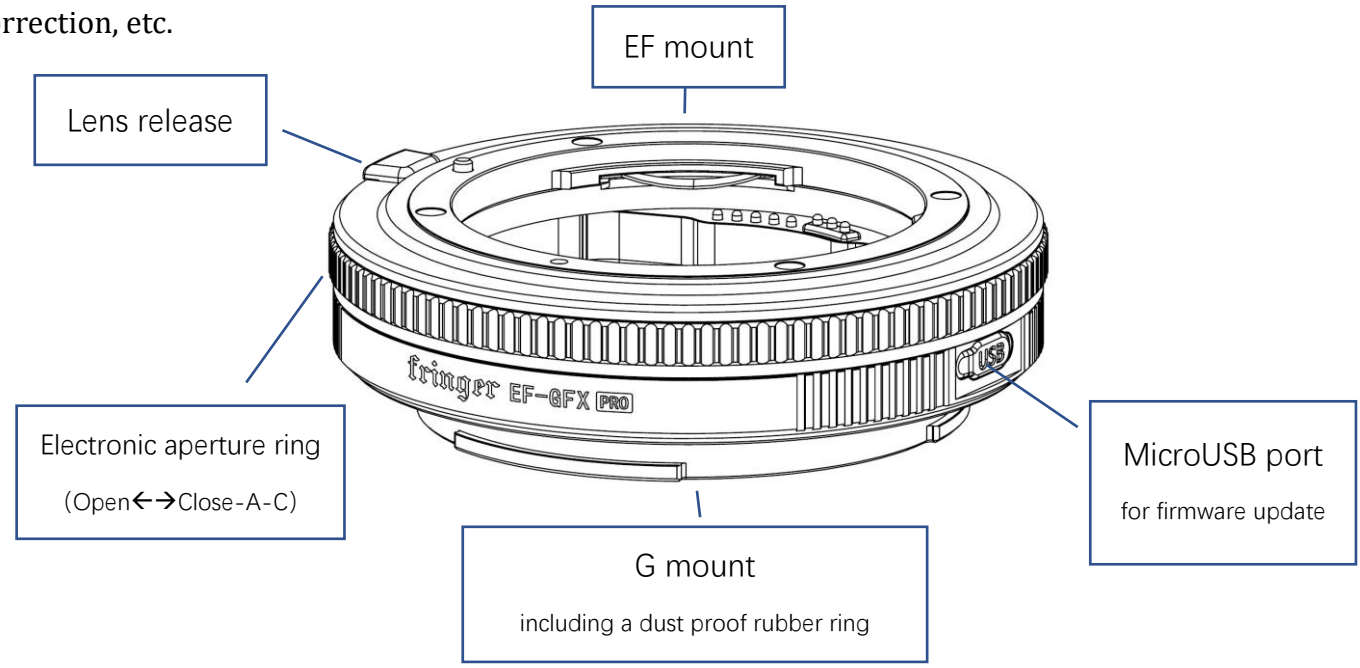
1. Introduction

This product is compatible with Canon EF mount and Fujifilm G mount protocols. It can control lens' aperture electronically, auto focus and report lens information for EXIF recording.

There is a built-in electronic aperture ring just like native GF lenses. And it employs contactless sensors so that you don't need to worry about wearing problems. In addition to the electronic aperture ring, the adapter supports more unique features including Phase Detection AF (on GFX100, GFX100S & GFX100 II only, so far), IBIS, Lens IS and In-camera LaCA (Lateral Chromatic Aberration) Correction, etc.



2. Compatibility

This adapter works on G mount cameras. However, due to capability differences of different camera models, its performance may vary.

On cameras without PDAF support, such as GFX50s, GFX50r and GFX50s II, adapted lenses can only work in the CDAF mode. Most of lenses on the tested and optimized lens list should work normally in the AF-S mode. However, as many EF mount lenses are not designed for contrast AF, AF speed may be slow. And AF accuracy may not be good, either. Meanwhile, AF-C mode is not supported. If AF performance can't satisfy you, MF is recommended.

On cameras with PDAF support, such as GFX100, GFX100S and GFX100 II, tested and optimized lenses AF much faster and more accurate. In some circumstances, the experience of using adapted lenses on these cameras is just like using a DSLR. Thus, if you are about to purchase a new G mount camera to use EF lenses, the 102M pixel models are highly recommended.

We have tested and optimized about 180 models of EF mount lenses. Compare to lenses not on the list, tested and optimized ones work better in both PDAF and CDAF modes. However, the EF mount is a

huge system and there are so many different lens models. A lot of them have not been tested and optimized, yet. Most of them would work on the adapter with a lower performance. And a small amount of them may not be compatible. If you encounter poor AF performance or compatibility issues, please wait for us to test and optimize that lens and support it in future firmware updates.

When using zoom lenses with variable maximum aperture that haven't been tested and optimized, the aperture value displayed may not be correct.

See the attached list at the end for tested and optimized lens models.

3. Function descriptions

3.1 Lens self-test (for lenses NOT tested and optimized only)

When you install a lens not tested/optimized on the adapter and power on the camera for the first time, the adapter may drive the AF module to the close end and then to infinity. After that, the camera will reboot to finish the self-test and calibration process. During the process, please do not touch the focus ring of the lens, or you may interfere with the calibration. If there is something wrong with the self-test procedure, the AF function may not be in a normal state. If that happens, turning on and then turning off the camera at once will clear the calibration data stored. Installing another lens and powering on the camera will do the same.

Tested and optimized lenses don't do this.

3.2 Full frame or medium format selection (35mm mode on/off)

EF mount lenses are designed for full frame cameras. Its image circle covers a 36mm x 24mm sensor. But the dimension of the sensor of GFX cameras is about 44mm x 33mm. Thus, many EF lenses can't fully cover it at all and may cause dark corners/vignetting and distortion, etc. It's normal and not the malfunction of the adapter.

By default, the camera menu item "35mm mode" is set to "auto". Images will be cropped to 36x24mm automatically when an adapter and an EF lens are attached. (Be noted, it won't do that auto crop if focus bracketing support or in-body vignetting and distortion correction for current lens is enabled in SETTINGS.INI on the adapter. Check section 3.7.1 and 3.7.4 for more details.) Thus, usually you won't see the issues mentioned above. But, since some of the EF lenses do cover the medium format sensor, you may force the camera to capture 44x33mm images by setting "35mm mode" to "off" on camera menu.

3.3 Setting aperture and shutter speed value

Setting aperture value through electronic aperture ring:

Looking down to the top of the camera, turning the ring right tells the camera to stopping down, and vice versa. Each step equals to 1/3 EV. When it is turned to the smallest aperture position, one more step brings it to the A (Auto mode) under which the aperture will be decided by the camera (P or S mode). Now if the ring is turned right one more step further, it will be set to C (Command mode). The aperture ring logic described above is exactly the same as native GF lenses.

Setting aperture value through command dial on the camera:

Instead of using the aperture ring, you may also set the aperture value through the command dial on the camera body by turning the aperture ring to the right most, i.e., C position, as described earlier. Be noted that the front dial of some GFX cameras may be used for both ISO and aperture settings. On those camera models, you may need to press the front dial before setting the aperture value if it is in the ISO setting mode. To avoid the conflicts of ISO and aperture settings on those cameras, electronic aperture ring is the preferred way of setting the aperture.

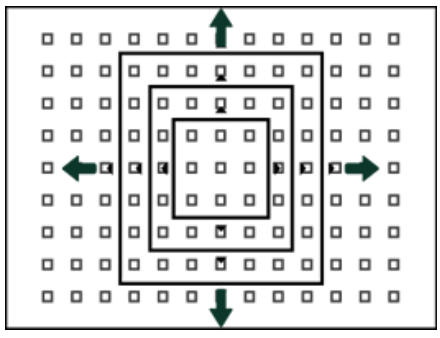
Caution: For zoom lenses with variable maximum aperture, please zoom it to the wide end before moving aperture ring between A/C position and smallest aperture setting position.

Manually setting shutter speed is suggested! If you set shutter speed to auto, when environment brightness changes during view finding, the lens aperture blades may move frequently with a little noise and slightly flashing of LCD or EVF. Native GF lenses behave the same. But their aperture motor moves so fast and silently that you will never notice. However, EF lenses' aperture motor moves slower and noisier. If you want to avoid it, please manually set shutter speed. You may still set shutter speed to auto if that's tolerable. Be noted that if "PREVIEW EXP./WB IN MANUAL MODE" on the camera menu is set to "OFF", the described issue may occur even the shutter speed is set manually.

For zoom lenses with variable maximum aperture that haven't been tested and optimized, aperture values may not be displayed correctly. Primes, zooms with fixed maximum aperture, and all lenses optimized don't have this issue.

3.4 AF settings

3.4.1 Setting AF modes



Due to the limitation of EF lenses who are designed for 35mm cameras, when using them on GFX cameras, there may be distortions in the edge areas that damage the performance of auto focus. Thus, please avoid using focus points in those areas if possible. Focus points in the 5 or 7 rows in the middle are usually safe to be chosen. In most cases, the rest of focus points work, too. But the AF accuracy

and success rate may decrease.

On cameras with PDAF, e.g., GFX100 and GFX100S, the size of the focus points may affect AF performance. If AF success rate or accuracy issues are encountered, you may try different AF point size settings. Usually, the smaller focus point setting may bring more accuracy. But it may need more lights and details in the small area covered by the focus point to work, or the success rate may become poorer. In contrast, the bigger focus point setting may bring higher AF success rate. But accuracy may decrease.

On cameras with PDAF, e.g., GFX100 and GFX100S, both AF-S and AF-C modes are supported. In many circumstances, AF performance is similar to that of a DSLR. But if the camera doesn't support PDAF, e.g., GFX50S, GFX50R and GFX50S II, only AF-S mode is supported as CDAF is used instead of PDAF. And AF performance is poorer. That is normal and not the malfunction of the adapter. In both PDAF and CDAF modes, face/eye detection AF works.

We have tried our best to make EF lenses work better on G mount. But please understand that different lens and camera system will never collaborate like a native system. Sometimes even lenses optimized may encounter AF issues. You may try to improve its accuracy by half pressing shutter release button **more than once** before releasing the shutter. Or you may try AF-C instead of AF-S mode (on GFX100 and GFX100S only). If necessary, please change to the MF mode.

When you want to use MF mode, please set AF/MF switch on the lens to the MF position. The camera will be set to the MF mode automatically.

Most of lenses that are not on the tested and optimized lens list should work normally. But since PDAF isn't supported and CDAF performs poorer, you may encounter slow and inaccurate AF. Sometimes MF would be the only choice. Or you may wait for the lens to be added to the list by future firmware updates.

3.4.2 Using AF adjustment function

In most cases, there should not be any accuracy issues when phase detection AF is engaged. But if certain individual lens has focus-shifting issues, an AF adjustment function is present.

1) Usage

i. Enable AF adjustment for the lens currently installed: Power on the camera. Enter function code "1212" using the aperture ring (see "3.8 Configuration fast switching" in the user's manual). The camera will reboot automatically.

ii. Set AF adjustment value: Take the adapter off the camera. Connect it to a computer. Check "settings.ini" in the root folder. There should be a line newly added to the end of the file such as

PdafFix001 = 0 ;Canon EF 40mm f/2.8 STM

iii. Change the "0" after the "=" to a value you want (between -30 and 30). Enter a positive value if

the focus point needs to be moved towards infinity. Then save the file and disconnect the cable.

iv. Reinstall the adapter and the lens to the camera and do focus tests again. Repeat the above steps if necessary.

2) Additional notes

i. At most 10 lenses are allowed to use the AF adjustment at the same time. If the 11th lens needs to be added, you must edit the settings.ini and remove at least one PdafFixXXX line that is not needed anymore.

ii. This AF adjustment function is valid for phase detection AF only. Thus, it has no function on GFX50 series cameras.

iii. Only lenses tested and optimized support PDAF. Thus, the AF adjustment function is valid for tested and optimized lenses only.

iv. In most cases, it is not recommended to use the AF adjustment function. Sometimes it can make things worse. Therefore, only if there is a big focus shift in a fixed direction and cannot be eliminated by multiple focusing, you can try this AF adjustment function.

3.5 Lens built-in IS and camera IBIS functions

This product supports both lens IS (or OS, VC) and IBIS functions. But they don't work at the same time. You may choose between them. When the camera is powered on or entering the shooting mode from the playback mode, the IS switch on the lens decides which one is activated, lens IS or IBIS. "On" status of the switch at that time enables lens IS and disables IBIS, and vice versa. IBIS will be automatically enabled if the lens doesn't have IS function at all. In most cases, IBIS works better than lens IS unless the lens is a very long telephoto one.

Whatever lens IS or IBIS is chosen, the stabilization function is controlled by "IS MODE" menu item. If it's set to "Continuous" (Mode 1), IS functions are activated all the time. When it's set to "Shooting only" (Mode 2), lens IS function is enabled when the shutter release button being half-pressed and disabled about 2 seconds after its release while IBIS function is only enabled during the exposure. Because of the ages of some EF lenses, the old design may limit their ability of instant activation of IS module. Thus, "Shooting only" mode may not work reliably for them. In that case, "Continuous" mode is suggested.

3.6 In-body vignetting and distortion correction

The in-body auto-correction function makes using some 35mm lenses on GFX cameras a medium-format lens-like experience. In-body vignetting and distortion correction profiles for the following lenses are embedded in the adapter. See table 1 for the details.

Lens model	Configuration item
Canon EF 28mm f/2.8 IS USM	ForceNativeEF2828IS
Canon EF 35mm f/1.4L USM	ForceNativeEF3514L
Canon EF 35mm f/1.4L II USM	ForceNativeEF3514L
Canon EF 40mm f/2.8 STM	ForceNativeEF4028STM
Canon EF 50mm F1.2L USM	ForceNativeEF5012L
Canon EF 50mm f/1.4 USM	ForceNativeEF5014
Canon EF 50mm f/1.8 STM	ForceNativeEF5018STM
Canon EF 85mm f/1.2L II USM	ForceNativeEF8512L2
Canon EF 85mm f/1.4 L IS USM	ForceNativeEF8514LIS
Canon EF 100mm f/2 USM	ForceNativeEF1002
Canon EF 100mm f/2.8 Macro USM	ForceNativeEF10028
Canon EF 100mm f/2.8L IS USM	ForceNativeEF10028LIS
Canon EF 135mm f/2 L USM	ForceNativeEF1352L
Canon EF 200mm f/2.8L II USM	ForceNativeEF20028L2
Canon EF 300mm f/2.8L IS II USM	ForceNativeEF30028LIS2
Canon EF 600mm f/4L IS III USM	ForceNativeEF6004LIS3
Canon EF 16-35mm f/2.8L III USM	ForceNativeEF163528L3
Canon EF 70-200mm f/4L USM	ForceNativeEF702004L
Canon EF 70-200mm f/4L IS USM	ForceNativeEF702004LIS
Canon EF 70-300mm f/4-5.6 IS USM	ForceNativeEF70300IS
Canon EF 70-300mm f/4-5.6L IS USM	ForceNativeEF70300LIS
Canon EF 100-400mm f/4.5-5.6 L IS USM	ForceNativeEF100400LIS
Canon EF 100-400mm f/4.5-5.6 L IS II USM	ForceNativeEF100400LIS2
SIGMA 24mm F1.8 EX DG ASPHERICAL MACRO	ForceNativeSigma2418EX
SIGMA 28mm F1.4 DG HSM A019	ForceNativeSigma2814A
SIGMA 28mm F1.8 EX DG ASPHERICAL MACRO	ForceNativeSigma2818EX
SIGMA 35mm F1.4 DG HSM A012	ForceNativeSigma3514A
SIGMA 40mm F1.4 DG HSM A018	ForceNativeSigma4014A
SIGMA 50mm F1.4 DG HSM A014	ForceNativeSigma5014A
SIGMA 50mm f/1.4 EX DG HSM	ForceNativeSigma5014EX
SIGMA 70mm F2.8 DG MACRO A018	ForceNativeSigma7028A
SIGMA 85mm F1.4 DG HSM A016	ForceNativeSigma8514A
SIGMA 85mm F1.4 EX DG HSM	ForceNativeSigma8514EX

SIGMA 105mm F1.4 DG HSM A018	ForceNativeSigma10514A
SIGMA 135mm F1.8 DG HSM A017	ForceNativeSigma13518A
SIGMA 150mm F/2.8 APO EX DG HSM Macro	ForceNativeSigma15028EX
SIGMA 500mm F4 DG OS HSM S016	ForceNativeSigma5004OSS
SIGMA 100-400mm F5-6.3 DG OS HSM C017	ForceNativeSigma100400OSC
TAMRON SP 35mm F/1.8 Di VC USD F012	ForceNativeTamron3518VC
TAMRON SP 45mm F/1.8 Di VC USD F013	ForceNativeTamron4518VC
TAMRON SP 85mm F/1.8 Di VC USD F016	ForceNativeTamron8518VC
Tamron 17-35mm f/2.8-4 Di OSD A037	ForceNativeTamron1735284
TAMRON SP 15-30mm F/2.8 Di VC USD A012	ForceNativeTamron1530VC
TAMRON SP 15-30mm F/2.8 Di VC USD G2 A041	ForceNativeTamron1530VCG2
TAMRON SP 70-200mm F/2.8 Di VC USD G2 A025	ForceNativeTamron7020028VCG2
Tokina opera 50mm f/1.4 FF	ForceNativeTokina5014Opera
TOKINA AT-X M100 PRO D Macro 100mm f/2.8	ForceNativeTokina10028
TOKINA atx-i 100mm F2.8 FF MACRO	ForceNativeTokina10028
Tokina AT-X 24-70mm f/2.8 PRO FX	ForceNativeTokina247028
SAMYANG AF 85mm F1.4 EF	ForceNativeSamyang8514AF
LAOWA 180mm f/4.5 1.5X Ultra Macro APO	ForceNativeLaowa18045
LAOWA AF FF 200mm f/2 C-Dreamer	ForceNativeLaowa2002

Table 1 lenses that support in-body vignetting and distortion correction

Note:

1. As 35mm lenses are not designed for medium format cameras, there may be strong vignetting and distortion. The in-body correction function is to reduce them rather than eliminate them.
2. To activate the auto corrections, the camera is set to native lens mode. And it won't affect IBIS performance at all. But if you want to manually set the correction parameters in camera menu, i.e. setting the camera to adapter mode, you may set the relevant configuration item in SETTINGS.INI to 0. Refer to section 3.7.4 for more details.
3. Some lenses may have very strong vignetting and cause dark corners. In that case it isn't correctable at all.

3.7 Advanced settings

Begin with firmware 1.10, user configurable software switches are added.

Connect the adapter to a computer with the USB cable coming with the adapter. A drive named "FRINGER" appears. In the root folder there is a file named "SETTINGS.INI". It's in format of ordinary INI files. Do not modify it unless you know how to do that. If you want to restore it to default, just

remove it. The adapter will re-generate it when the next time it works on a camera body.

There are two working modes of the GFX cameras, i.e., adapter mode and native lens mode, as described in the following table (table 2):

Function of adapted lenses	Adapter mode	Native lens mode
Focus bracketing	Not supported	Supported
IBIS	Fully supported	Fully supported
Vignetting and distortion correction profile	Not supported	Supported
Mount adapter setting menu	Available	Grayed out
35mm format mode “AUTO”	Crop to 35mm	Keep 44 x 33 frame

Table 2 Function differences of two working modes of GFX cameras

To understand which mode the camera is currently in, there are two simple ways. 1. You may set “35mm format mode” to “AUTO” in camera menu. If there is a “35” on the top left of the screen, it’s in adapter mode. 2. You may check the “Mount adapter setting” menu item. If it’s grayed out, it’s in native lens mode.

3.7.1 Focus bracketing support

Description:

By default, the focus bracketing on camera menu is grayed out. To use that function, you need to modify SETTINGS.INI as following.

Item name:

FocusBracketing

Item value:

0 (default): focus bracketing menu item disabled (set the camera in adapter mode)

1: focus bracketing menu item enabled (set the camera in native lens mode)

Caution:

1) When setting focus range and begin position, don’t manually turn focus ring! Always use AF to drive focus point to the position you want. Or the focus bracketing function may not work properly.

2) When “FocusBracketing=” is set to 1 in the SETTINGS.INI, the adapter is set to native lens mode and some functions of the camera may change. Check Table 2 for more details.

3.7.2 Move AF to infinity when powering off/switching to playback mode

Description:

On one hand, lenses with external focus design such as some STM lenses may not be convenient to be stored in a bag when its AF isn't on infinity. Moving AF to infinity automatically when powering off (or switching to playback mode) is preferred. On the other, some of them, e.g. EF85/1.2L II, may have very heavy front elements so that the experience of moving it to/from infinity every time switching the camera to/from playback mode is really bad. To make your own choice, you may modify SETTINGS.INI as following.

Item name:

PowerOffInfinity

Item value:

0 (default): Only enabled for some STM lenses, EF50/1.4, Sigma 70/2.8 ART, etc.

1: Enabled for all lenses.

3.7.3 Sigma70/2.8ART fix

Description:

There are two versions of SIGMA70/2.8Art in the market. One of them doesn't work properly on GFX50S/50R/50SII cameras with severe focus shifting and focus hunting problems. The other version works normally. The two versions can't be identified by the appearance of the lens. User may set this configuration item to fix the issue.

Item name:

Sigma70ArtFix

Item value:

0 (default): Do not apply the fix

1: Apply the fix

Caution:

please turn on the patch only if you encountered the said issues. Or it may cause other problems.

3.7.4 Force native lens mode for certain lens models to activate in-body vignetting and distortion correction

Description:

By default, these configuration items activate certain lens' in-body vignetting and distortion correction by setting the camera in native lens mode. See section 3.6 for more details. Users may also turn it off if they want to manually adjust in mount adapter setting menu.

Item name:

ForceNativeXXXX (XXXX corresponds to the lens currently installed)

Item value:

1 (default): Force the camera in native lens mode when using this lens

0: Camera working mode is decided by the value of FocusBracketing.

3.7.5 AF adjustment value for certain lens models

Description:

This is for AF adjustment functions described in section 3.4.2. The value should be between -30 and 30.

Item name:

PdafFixXXX (XXX is a 3 digits number that represents certain lens model)

Item value:

0 (default): Do not adjust

>0: The steps moving focus point towards infinity when using PDAF with this lens.

<0: The steps moving focus point towards camera when using PDAF with this lens.

3.8 Configuration fast switching

To change configuration items, a computer is needed. Sometimes it isn't convenient. Thus, configuration fast switching function is added.

When the camera with the adapter and the lens is powered on and in shooting mode, user may use the aperture ring to enter a 4 digits function code to change certain configuration items.

Detailed steps are as following (Take entering function code "1234" as an example. "Forward" and "Backward" are relative. You may decide which direction is forward by yourself).

1) Half-press the shutter button once and finish step 2) - 6) in 20 seconds.
2) Turn aperture ring 1 step forward. It's the first digit.
3) Turn aperture ring 2 steps backward. It's the second digit.
4) Turn aperture ring 3 steps forward. It's the third digit.
5) Turn aperture ring 4 steps backward. It's the fourth digit.
6) Half-press the shutter button.
7) Now, the camera will reboot automatically. After that, the configuration has changed.

Note: During aperture ring operation, please ignore the response of the camera and the lens. Just pay attention to the feel of steps and the click sounds of the aperture ring.

3.8.1 Focus bracketing support fast switching

Function code: "1234"

Configuration item name: FocusBracketing

Description: Switch the value between 0 and 1

3.8.2 Force native lens mode for current lens fast switching

Function code: "4321"

Configuration item name: ForceNativeXXXX (XXXX corresponds to the lens currently installed)

Description: Switch the value between 0 and 1

3.8.3 Enable AF adjustment for the lens currently installed

Function code: "1212"

Configuration item name: PdafFixXXX (XXX is a 3 digits number that represents current lens)

Description: Enable AF adjustment for the lens currently installed and set the adjustment value to 0

4. Firmware update

You need a PC or Mac and a Micro B USB cable, i.e., the one coming with the adapter, to upgrade it.

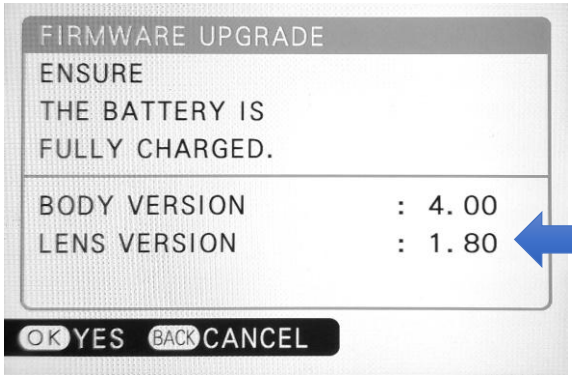
1) Download new firmware from Fringer's website. For example, 'EFGF_100.BIN' is v1.00.
2) Get the adapter off the camera. Make sure not to connect the adapter with the computer while it is installed on a camera body.
3) Plug the USB cable to the Micro USB port on the adapter.
4) Connect the other end of the cable to a USB port of your PC or MAC. Then a mobile drive named 'FRINGER' emerges. Open 'VERSION.TXT' on that drive and check current firmware version (the line begins with 'Version:').
5) If upgrading is needed, copy the downloaded firmware file to the drive named 'FRINGER'. Wait for about 20 seconds. Ignore any error messages about the drive. The adapter would disconnect itself and reconnect. The 'FRINGER' drive would appear again. If it doesn't reconnect automatically, you may manually disconnect the USB cable and reconnect it with the computer.
6) Check VERSION.TXT again and make sure its firmware version has changed to the new one.

Note: Do not copy files other than the official firmware to the adapter.

Troubleshooting:

Some of the cables in the market are for charging only and not suitable for data transfer. Thus, if you can't find the "FRINGER" drive when adapter is connected to the computer, check your cable!

You may also read the adapter's firmware version by Fujifilm's method, i.e., press and hold DISP button before



powering on the camera. The “Lens version” on the screen is actually the adapter’s firmware version. See the following figure.

5. Tested and optimized lens list

(firmware v2.10)

1	Canon EF 14mm f/2.8 L II USM
2	Canon EF 24mm f/1.4L II USM
3	Canon EF 24mm f/2.8 IS USM
4	Canon EF 28mm f/1.8 USM
5	Canon EF 28mm f/2.8 IS USM
6	Canon EF 35mm f/1.4L USM
7	Canon EF 35mm f/1.4L II USM
8	Canon EF 35mm f/2 IS USM
9	Canon EF 40mm f/2.8 STM
10	Canon EF 50mm f/1.2L USM
11	Canon EF 50mm f/1.4 USM
12	Canon EF 50mm f/1.8 STM
13	Canon EF 85mm f/1.2L USM
14	Canon EF 85mm f/1.2L II USM
15	Canon EF 85mm f/1.4 L IS USM
16	Canon EF 85mm f/1.8 USM
17	Canon EF 100mm f/2 USM
18	Canon EF 100mm f/2.8 Macro USM
19	Canon EF 100mm f/2.8L IS USM
20	Canon EF 135mm f/2 L USM
21	Canon EF 135mm f/2 L USM + 1.4X
22	Canon EF 135mm f/2 L USM + 2X
23	Canon EF 180mm f/3.5 L USM
24	Canon EF 180mm f/3.5 L USM + 1.4X
25	Canon EF 180mm f/3.5 L USM + 2X
26	Canon EF 200mm f/1.8L USM
27	Canon EF 200mm f/1.8L USM + 1.4X
28	Canon EF 200mm f/1.8L USM + 2X
29	Canon EF 200mm f/2 L IS USM
30	Canon EF 200mm f/2 L IS USM + 1.4X
31	Canon EF 200mm f/2 L IS USM + 2X
32	Canon EF 200mm f/2.8L II USM
33	Canon EF 200mm f/2.8L II USM + 1.4X
34	Canon EF 200mm f/2.8L II USM + 2X
35	Canon EF 300mm f/2.8L IS USM
36	Canon EF 300mm f/2.8L IS USM + 1.4X
37	Canon EF 300mm f/2.8L IS USM + 2X
38	Canon EF 300mm f/2.8L IS II USM
39	Canon EF 300mm f/2.8L IS II USM + 1.4X
40	Canon EF 300mm f/2.8L IS II USM + 2X
41	Canon EF 300mm f/2.8L USM
42	Canon EF 300mm f/2.8L USM + 1.4X
43	Canon EF 300mm f/2.8L USM + 2X
44	Canon EF 300mm f/4 L USM
45	Canon EF 300mm f/4 L USM + 1.4X
46	Canon EF 300mm f/4 L IS USM
47	Canon EF 300mm f/4 L IS USM + 1.4X
48	Canon EF 400mm f/2.8 L USM
49	Canon EF 400mm f/2.8 L USM + 1.4X
50	Canon EF 400mm f/2.8 L USM + 2X
51	Canon EF 400mm f/2.8L IS II USM
52	Canon EF 400mm f/2.8L IS II USM + 1.4X
53	Canon EF 400mm f/2.8L IS II USM + 2X
54	Canon EF 400mm f/4 DO IS II USM
55	Canon EF 400mm f/4 DO IS II USM + 1.4X
56	Canon EF 400mm f/4 DO IS II USM + 2X
57	Canon EF 400mm f/5.6 L USM
58	Canon EF 400mm f/5.6 L USM + 1.4X

59	Canon EF 500mm f/4L IS II USM
60	Canon EF 500mm f/4L IS II USM + 1.4X
61	Canon EF 500mm f/4L IS II USM + 2X
62	Canon EF 600mm f/4L IS USM
63	Canon EF 600mm f/4L IS USM + 1.4X
64	Canon EF 600mm f/4L IS USM + 2X
65	Canon EF 600mm f/4L IS II USM
66	Canon EF 600mm f/4L IS II USM + 1.4X
67	Canon EF 600mm f/4L IS II USM + 2X
68	Canon EF 600mm f/4L IS III USM
69	Canon EF 600mm f/4L IS III USM + 1.4X
70	Canon EF 600mm f/4L IS III USM + 2X
71	Canon EF 800mm f/5.6L IS USM
72	Canon EF 800mm f/5.6L IS USM + 1.4X
73	Canon EF 800mm f/5.6L IS USM + 2X
74	Canon EF 11-24mm f/4L USM
75	Canon EF 16-35mm f/4L IS USM
76	Canon EF 16-35mm f/2.8L II USM
77	Canon EF 16-35mm f/2.8L III USM
78	Canon EF 17-40mm f/4L USM
79	Canon EF 24-105mm f/4L IS II USM
80	Canon EF 24-70mm f/2.8L II USM
81	Canon EF 24-70mm f/2.8L USM
82	Canon EF 24-70mm f/4L IS USM
83	Canon EF 28-70mm f/2.8L USM
84	Canon EF 70-200mm f/2.8L IS USM
85	Canon EF 70-200mm f/2.8L IS USM + 1.4X
86	Canon EF 70-200mm f/2.8L IS USM + 2X
87	Canon EF 70-200mm f/2.8L IS II USM
88	Canon EF 70-200mm f/2.8L IS II USM + 1.4X
89	Canon EF 70-200mm f/2.8L IS II USM + 2X
90	Canon EF 70-200mm f/2.8L IS III USM
91	Canon EF 70-200mm f/2.8L IS III USM + 1.4X
92	Canon EF 70-200mm f/2.8L IS III USM + 2X

93	Canon EF 70-200mm f/4L USM
94	Canon EF 70-200mm f/4L USM + 1.4X
95	Canon EF 70-200mm f/4L USM + 2X
96	Canon EF 70-200mm f/4L IS USM
97	Canon EF 70-200mm f/4L IS USM + 1.4X
98	Canon EF 70-200mm f/4L IS II USM
99	Canon EF 70-200mm f/4L IS II USM + 1.4X
100	Canon EF 70-300mm f/4.5-5.6 DO IS USM
101	Canon EF 70-300mm f/4-5.6 IS USM
102	Canon EF 70-300mm f/4-5.6 IS II USM
103	Canon EF 70-300mm f/4-5.6L IS USM
104	Canon EF 100-400mm f/4.5-5.6 L IS USM
105	Canon EF 100-400mm f/4.5-5.6 L IS USM + 1.4X
106	Canon EF 100-400mm f/4.5-5.6 L IS USM + 2X
107	Canon EF 100-400mm f/4.5-5.6 L IS II USM
108	Canon EF 100-400mm f/4.5-5.6 L IS II USM + 1.4X
109	Canon EF 100-400mm f/4.5-5.6 L IS II USM + 2X
110	Canon EF 200-400mm f/4L IS USM
111	SIGMA 14mm F1.8 DG HSM A017
112	SIGMA 20mm F1.4 DG HSM A015
113	SIGMA 24mm F1.4 DG HSM A015
114	SIGMA 24mm F1.8 EX DG ASPHERICAL MACRO
115	SIGMA 28mm F1.4 DG HSM A019
116	SIGMA 28mm F1.8 EX DG ASPHERICAL MACRO
117	SIGMA 35mm F1.4 DG HSM A012
118	SIGMA 40mm F1.4 DG HSM A018
119	SIGMA 50mm F1.4 DG HSM A014
120	SIGMA 50mm F/1.4 EX DG HSM
121	SIGMA 70mm F2.8 DG MACRO A018
122	SIGMA 85mm F1.4 DG HSM A016
123	SIGMA 85mm F1.4 EX DG HSM
124	SIGMA 105mm F1.4 DG HSM A018
125	SIGMA 105mm F2.8 EX DG OS HSM MACRO
126	SIGMA 135mm F1.8 DG HSM A017

127	SIGMA 150mm F/2.8 APO EX DG HSM Macro
128	SIGMA APO MACRO 180mm F2.8 EX DG OS HSM
129	SIGMA APO MACRO 180mm F2.8 EX DG OS HSM + 1.4X
130	SIGMA 500mm F4 DG OS HSM S016
131	SIGMA 500mm F4 DG OS HSM S016 + 1.4X
132	SIGMA 500mm F4 DG OS HSM S016 + 2X
133	SIGMA 500mm f/4.5 EX DG APO HSM
134	SIGMA 14-24mm f/2.8 DG HSM A018
135	SIGMA 24-35mm F2.0 DG HSM A015
136	SIGMA 24-70mm f/2.8 DG OS HSM A017
137	SIGMA ZOOM 28-80mm 1:3.5-5.6 II MACRO ASPHERICAL
138	SIGMA 60-600mm f/4.5-6.3 DG OS HSM S018
139	SIGMA 60-600mm f/4.5-6.3 DG OS HSM S018 + 1.4X
140	SIGMA 70-200mm f/2.8 DG OS HSM S018
141	SIGMA 70-200mm f/2.8 DG OS HSM S018 + 1.4X
142	SIGMA 70-200mm f/2.8 DG OS HSM S018 + 2X
143	SIGMA APO 70-200mm f/2.8 EX DG OS HSM
144	SIGMA APO 70-200mm f/2.8 EX DG OS HSM + 1.4X
145	SIGMA APO 70-200mm f/2.8 EX DG OS HSM + 2X
146	SIGMA 100-400mm F5-6.3 DG OS HSM C017
147	SIGMA APO 120-300mm F2.8 EX DG OS HSM
148	SIGMA APO 120-300mm F2.8 EX DG OS HSM + 1.4X
149	SIGMA APO 120-300mm F2.8 EX DG OS HSM + 2X
150	SIGMA 120-300mm f/2.8 DG OS HSM S013
151	SIGMA 120-300mm f/2.8 DG OS HSM S013 + 1.4X
152	SIGMA 120-300mm f/2.8 DG OS HSM S013 + 2X
153	SIGMA 150-500mm f/5-6.3 APO DG OS HSM
154	SIGMA 150-600mm F5-6.3 DG OS HSM C015
155	SIGMA 150-600mm F5-6.3 DG OS HSM C015 + 1.4X
156	SIGMA 150-600mm F5-6.3 DG OS HSM S014
157	SIGMA 150-600mm F5-6.3 DG OS HSM S014 + 1.4X
158	TAMRON SP 35mm F1.4 Di USD F045
159	TAMRON SP 35mm F/1.8 Di VC USD F012
160	TAMRON SP 45mm F/1.8 Di VC USD F013
161	TAMRON SP 85mm F/1.8 Di VC USD F016
162	TAMRON SP 15-30mm F/2.8 Di VC USD A012
163	TAMRON SP 15-30mm F/2.8 Di VC USD G2 A041
164	TAMRON 17-35mm f/2.8-4 Di OSD A037
165	TAMRON SP 24-70mm F/2.8 Di VC USD G2 A032
166	TAMRON 35-150 f/2.8-4 Di VC OSD A043
167	TAMRON SP 70-200mm F/2.8 Di VC USD G2 A025
168	TAMRON SP 70-210mm F/4 Di VC USD A034
169	TAMRON SP 70-300mm f/4.0-5.6 Di VC USD A005
170	TAMRON 100-400mm F/4.5-6.3 Di VC USD A035
171	TAMRON SP 150-600mm F/5-6.3 Di VC USD G2 A022
172	TAMRON SP 200-500mm F/5-6.3 Di LD (IF)
173	TOKINA Opera 50mm f/1.4 FF
174	TOKINA AT-X M100 PRO D Macro 100mm f/2.8
175	TOKINA atx-i 100mm F2.8 FF MACRO
176	Tokina AT-X 16-28 F2.8 PRO FX
177	Tokina AT-X 24-70mm f/2.8 PRO FX
178	SAMYANG AF 85mm F1.4 EF
179	LAOWA 180mm f/4.5 1.5X Ultra Macro APO
180	LAOWA AF FF 200mm f/2 C-Dreamer