

Canon

EOS R50



Advanced User Guide

These operating instructions are for the EOS R50 with firmware ver. 1.2.0 or later installed.

E

Specifications

Type

Type: Digital single-lens non-reflex AF/AE camera

Lens mount: Canon RF mount

Compatible lenses: Canon RF lens group (including RF-S lenses)

* Canon EF or EF-S lenses (except for EF-M lenses) are also compatible, using mount adapter EF-EOS R

Lens focal length: Approx. 1.6 times the focal length indicated on the lens

Image sensor

Type: APS-C CMOS sensor

Screen size	Approx. 22.3 × 14.9 mm
CMOS format	APS-C
Effective pixels ^{*1*2}	Max. approx. 24.2 megapixels
Total pixels ^{*1}	Approx. 25.5 megapixels
Dual Pixel CMOS AF	Supported

* 1: Rounded to the nearest 100,000.

* 2: Using RF or EF lenses.

The effective pixel count may be lower with certain lenses and image processing.

Recording system

Image recording format: Compliant with Design rule for Camera File system 2.0 and Exif 2.31^{*1}

* 1: Supports time offset information

Image type and extension

	Image type	Extension
Still photos	JPEG	.JPG
	HEIF	.HIF
	RAW	.CR3
	C-RAW	
Movies	ALL-I ^{*1} , IPB (Standard), IPB (Light)	.MP4

* 1: Time-lapse movies only

Recording media

Recording media

SD/SDHC/SDXC memory cards

UHS-I	Supported
UHS speed class	Supported
SD speed class	Supported

Card slot: Equipped with a single slot

* Supports UHS-I

Still photo recording

Still photo pixel count

Image quality		Recorded pixels			
		Aspect ratio			
		3:2	4:3	16:9	1:1
JPEG/ HEIF	L	24.0 megapixels (6000×4000)	Approx. 21.3 megapixels* ¹ (5328×4000)	Approx. 20.2 megapixels* ¹ (6000×3368)	16.0 megapixels (4000×4000)
	M	Approx. 10.6 megapixels (3984×2656)	Approx. 9.5 megapixels (3552×2664)	Approx. 8.9 megapixels* ¹ (3984×2240)	Approx. 7.1 megapixels (2656×2656)
	S1	Approx. 5.9 megapixels (2976×1984)	Approx. 5.3 megapixels (2656×1992)	Approx. 5.0 megapixels* ¹ (2976×1680)	Approx. 3.9 megapixels (1984×1984)
	S2	Approx. 3.8 megapixels (2400×1600)	Approx. 3.4 megapixels* ¹ (2112×1600)	Approx. 3.2 megapixels* ¹ (2400×1344)	Approx. 2.6 megapixels (1600×1600)
RAW	RAW / CRAW	24.0 megapixels (6000×4000)			

* Values for recorded pixels are rounded to the nearest 100,000.

















* RAW/C-RAW images are generated at 3:2 and tagged to indicate the specified aspect ratio.

* JPEG and HEIF images are generated at the specified aspect ratio.

* These aspect ratios (M/S1/S2) and pixel counts also apply to resizing.

* 1: Aspect ratios are slightly different for these image sizes.

File size/number of shots available

Image quality		File size [Approx. MB]	Available shots [Approx.]* ¹
JPEG* ²	 L	8.7	3510
	 M	4.6	6610
	 M	4.7	6430
	 M	2.6	11400
	 S1	3.1	9760
	 S1	1.8	16130
	S2	1.8	16260
HEIF* ³	 L	9.1	3360
	 L	7.0	4380
	 M	5.4	5630
	 M	4.3	7170
	 S1	3.7	8220
	 S1	3.0	10100
	S2	2.2	14110
RAW* ²	RAW	27.0	1140
	CRAW	14.0	2230
RAW+JPEG* ²	RAW +  L	27.0 + 8.7	860
	CRAW +  L	14.0 + 8.7	1360
RAW+HEIF* ³	RAW +  L	29.9 + 9.1	780
	CRAW +  L	16.9 + 9.1	1180

* 1: Number of shots using a 32 GB card that conforms to Canon testing standards.

* 2: When set to [HDR shooting **HDR PQ**: Disable].















* 3: When set to [HDR shooting **HDR PQ**: Enable].

* File sizes are determined based on Canon testing standards.

* File size varies by shooting conditions (such as aspect ratio, subject, ISO speed, Picture Style, and Custom Functions).

Maximum burst (approx. shots)

Number of shots available when set to [C], without slower continuous shooting

Image quality		Electronic 1st-curtain (approx. 12 shots/sec.)	Electronic shutter (approx. 15 shots/sec.)
		Standard card*1	Standard card*1
JPEG*2		42	28
		42	28
		42	28
		42	28
HEIF*3		41	24
		41	24
		41	24
		41	24
RAW*2		7	7
		15	15
RAW+JPEG*2		7	7
		13	13
RAW+HEIF*3		7	7
		13	13

* 1: Number of shots using a 32 GB UHS-I card that conforms to Canon testing standards.

* 2: When set to [HDR shooting **HDR PQ**: Disable].

* 3: When set to [HDR shooting **HDR PQ**: Enable].

* Maximum burst as measured under conditions conforming to Canon testing standards (High-speed continuous shooting + in One-Shot AF mode, ISO 100, and Standard Picture Style).

* Maximum burst varies depending on shooting conditions (including aspect ratio, subject, memory card brand, ISO speed, Picture Style, and Custom Function).

Movie recording

Movie recording format: MP4

Estimated recording time, movie bit rate, and file size

HDR PQ: OFF

Movie recording size				Total recording time (approx.)			Movie bit rate (Approx. Mbps)	File size (Approx. MB/min.)
Movie recording	Frame rate (fps)		Compression method	32 GB	128 GB	512 GB		
	NTSC	PAL						
4K UHD	29.97 23.98	25.00	IPB (Standard)	35 min.	2 hr. 21 min.	9 hr. 27 min.	120	860
			IPB (Light)	1 hr. 10 min.	4 hr. 43 min.	18 hr. 52 min.	60	431
Full HD High Frame Rate movies	119.88	100.00	IPB (Standard)	35 min.	2 hr. 22 min.	9 hr. 28 min.	120	858
			IPB (Light)	1 hr. 0 min.	4 hr. 3 min.	16 hr. 15 min.	70	501
Full HD	59.94	50.00	IPB (Standard)	1 hr. 10 min.	4 hr. 43 min.	18 hr. 52 min.	60	431
			IPB (Light)	2 hr. 0 min.	8 hr. 3 min.	32 hr. 15 min.	35	252
	29.97 23.98	25.00	IPB (Standard)	2 hr. 20 min.	9 hr. 23 min.	37 hr. 35 min.	30	216
			IPB (Light)	5 hr. 47 min.	23 hr. 11 min.	92 hr. 47 min.	12	88
Full HD Time-lapse movies	29.97	25.00	ALL-I	47 min.	3 hr. 9 min.	12 hr. 38 min.	90	644

* Bit rate only applies to video output, not audio or metadata.

* Movie recording stops when the maximum recording time per movie is reached.

* Sound is not recorded for approx. the last two frames when the compression method for movie recording quality is IPB (Standard) or IPB (Light). Moreover, the video and sound may be slightly out of sync when movies are played back in Windows.

HDR PQ: ON

Movie recording size				Total recording time (approx.)			Movie bit rate (Approx. Mbps)	File size (Approx. MB/min.)
Movie recording	Frame rate (fps)		Compression method	32 GB	128 GB	512 GB		
	NTSC	PAL						
4K UHD	29.97 23.98	25.00	IPB (Standard)	25 min.	1 hr. 40 min.	6 hr. 40 min.	170	1218
			IPB (Light)	50 min.	3 hr. 20 min.	13 hr. 20 min.	85	610
Full HD High Frame Rate movies	119.88	100.00	IPB (Standard)	23 min.	1 hr. 34 min.	6 hr. 19 min.	180	1287
			IPB (Light)	42 min.	2 hr. 50 min.	11 hr. 22 min.	100	715
Full HD	59.94	50.00	IPB (Standard)	47 min.	3 hr. 9 min.	12 hr. 36 min.	90	646
			IPB (Light)	1 hr. 24 min.	5 hr. 39 min.	22 hr. 38 min.	50	360
	29.97 23.98	25.00	IPB (Standard)	1 hr. 34 min.	6 hr. 17 min.	25 hr. 8 min.	45	324
			IPB (Light)	2 hr. 30 min.	10 hr. 3 min.	40 hr. 15 min.	28	202
Full HD Time-lapse movies	29.97	25.00	ALL-I	31 min.	2 hr. 6 min.	8 hr. 25 min.	135	966

* Bit rate only applies to video output, not audio or metadata.

* Movie recording stops when the maximum recording time per movie is reached.

* Sound is not recorded for approx. the last two frames when the compression method for movie recording quality is IPB (Standard) or IPB (Light). Moreover, the video and sound may be slightly out of sync when movies are played back in Windows.

Card performance requirements (movie recording) [write/read speed]

Movie recording size				SD card	
Resolution	Frame rate (fps)		Compression method	8 bits	10 bits (HDR PQ)
	NTSC	PAL			
4K UHD	29.97 23.98	25.00	IPB (Standard)	UHS Speed Class 3 or higher	
			IPB (Light)	SD Speed Class 10 or higher	UHS Speed Class 3 or higher
Full HD	119.88	100.00	IPB (Standard)	UHS Speed Class 3 or higher	
			IPB (Light)	SD Speed Class 10 or higher	UHS Speed Class 3 or higher
	59.94	50.00	IPB (Standard)	SD Speed Class 10 or higher	UHS Speed Class 3 or higher
			IPB (Light)	SD Speed Class 6 or higher	SD Speed Class 10 or higher
	29.97 23.98	25.00	IPB (Standard)	SD Speed Class 6 or higher	
			IPB (Light)	SD Speed Class 4 or higher	
Full HD (Time-lapse movies)	29.97	25.00	ALL-I	Read speed of 30 MB/sec. or higher	

Built-in microphone: Stereo microphones

External microphone (External microphone IN terminal): 3.5 mm diameter stereo mini jack

External microphone (Multi-function shoe): Compatible with Directional Stereo Microphone DM-E1D

Autofocus

Focusing method: Dual Pixel CMOS AF

Focusing brightness range

Still photo shooting: EV -4.0 to 20

(With an f/1.2 lens,* center AF point, One-Shot AF at room temperature, and ISO 100)

* Except for RF lenses with a Defocus Smoothing (DS) coating.

Movie recording: EV -3.5 to 20

(With an f/1.2 lens,* center AF point, One-Shot AF at room temperature, ISO 100, in Full HD recording at 29.97/25.00 fps.)


* Except for RF lenses with a Defocus Smoothing (DS) coating.

Focusing operation

	Still photo shooting	Movie recording
AF operation*1	<ul style="list-style-type: none">• One-Shot AF• AI Focus AF• Servo AF	<ul style="list-style-type: none">• One-Shot AF• Movie Servo AF
Manual focus (MF)	Supported	Supported

1: Available in Creative Zone modes. Automatically set in Basic Zone modes to suit the shooting mode.

* When set to AI Focus AF, the camera automatically switches from One-Shot AF to Servo AF in response to subject movement (also applies during continuous shooting).

* Automatically set to [AI Focus AF] in <  > mode.

Lens compatibility based on focusing area: Refer to the Canon website

Number of AF area available for automatic selection

Focusing area		Horizontal: Approx. 100%, Vertical: Approx. 100%
Number of AF zones	Still photos	Max. 651 zones (31×21)
	Movies	Max. 527 zones (31×17)

* May vary depending on settings.

Selectable positions for AF point

Focusing area		Horizontal: Approx. 90%, Vertical: Approx. 100%
Numbers of positions	Still photos	Max. 4503 positions (79×57)
	Movies	Max. 3713 positions (79×47)

* When set to [1-point AF] and selected using the cross keys.

Viewfinder

Type: OLED color electronic viewfinder

Screen size: Approx. 1.00 cm (0.39 inch)

Dot count: Approx. 2,360,000 dots

Magnification / Angle of view: Approx. $0.95\times$ / Approx. 28.0° (3:2 aspect ratio, with 50mm lens at infinity, -1 m^{-1})

Coverage: Approx. 100% (at JPEG Large image quality, 3:2 aspect ratio, approx. 22 mm eyepoint)

Eyepoint: Approx. 22 mm (at -1 m^{-1} from eyepiece lens end)

Dioptic adjustment: Approx. -3.0 to $+1.0\text{ m}^{-1}$ (dpt)

Screen

Type: TFT color, liquid-crystal monitor

Screen size: Approx. 7.5 cm (3.0 inch) (screen aspect ratio of 3:2)

Dot count: Approx. 1,620,000 dots

Angle of view: Approx. 170° vertically and horizontally

Coverage: Approx. 100% vertically and horizontally (at L image size and an aspect ratio of 3:2)

Screen brightness: Manually adjustable in a range of 1–7

Touch-screen: Capacitive sensing

HDMI output

HDMI video / audio output: HDMI micro OUT terminal (Type D)

* HDMI CEC not supported

HDMI resolution: Auto / 1080p

Exposure control

Metering functions under various shooting conditions

Item		Still photo shooting	Movie recording
Metering sensor		384-zone (24×16) metering using image sensor output signals	
Metering mode	Evaluative metering	Yes	Yes
	Partial metering	Yes * Approx. 5.8% in the center of the screen*2	
	Spot metering*1	Yes * Approx. 2.9% in the center of the screen*2	
	Center-weighted average metering	Yes	
Metering brightness range (at room temperature, ISO 100)		EV -2 to 20	EV 0 to 20

* 1: Multi-spot metering not available (not supported).

* 2: Values differ when set to Digital tele-converter.

ISO speed (recommended exposure index) in still photo shooting

Manual ISO speed setting for still photos

	ISO speed
Normal ISO speed	ISO 100–32000 (in 1/3- or 1-stop increments)
Expanded ISO speed	H (equivalent to ISO 51200)

* When set to [Highlight tone priority], the available manual setting range is ISO 200–32000.

* Expanded ISO speeds cannot be set in HDR mode or for HDR shooting (HDR PQ).



Manual ISO speed setting range for still photos: Not supported

ISO Auto maximum limit setting for still photos

Max. for ISO Auto	ISO 400 / 800 / 1600 / 3200 / 6400 / 12800 / 25600 / 32000
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ISO Auto setting range for still photos: Not supported

ISO Auto details for still photos

Shooting mode		No flash	Using flash	
Variable control of maximum ISO Auto limit for E-TTL			Compatible lens	Incompatible lens
Creative Zone	P / Tv / Av / M (other than bulb)	ISO 100*1*2–32000*2	ISO 100*1*2–6400*2	ISO 100*1*2–1600*2
	M (bulb)	ISO 400*3	ISO 400*3	
Basic Zone		ISO 100–6400	ISO 100–6400	ISO 100–3200*4
	SCN	Varies by shooting mode		
		Varies by shooting mode		

* 1: ISO 200 when set to **[Highlight tone priority: Enable/Enhanced]**.

* 2: Varies depending on the **[Max for Auto]** settings.

* 3: If outside the setting range, changed to the value closest to ISO 400.

* 4: When using the built-in flash. ISO 1600 when using an external flash unit.

Variable control of maximum ISO Auto limit for E-TTL: Supported

ISO speed (recommended exposure index) in movie recording

Manual ISO speed setting for movies

	ISO speed
Normal ISO speed	ISO 100–12800 (in 1/3- or 1-stop increments)
Expanded ISO speed	H (equivalent to ISO 16000 / 20000 / 25600)

* When set to [**Highlight tone priority**], the setting range is ISO 200–12800.

* Expanded ISO speeds are not available in HDR PQ movie, HDR movie, or High Frame Rate movie recording.

Automatic ISO speed setting for movies (with ISO Auto)

	ISO speed
Normal ISO speed	ISO 100–12800 (in 1/3- or 1-stop increments)
Expanded ISO speed	H (equivalent to ISO 25600)

* Maximum ISO speed when set automatically corresponds to the [**Max for Auto**] setting.

* When set to [**Highlight tone priority**], the setting range is ISO 200–12800.

* Expanded ISO speeds are not available in HDR or HDR PQ movie recording, in movie recording with shooting creative filters, or with digital zoom.

Manual ISO speed setting range limit for movies: Not supported

Maximum ISO Auto setting for movies

Max. for ISO Auto	ISO 6400 / 12800 / H (equivalent to ISO 25600)
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Maximum ISO Auto speed setting for time-lapse movies

Max. for ISO Auto	ISO 400 / 800 / 1600 / 3200 / 6400 / 12800
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Shutter

Still photo shooting

Type:

Electronically controlled focal-plane shutter

Rolling shutter, using the image sensor

Shutter mode

Shutter mode	Flash photography
Electronic 1st-curtain	Possible
Electronic shutter	Disabled

Shutter speed / X-sync speed

Shutter mode	Setting range	Setting increments	X-sync
Electronic 1st-curtain	1/4000–30 sec., Bulb	1/3-stop	1/250 sec.
Electronic shutter	1/8000–30 sec., Bulb		

Movie recording

Type: Rolling shutter, using the image sensor

Shutter speed:

Movie auto exposure: 1/4000–1/25* sec.

* Varies by frame rate.

Movie manual exposure: 1/4000–1/8*¹ sec.

* Varies by shooting mode and frame rate.

* 1: 1/125 sec. (NTSC) or 1/100 sec. (PAL) with [High Frame Rate] set to [Enable].

Drive

Drive mode and continuous shooting speed

[Max. approx.]

Drive mode	AF operation	Electronic 1st-curtain	Electronic shutter
Single shooting		Yes	Yes
High-speed continuous shooting +	One-Shot AF Servo AF	12 shots/sec.	15 shots/sec.
High-speed continuous shooting	One-Shot AF Servo AF	7.6 shots/sec.	15 shots/sec.
Low-speed continuous shooting	One-Shot AF Servo AF	3.0 shots/sec.	5.0 shots/sec.
Self-timer: 10 sec.		Yes	Yes
Self-timer: 2 sec.		Yes	Yes
Self-timer: Continuous shooting		Yes	Yes

Built-in flash

Type: Retractable flash

Retraction method: Manual

Guide no.: Guide no. of approx. 6 (ISO 100/m) / 19.7 (ISO 100/feet)

Flash exposure compensation: ± 2 stops (in 1/3-stop increments)

Effective flash range (example)

(Approx.)

ISO speed	Lens: RF-S18-45mm F4.5-6.3 IS STM			
	Wide-angle end f/4.5		Telephoto end f/6.3	
	m	ft.	m	ft.
100	0.3–1.2	1.0–3.9	0.4–0.9	1.0–3.0
1600	1.1–4.9	3.6–16.1	0.8–3.5	2.6–11.5
25600	4.3–19.6	14.1–64.3	3.0–14.0	9.8–45.9

* Rounded to the first decimal place.

* Suitable exposure may not be obtained when shooting distant subjects at high ISO speeds, because preflash metering limits may be exceeded.

External flash

Contacts for multi-function shoe: 21-pin contact

Flash exposure compensation: ± 3 stops (in 1/3-stop increments)

Playback

Item	Still photos	Movies
AF point display	Yes	
Playback grid	Off / 3×3 / 6×4 / 3×3+diag	
Magnified view	1.5×–10× (15 levels)	
Setting image search conditions	Search conditions Rating / Date / Folder / Protection / Type of file (1) / Type of file (2)	
Rating	OFF / ★ to ★★★★★ Select images / Select range / All images in folder / All images on card / All found images	
Protect images	Select images / Select range / All images in folder / Unprotect all images in folder / All images on card / Unprotect all images on card / All found images / Unprotect all found images	
Resizing	Yes	
Cropping	Yes	

Frame grab from 4K movies

Individual frames of 4K movies recorded with the camera can be saved as approx. 8.3-megapixel (3840×2160) still photos (JPEG or HEIF).

* From normal movies, still photos are saved as JPEGs, and from HDR PQ movies, as HEIF images.

* In-camera resizing or cropping is not supported for extracted still photos, and these images cannot be edited with Creative filters or Creative Assist.

Print order (DPOF)

Compliant with DPOF Version 1.1

External interface

Digital terminal

Terminal type: USB Type-C

Transmission: Equivalent to Hi-Speed USB (USB 2.0)

Applications:

- For computer communication / smartphone communication
- USB battery charging / camera power supply

HDMI output terminal: HDMI micro OUT terminal (Type D)

External microphone IN terminal: 3.5 mm diameter stereo mini jack

Power source

Battery

Compatible battery pack	LP-E17
Quantity used	1

Battery check: Automatic battery check with 4-level display when the power switch is turned ON.

Battery information

Power supply	Type
Remaining capacity	4-level indicator
Number of shots	Not supported
Recharge performance	3 levels

USB battery charging and camera power supply: Using USB Power Adapter PD-E1

AC power source

AC adapter	AC-E6N
DC coupler	DR-E18

Number of shots available

Type of shooting	Temperature	Available shots (approx.)		
		Using 50% flash		AE shooting* ²
		Power saving* ¹	Smooth* ²	Power saving
Viewfinder shooting	+23°C / 73°F	310	230	320
On-screen shooting		440	370	450

* 1: Based on CIPA standards.

* 2: According to Canon measurement conditions, which are based on CIPA standards.

* Using a new, fully charged LP-E17

* The number of shots available may vary greatly depending on the shooting environment.

* Fewer shots may be available with a compatible accessory attached to the multi-function shoe, because the camera powers the accessory.

Available operating time

Conditions of use			Temperature	Available operating time
Time available for bulb exposure			+23°C / 73°F	Approx. 2 hr. 50 min.
Time available for Live View shooting * Using the screen			+23°C / 73°F	Approx. 3 hr. 00 min.
Time available for movie recording * Movie Servo AF: Disable	4K	<ul style="list-style-type: none"> • IPB (Standard) • 29.97 fps / 25.00 fps 	+23°C / 73°F	Approx. 1 hr. 00 min.
			0°C / 32°F	Approx. 1 hr. 00 min.
	Full HD	<ul style="list-style-type: none"> • IPB (Standard) • 29.97 fps / 25.00 fps 	+23°C / 73°F	Approx. 2 hr. 00 min.
			0°C / 32°F	Approx. 2 hr. 00 min.
Time available for continuous playback (normal playback)	4K	<ul style="list-style-type: none"> • IPB (Standard) • 29.97 fps / 25.00 fps 	+23°C / 73°F	Approx. 3 hr. 00 min.

* With a fully charged new LP-E17

Dimensions and weight

Dimensions

Exterior color	Dimensions
	(W) × (H) × (D)
Black	Approx. 116.3 × 85.5 × 68.8 mm / 4.58 × 3.37 × 2.71 in.
White	

* Based on CIPA guidelines.

Weight

	Exterior color	Weight
Body (including battery and card)* ¹	Black	Approx. 375 g / Approx. 13.23 oz.
	White	Approx. 376 g / Approx. 13.26 oz.
Body only	Black	Approx. 328 g / Approx. 11.57 oz.
	White	Approx. 329 g / Approx. 11.61 oz.

* Not including body cap or shoe cover.

* 1: Based on CIPA guidelines.

Operating environment

Operating temperature: 0–+40°C / 32–104°F

Operating humidity: 85% or less

Wi-Fi (wireless LAN)

Supported standards (equivalent to IEEE 802.11b/g/n standards)

Wi-Fi standards	Transmission method	Maximum link speed
IEEE 802.11b	DSSS modulation	11 Mbps
IEEE 802.11g	OFDM modulation	54 Mbps
IEEE 802.11n		72.2 Mbps

* Not compatible with MIMO (Multiple-input and multiple-output).

Transmission frequency (Center frequency)

Frequency	2412 to 2462 MHz
Channels	1 to 11 ch

Authentication and data encryption methods

Connection method	Authentication method	Encryption
		Encryption method
Camera access point	WPA2 / WPA3-Personal	AES
	Open	Disable
Infrastructure	Open	WEP
		Disable
	Shared key	WEP
	WPA / WPA2 / WPA3-Personal	TKIP AES

Bluetooth

Standards compliance: Bluetooth Specification Version 4.2 compliant (Bluetooth Low Energy technology)

Transmission method: GFSK modulation

- All data above is based on Canon testing standards and CIPA (Camera & Imaging Products Association) testing standards and guidelines.
- Dimensions and weight listed above are based on CIPA Guidelines (except weight for camera body only).
- Product specifications and appearance are subject to change without notice.
- If a problem occurs with a non-Canon lens attached to the camera, contact the respective lens manufacturer.