

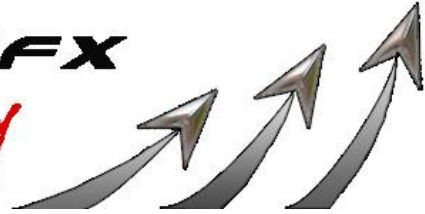


Recommendations for in-camera settings for aviation photography – Nikon D100, D200, D300, D800, D7200



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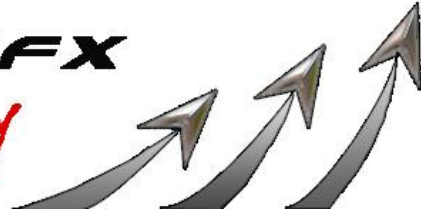
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1. Introduction

This guide is meant as a basic guideline for in camera settings that I found useful on the 3 camera types listed, when using them for spotting. The settings are focused on the jpg shooter. For the RAW shooter many things are not as important, as the settings can be altered in the editing of the RAW file.

While I only used the 3 cameras listed many tips could be useful on other Nikon DSLR cameras of the same generation.

Behind each recommended setting you will find the page of the camera's manual where you will find more about that setting and how to change it.

If you have a non US manual for your camera, you can download the US version at <https://downloadcenter.nikonimglib.com/en/index.html> so you can compare the pages listed here to the manual in your language.

1.1 Understanding P* mode (for all cameras)

Many experienced photographers will tell you that you should never let the camera take control of the exposure, which is basically correct, however Nikon offers a good compromise between control and safety with the P* mode.

P* allows you to customize the P (Program mode) by rotating the main command dial. You can set it to use faster shutter speeds or small apertures. The good thing about that option is that the reaction to changing light conditions is instant. So a suddenly moving in cloud or a dark coloured aircraft do not need any manual influence by the user. The camera will adjust shutter speed and aperture as needed. With P or A mode one setting is fixed. The camera changes shutter speed and aperture, but also considers if you wanted a faster shutter speed.

Say we are starting at ISO 200, 1/1000th and F8 suddenly a cloud moves in.

- P* would adjust to 1/800 and F7.1
- A would adjust to 1/640 (or lower) and F8
- S Would adjust to 1/1000th and F6.3

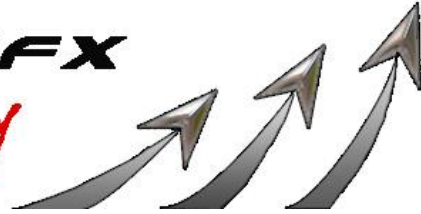
For spotting I recommend the following settings:

- D100: 2 clicks to the right (towards faster shutter speed)
- D200: 3-4 clicks to the right (2-3 for a VR lens)
- D300: 3-4 clicks to the right (2-3 for a VR lens)
- D800: 4 clicks to the right (3 for VR lenses)



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2. D100

The D100 was the first affordable semi-professional Nikon DSLR. It features a 6MP CCD sensor and is based on the F80 film body. It features the CAM900 auto focus module, which offers 5 AF sensors (one cross-type).

Recommendations for the D100 could be useful for the D70, D70s, D50 and D40.

2.1 Basic settings

Shooting Mode: Continuous	P41	
Image Quality and Size: JPEG fine (or RAW if you want to use RAW)	P43	P136
ISO: 200 – whenever possible	P48	P139

Compared to today's standards the D100 is noisy, so I do not recommend going much higher than ISO 200, if you are planning on up-loading your shpts to the aviation photo databases on the net.

White balance: Auto -2 or Cloudy -1	P50	P138
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The automatic White Balance of the D100 is known for its green colour cast. It is recommended to use a warmer setting than usual to counter this. Taking a PRESET WB is a good idea under difficult light conditions, as is shooting RAW under such conditions.

Image Sharpening: Normal	P58	P140
Tone Compensation: Normal	P59	P141
Colour Mode: sRGB	P60	P142
Hue Adjustment: 0	P62	P143
Focus Mode: C	P63	
AF Area Mode: Dynamic Area AF	P65	
Metering: Centre weighted	P75	
Exposure Mode: P* works good and can an alternative to A and S	P76	

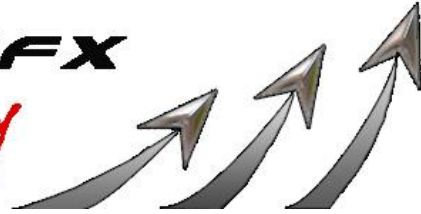
2.2 Custom Settings Menu

EV Step: 1/3	P151
AE-L / AF-L: AE-L Lock only	P154
Grid Display: On	P157



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Dyn. AF AF-C: Select AF Area

P157

3. D200

The Nikon D200 replaced the D100 in Nov. 2005, It has a magnesium alloy body, which is weather sealed. The sensor is a 10MP CCD. The AF has been improved to CAM 100 with more focus points and much better accuracy. In addition, the matrix metering mode is now capable to recognize colours and uses a 1005 segment sensor to find the exposure.

Settings for the D200 might be useful for D80, D90, D60 and D40X as well.

3.1 Basic Settings

Shooting Mode: CL

P26

I would use CH only for airshows. For normal airliners CL set to 3 fps is enough.

Image Quality: JPEG Fine

P28 P129

RAW format can be used for more control in editing your image. But if you want to learn your camera I would suggest RAW, as the faults you made in using it will be more obvious. Because of that you should use RAW whenever it really counts.

ISO Sensitivity: 200

P33

You can go down to 100 if the weather allows. I would not go over 320, as the noise becomes a problem at 400 and above.

White Balance: Auto

P35 P129

The automatic white balance has been much improved compared to the D100, Under natural light Auto will work just fine most of the time.

Optimizing Images: Normal

P45 P129

Color Space: sRGB

P50 P129

Focus Mode: Continuous Servo AF-C

P51

AF Area Mode: Dynamic area AF

P54

Metering: Centre weighted

P61

Exposure mode: P* or A

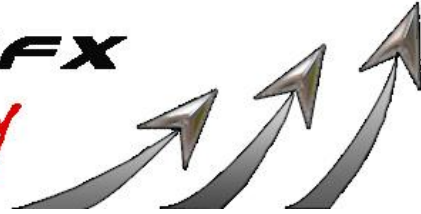
P62

You can use S and A mode when you want. M only makes sense for night shots or static subjects.



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3.2 The Shooting Menu

I have only listed points that are not covered in the Basic Settings part of this guide.

Image Size: Large	P130
JPEG Compression: Optimal Quality	P130
RAW Compression: Comp RAW	P130
Long Exp NR: Off	P131
High ISO NR: Low	P131

3.3 Custom Settings

AF-C Mode Priority Selection: Focus	P148
AF-S Mode priority Selection: Focus	P148
Focus Tracking with Lock-on: Normal	P150
Center Weighted Area: 10mm	P155
Assignment of AE-L/AF-L Button: AE Lock only	P157
Viewfinder Grid Display: On	P158
CL Mode Shooting Speed: 3FPS	P158
Assign Func Button: Matrix Metering	P170

Very handy to quickly switch metering modes.

4. D300

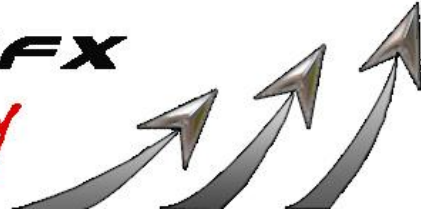
Announced in August 2007 the D300 was the next upgrade in the Nikon line of semi-professional DSLR cameras after the D200. It features a 12MP CMOS sensor. The focus system has been improved. It now has the 51 point (11 cross-type) CAM3500DX AF system, which is a big step up from the D200 and leaves no comparison to the old D100. It is the same AF system as used in the Nikon D3 professional camera. The switch to the CMOS type sensor has greatly improved the high ISO quality of the camera.

Settings for the D300 can be used on the D700, D90, D5000 and D3 series of cameras.



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4.1 Basic Settings

Image Quality: JPG Fine

P56

RAW format can be used for more control in editing your image. But if you want to learn your camera I would suggest RAW, as the faults you made in using it will be more obvious. Because of that you should use RAW whenever it really counts.

Image Size: L

P60

Focus Mode: AF-C Continuous Servo AF

P62

AF-Area Mode: Dynamic Area AF

P64

Release Mode: CL

P74

You can use CH at airshows. CL is usually good enough for airliners.

ISO Sensitivity: 200

P96

Up to ISO 400 should work on a D300. Going below ISO200 is not recommended.

Metering Mode: Center weighted

P102

The improved 3D Matrix Metering of the D300 does a very good job for spotting. Even in high contrast scenes and low contrast scenes. It makes sense to use, but centre weighted still is the safer and more predictable bet.

Exposure mode: P*

P104

You can use S and A mode when you want. M only makes sense for night shots or static subjects.

White Balance: Auto

P127

Auto works well under natural light.

Nikon Picture controls: neutral

P150

Neutral is less contrasty but gives you the largest useable dynamic range and leaves the most options for editing. You can download picture control settings at the Nikon website, which make the camera record the pictures like a D2X.

Active D-Lighting: OFF

P167

For RAW shooters the use of "Low" is recommended, as you can not turn the function on when you took the pic with ADL off. However you can turn ADL off, when you took the picture with ADL set to "Low". For the jpeg shooters, I strongly recommend turning this option off, as the function can create halos. It often looks like an overuse of the shadow and highlight tool in Adobe Photoshop, especially if you take a photo of a bright white aircraft against a dark blue sky and in other high contrast scenes.

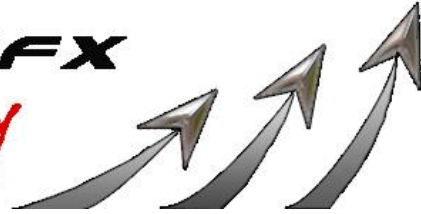
Color Space: sRGB

P169



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4.2 The Playback Menu

Display Mode: Highlights + RGB Histogram **P250**

4.3 The Shooting Menu

Long Exp. NR: Off **P262**

High ISO NR: Normal or Low **P263**

4.4 Custom Settings

AF-C Priority Selection: Focus **P267**

AF-S Priority Selection: Focus **P268**

Dynamic Area AF: 21 points **P269**

I would recommend using 51 points for airshows and 21 points for airliners.

Focus Tracking with Lock-on: Normal **P270**

AF point selection: 11 **P272**

51 point option can be tried, but for me it takes too long to move the focus point with 51 points selected.

Center Weighted Area: 10mm **P277**

Viewfinder Grid Display: On **P281**

CL Shooting Mode Speed: 3 FPS **P282**

Assign FUNC Button: Matrix Metering **P303**

Assign AE-L / AF-L Button: AE lock only **P307**

5. D800

Announced in February 2012 the D800 was the high resolution successor to the D700. It features a 36MP CMOS sensor. It has the Nikon Advanced Multi-CAM 3500FX autofocus sensor module with TTL phase detection, fine-tuning, 51 focus points (including 15 cross-type sensors; f/8 supported by 11 central sensors).

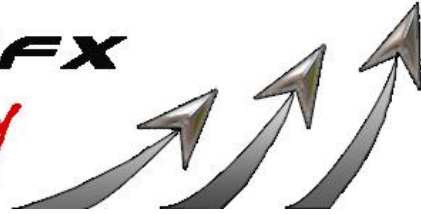
The high resolution FX sensor will be a test for your lens. It also needs very careful handling as even the slightest blur created by the photographer will be visible.

Settings for the D800 can be used on the D750, D610, D800e, D810 and D4 series of cameras.



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5.1 Basic Settings

Image Quality: JPG Fine

P84

RAW format can be used for more control in editing your image. But if you I want to learn your camera I would suggest JPG, as the faults you made in using it will be more obvious. Because of that you should use RAW whenever it really counts.

Image Size: L

P87

Focus Mode: AF-C Continuous Servo AF

P91

AF-Area Mode: Dynamic Area AF

P93

D9 for airliners, d21 or D51 for airshows.

Release Mode: CL

P103

You can use CH at airshows. CL is usually good enough for airliners.

ISO Sensitivity: 200

P109

Up to ISO 1600 should work on a D800.

.Metering Mode: Center weighted

P115

Centre weighted still is the safer and more predictable than Matrix Metering..

Exposure mode: P* or A

P117

P is reliable, but due to the high quality the D800 demands from the lens, I find A set to F8 preferable, especially as the low noise of the sensor allows you to up the ISO. S or M as needed.*

White Balance: Auto

P145

Auto works well under natural light.

Nikon Picture controls: Standard

P163

Neutral is less contrasty but gives you the largest useable dynamic range and leaves the most options for editing.

Active D-Lighting: OFF

P174

High Dynamic Range: OFF

P174

Vignette Control: Normal – OFF for RAW

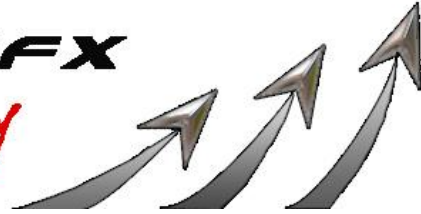
P275

For RAW shooters the use of "off" is recommended as you can do vignetting correction in RAW development with most software solutions offering automatic correction for many lenses. For the jpeg shooters, I recommend using "normal" or "High". Make sure that "high" is not overcorrecting before using it.



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Auto Distortion Control: OFF

P276

For RAW shooters the use of "off" is recommended as you can do distortion correction in RAW development with most software solutions offering automatic correction for many lenses. For JPG shooters I also prefer "off" as it is saver to do this correction in editing.

Long Exposure NR: OFF

P277

Color Space: sRGB

P274

Display Mode: Highlights + RGB Histogram

P261

5.2 The Shooting Menu

Long Exp. NR: Off

P262

High ISO NR: Normal or Low

P263

5.3 Custom Settings

AF-C Priority Selection: Focus

P281

AF-S Priority Selection: Focus

P282

Focus Tracking with Lock-on: Normal

P283

AF point selection: 11 or 51

P285

51 point option can be tried, but for me it takes too long to move the focus point with 51 points selected.

Center Weighted Area: 12mm

P289

CL Shooting Mode Speed: 2-3 FPS

P293

Viewfinder Grid Display: On

P295

Assign FN Button: Matrix Metering

P311

FN button + command dials: Choose image area

P314

Assign AE-L / AF-L Button: AE lock only

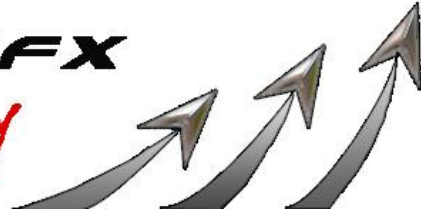
P307

6. D7200



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Announced in March 2015 the D7200 was the successor to the D7100 and seen as the replacement for the D300 until the D500 arrived. It features a 24MP CMOS sensor. It has the Nikon Advanced Multi-CAM 3500 autofocus sensor module with TTL phase detection, fine-tuning, 51 focus points.

Settings for the D7200 can be used on the D7000, D7100, D750.

6.1 Basic Settings

Image Quality: JPG Fine **P77**

RAW format can be used for more control in editing your image. But if you want to learn your camera I would suggest JPG, as the faults you made in using it will be more obvious. Because of that you should use RAW whenever it really counts.

Image Size: L **P81**

Focus Mode: AF-C Continuous Servo AF **P83**

AF-Area Mode: Dynamic Area AF **P86**

D9 for airliners, d21 or D51 for airshows.

Release Mode: CL **P66**

You can use CH at airshows. CL is usually good enough for airliners.

ISO Sensitivity: 200 **P99**

Up to ISO 1280 should work on a D800.

.Metering Mode: Center weighted **P105**

Centre weighted still is the safer and more predictable than Matrix Metering.

Exposure mode: P* or A **P51**

P is reliable, but due to the high quality the D800 demands from the lens, I find A set to F8 preferable, especially as the low noise of the sensor allows you to up the ISO. S or M as needed.*

White Balance: Auto **P111**

Auto works well under natural light.

Nikon Picture controls: Neutral **P130**

Standard is a bit too sharp and has a picture control setting for clarity of +1. This can cause halos. If you want to use standard for the bit more flashy colours, I would suggest to modify it to. Sharpening +2 and Clarity 0.

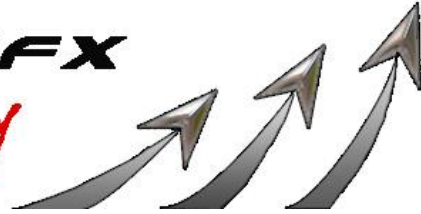
Active D-Lighting: OFF **P139**

High Dynamic Range: OFF **P141**



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Vignette Control: Normal – OFF for RAW

P271

For RAW shooters the use of “off” is recommended as you can do vignetting correction in RAW development with most software solutions offering automatic correction for many lenses. For the jpeg shooters, I recommend using “normal”.

Auto Distortion Control: OFF

P271

For RAW shooters the use of “off” is recommended as you can do distortion correction in RAW development with most software solutions offering automatic correction for many lenses. For JPG shooters I also prefer “off” as it is saver to do this correction in editing.

Long Exposure NR: OFF

P271

Color Space: sRGB

P270

6.2 The Shooting Menu

Long Exp. NR: Off

P271

High ISO NR: Normal or Low

P271

6.3 Custom Settings

AF-C Priority Selection: Focus

P276

AF-S Priority Selection: Focus

P276

Focus Tracking with Lock-on: Normal

P276

AF point selection: 11 or 51

P277

51 point option can be tried, but for me it takes too long to move the focus point with 51 points selected.

Center Weighted Area: 10mm

P278

CL Shooting Mode Speed: 3 FPS

P280

Viewfinder Grid Display: On

P280

Assign FN Button: Matrix Metering

P284

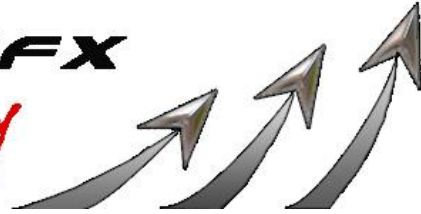
Assign AE-L / AF-L Button: AE lock only

P285



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7. D5600

Announced in November 2016 the D5600 was the successor to the D5500. It features a 24MP CMOS sensor. It has the Nikon Multi-CAM 4800DX autofocus sensor module with 39 focus points and 9 central cross-type points. It is an affordable, compact and light camera.

Settings for the D5600 can be used on the D5500 and earlier cameras.

7.1 Basic Settings

Image Quality: JPG Fine

P98

RAW format can be used for more control in editing your image. But if you want to learn your camera I would suggest JPG, as the faults you made in using it will be more obvious. Because of that you should use RAW whenever it really counts.

Image Size: L

P100

Focus Mode: AF-C Continuous Servo AF

P83

AF-Area Mode: Dynamic Area AF

P86

D9 for airliners, d21 or D51 for airshows.

Release Mode: Continuous Low

P75

You can use CH at airshows. CL is usually good enough for airliners.

ISO Sensitivity: 200

P107

Up to ISO 400 should work on a D5600.

Metering Mode: Center weighted

P105

Centre weighted still is the safer and more predictable than Matrix Metering..

Exposure mode: P* or A

P118

P is reliable, but due to the high quality the D800 demands from the lens, I find A set to F8 preferable, especially as the low noise of the sensor allows you to up the ISO. S or M as needed.*

White Balance: Auto

P140

Auto works well under natural light.

Nikon Picture controls: Standard

P130

Sharpening set to 4.

Active D-Lighting: OFF

P136

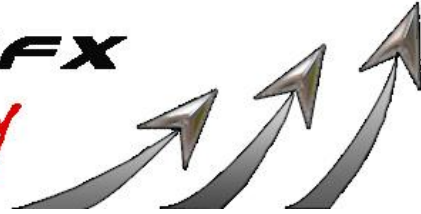
High Dynamic Range: OFF

P138



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Vignette Control: Normal – OFF for RAW

P231

For RAW shooters the use of “off” is recommended as you can do vignetting correction in RAW development with most software solutions offering automatic correction for many lenses. For the jpeg shooters, I recommend using “normal”.

Auto Distortion Control: OFF

P232

For RAW shooters the use of “off” is recommended as you can do distortion correction in RAW development with most software solutions offering automatic correction for many lenses. For JPG shooters I also prefer “off” as it is saver to do this correction in editing.

Long Exposure NR: OFF

P231

Color Space: sRGB

P230

Long Exp. NR: Off

P230

High ISO NR: Normal or Low

P231

7.2 Custom Settings

AF-C Priority Selection: Focus

P235

AF point selection: 39

P236

Viewfinder Grid Display: On

P243

Assign FN Button: ISO

P255

Assign AE-L / AF-L Button: AE lock only

P254

8. D850

Announced in August 2017 the D850 was the successor to the D810. It features a 45MP FX CMOS sensor. It has the Nikon Multi-CAM 20K autofocus sensor module with 153 focus points and 99 cross-type points. 15 of those work up to F8. It is a expensive professional camera that will put your lens to the test and is not easy to master.

8.1 Basic Settings

Image Quality: JPG Fine

P88

RAW format can be used for more control in editing your image. But if you I want to learn your camera I would suggest JPG, as the faults you made in using it will be more obvious. Because of that you should use RAW whenever it really counts.

Image Size: L

P91

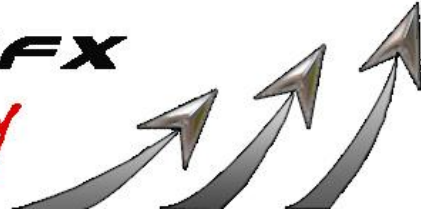
Image Area: FX

P83



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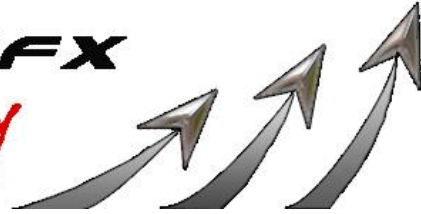


Focus Mode: AF-C Continuous Servo AF	P99
AF-Area Mode: Dynamic Area AF	P100
<i>D9 or D21 for airliners, d72 or D153 for airshows.</i>	
Release Mode: CL	P113
<i>You can use CH at airshows. CL is usually good enough for airliners.</i>	
ISO Sensitivity: 100 or 200	P119
<i>Up to ISO 3200 should work on a D850. (with some editing)</i>	
Metering Mode: Center weighted	P124
<i>Centre weighted still is the safer and more predictable than Matrix Metering..</i>	
Exposure mode: P* or A	P126
<i>P* is reliable, but due to the high quality the D850 demands from the lens, I find A set to F8 preferable, especially as the low noise of the sensor allows you to up the ISO. S or M as needed.</i>	
White Balance: Natural Light Auto	P156
<i>Auto works well too and works fine under artificial light as well.</i>	
Nikon Picture controls: Standard	P175
<i>Sharpening set to 3. Everything else to 0.</i>	
Active D-Lighting: OFF	P180
High Dynamic Range: OFF	P182
Vignette Control: Normal – OFF for RAW	P253
<i>For RAW shooters the use of "off" is recommended as you can do vignetting correction in RAW development with most software solutions offering automatic correction for many lenses. For the jpeg shooters, I recommend using "normal".</i>	
Auto Distortion Control: OFF	P253
<i>For RAW shooters the use of "off" is recommended as you can do distortion correction in RAW development with most software solutions offering automatic correction for many lenses. For JPG shooters I also prefer "off" as it is saver to do this correction in editing.</i>	
Long Exposure NR: OFF	P253
Color Space: sRGB	P253



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8.2 Custom Settings

AF-C Priority Selection: Focus	P260
AF-S Priority Selection: Focus	P260
AF point selection: 55	P261
Center Weighted Area: 15mm	P263
CL Shooting Mode Speed: 3 FPS	P264
Viewfinder Grid Display: On	P265
Assign FN1 Button: Matrix Metering	P268
Assign FN1 Button + thumb wheel: Switch between FX and DX mode	P268
Assign FN2 Button: My Menu	P268
Assign AE-L / AF-L Button: AE lock only	P268