Specifications - EOS 70D

Type
Digital AF/AE single-lens reflex camera with built-in flash

Recording Media
SD card, SDHC card, SDXC memory card
* Compatible with Ultra High Speed (UHS-I) memory cards and Eye-Fi cards (Built-in wireless LAN cannot be used simultaneously with Eye-Fi cards).

Image Format
Approx. 22.5mm x 15.0mm (APS-C)

Compatible Lenses
Canon EF lenses (including EF-S lenses)

Lens Mount
Canon EF mount

Image Sensor

Type
CMOS Sensor

Pixels
Effective pixels: Approx. 20.2 Megapixels
Total pixels: Approx. 20.9 Megapixels

Pixel Unit
4.1 µm square

Total Pixels
Approx. 19.0 megapixels

Aspect Ratio
3:2 (Horizontal: Vertical)

Color Filter System
RGB primary color filters

Low Pass Filter
Fixed position in front of the image sensor

Dust Deletion Feature
(1) Self Cleaning Sensor Unit

- Removes dust adhering to the low-pass filter.

- Self-cleaning executed automatically (taking approx. 2 sec.) when power is turned on or off. Manual execution also possible (taking approx. 5 sec.).
  (2) Dust Delete Data acquisition and appending

- The coordinates of the dust adhering to the low-pass filter are detected by a test shot and appended to subsequent images.

- The dust coordinate data appended to the image is used by the provided software to automatically erase the dust spots.
  (3) Manual cleaning

Recording System

Recording Format
Complete with Design rule for Camera File System 2.0 and EXIF 2.30

Image Format
Still: JPEG: JPG, RAW: CR2 (Canon Raw 2nd edition), RAW+JPEG
Video: MOV (Image data: H.264, Audio: Linear PCM)

File Size

3:2 Aspect Ratio

Large: Approx. 20.0 Megapixels (5472 x 3648);

Medium: Approx. 8.9 Megapixels (3648 x 2432);
Small 1: Approx. 5.0 Megapixels (2736 x 1824);
Small 2: Approx. 2.50 Megapixels (1920 x 1280);
Small 3: Approx. 0.35 Megapixels (720 x 480)
RAW: Approx. 20.0 Megapixels (5472 x 3648);
mRAW: Approx. 11.2 Megapixels (4104 x 2736);
sRAW: Approx. 5.0 Megapixels (2736 x 1824)

4:3 Aspect Ratio
Large: Approx. 17.7 Megapixels (4864 x 3648);
Medium: Approx. 7.9 Megapixels (3248 x 2432);
Small 1: Approx. 4.4 Megapixels (2432 x 1824);
Small 2: Approx. 2.2 Megapixels (1696 x 1280);
Small 3: Approx. 0.31 Megapixels (640 x 480)
RAW: Approx. 17.7 Megapixels (4864 x 3648);
mRAW: Approx. 10.0 Megapixels (3648 x 2736);
sRAW: Approx. 4.4 Megapixels (2432 x 1824)

16:9 Aspect Ratio
Large: Approx. 16.8 Megapixels (5472 x 3072);
Medium: Approx. 7.5 Megapixels (3648 x 2048);
Small 1: Approx. 4.2 Megapixels (2736 x 1536);
Small 2: Approx. 2.1 Megapixels (1920 x 1080);
Small 3: Approx. 0.29 Megapixels (720 x 408)
RAW: Approx. 16.8 Megapixels (5472 x 3072);
mRAW: Approx. 9.5 Megapixels (4104 x 2310);
sRAW: Approx. 4.2 Megapixels (2736 x 1536)

1:1 Aspect Ratio
Large: Approx. 13.3 Megapixels (3648 x 3648);
Medium: Approx. 5.9 Megapixels (2432 x 2432);
Small 1: Approx. 3.3 Megapixels (1824 x 1824);
Small 2: Approx. 1.6 Megapixels (1280 x 1280);
Small 3: Approx. 0.23 Megapixels (480 x 480)

RAW: Approx. 13.3 Megapixels (3648 x 3648);
mRAW: Approx. 7.5 Megapixels (2736 x 2736);
sRAW: Approx. 3.3 Megapixels (1824 x 1824)

Backup Recording
Not Available

File Numbering
The following three types of file numbering methods can be set:

(1) Continuous numbering

* The numbering of captured images will continue even after you replace the camera's card.

(2) Auto reset

* When you replace the camera's card, the numbering will be reset to start from 0001. If the new card already contains images, the numbering will continue from the last recorded image on the card.

(3) Manual reset

* Resets the file number to 0001, and creates a new folder automatically.

Color Space
sRGB, Adobe RGB

Picture Style
Auto, Standard, Portrait, Landscape, Neutral, Faithful, Monochrome, User Defined 1-3

* In Basic Zone modes, "Auto" is set automatically.

* In Creative Zone modes, you can select or set the Picture Style.

* Default settings for [User Defined 1-3] are [Auto].

White Balance

Settings
Auto, Preset (Daylight; Shade; Cloudy, Twilight, Sunset; Tungsten light; White Fluorescent Light; Flash), Custom (Approx. 2,000° - 10,000°K), Color Temperature (Approx. 2,500° - 10,000°K)

Auto White Balance
Auto white balance with the image sensor

Color Temperature Compensation

- Blue/amber bias: ±9 levels

- Magenta/green bias: ±9 levels
* Correction based on the current WB mode's color temperature.

Color Temperature Information Transmission
Provided

Viewfinder

Type
Eye-level SLR (with fixed pentaprism)

Coverage
Approx. 98% vertically and horizontally (with eye point approx. 22mm)

Magnification
Approx. 0.95x / 27.9° (50mm lens at ∞, -1m-1 dpt)

Eye Point
Approx. 22mm (At $-1m^{-1}$ from the eyepiece lens center)

Dioptric Adjustment Correction
Adjustable from approx. -3.0 to $+1.0m^{-1}$ (dpt)

Focusing Screen
Fixed

Mirror
Quick-return half mirror (transmission: reflection ratio of 40:60)

Viewfinder Information

- AF information

  AF points, focus confirmation, AF area selection mode

- Exposure information

  Shutter speed, aperture, ISO speed (always displayed), AE lock, exposure level, spot metering circle, exposure warning

- Flash information

  Flash ready, flash exposure compensation, high-speed sync, FE lock, red-eye reduction light

- Image information

  Highlight tone priority (D+), maximum burst (2-digit display), card information

- Composition information

  Grid, electronic level

- Alert symbol
  Depth Of Field Preview
  Enabled with depth-of-field preview button

Autofocus

Type
TTL secondary image-forming, phase-difference detection with AF-dedicated CMOS sensor

AF Points
19-point cross-type AF

All AF points are cross-type at f/5.6.

Center AF point is cross-type at f/2.8.

AF Working Range
Center AF Point: EV -0.5 to 18*

Other AF Points: EV 0 to EV 18*

* At room temperature and ISO 100, based on Canon's testing standards

Focusing Modes
(1) Autofocus

- One-Shot AF
- Predictive AI Servo AF
- AI Focus AF
  *Switches between One-Shot AF and AI Servo AF

  (2) Manual focus

AF Point Selection
(1) Manual selection

(2) Auto selection

*Automatically set in Basic Zone modes.

Selected AF Point Display
Indicated by translucent liquid crystal display in the viewfinder and on the LCD monitor.

AF Assist Beam
Intermittent firing of built-in flash

Effective range: Approx. 13.1 ft. / 4.0m at center, approx. 11.5 ft. / 3.5m at periphery

* With an EOS-dedicated Speedlite attached, the Speedlite's AF-assist beam is emitted instead.

* Compatible with AF assist-beam (intermittent firing) of 320EX, 270EX II and 270EX flashes.

Exposure Control

Metering Modes

TTL maximum aperture metering with 63-zone metering sensor:

1. Evaluative metering (linked to all AF points)
2. Partial metering (center, approx. 7.7% of viewfinder)
3. Spot metering (center, approx. 3.0% of viewfinder)
4. Center-weighted average metering

Metering Range
EV 1-20 (at 73°F/23°C, ISO 100)

Exposure Control Systems

Creative Zone
(1) Program AE (shiftable)
(2) Shutter-priority AE
(3) Aperture-priority AE
(4) Manual exposure
(5) Bulb
(6) Custom shooting mode

Basic zone
(1) Scene Intelligent Auto (Program AE / non-shiftable)
(2) Flash OFF
(3) Creative Auto
(4) Special Scene

1) Portrait
2) Landscape
3) Close-up
4) Sports
5) Night Portrait
6) Handheld Night Scene
7) HDR Backlight Control

ISO Speed Range

For Stills:
Manual setting range of ISO 100-12800, expansion to ISO 25600 equivalent

Shooting Mode		ISO Settings
Auto, Flash OFF, Creative Auto		ISO 100-6400
Scene Modes	Portrait, Close-up, Sports, Night Portrait, HDR Backlight Control mode	ISO 100-6400
	Landscape	ISO 100-1600
	Handheld Night Scene	ISO 100-12800
P, Tv, Av, M		ISO 100-12800*[1]
B		ISO 400*[1]
With flash		ISO 400*[1, 2, 3, 4]

*[1]: Depends on the minimum and maximum of Auto ISO setting.
*[2]: If shooting in bright light results in overexposure, the ISO speed can be set as low as ISO 100.
*[3]: Auto, Night Portrait and Handheld Night Scene are excluded.
*[4]: If you use bounce flash with an external Speedlite in the Creative Auto, Portrait, Landscape, Close-up, Sports or P modes, the ISO speed is set automatically within ISO 400-1600.

Exposure Compensation

(1) Manual: ±5 stops in 1/3- or 1/2-stop increments
(2) AEB: ±3 stops in 1/3- or 1/2-stop increments

* Manual exposure compensation and AEB can be set in combination.
* AEB is set in the following sequence: Standard exposure, decreased exposure, and increased exposure. If AEB is used with the self-timer, three continuous shots will be taken regardless of the current drive mode.
* Number of bracketed shots: 2, 3, 5 or 7 settable with C.Fn.

AE Lock
(1) Auto AE lock

* In the One-Shot AF mode with evaluative metering, AE lock takes effect when focus is achieved.

(2) Manual AE lock

* Enabled with the AE lock button (Press again to update.) in all metering modes.

Shutter

Type
Vertical-travel, mechanical, focal-plane shutter with all speeds electronically controlled

Shutter Speeds
1/8000 to 30 sec., X-sync at 1/250 sec. (Total shutter speed range. Available range varies by shooting mode.)

Shutter Release
Soft-touch electromagnetic release

Self Timer
10-sec. or 2-sec. delay

Shutter Lag Time
(1) During SW-1 ON, time lag between SW-2 ON and start of exposure: Approx. 0.06 sec.

* About 0.1 sec. in case of silent shooting.

(2) Time lag between simultaneous SW-1/SW-2 ON and start of exposure: Approx. 0.14 sec.

* About 0.18 sec. in case of silent shooting.
* Time lag with the aperture stopped down by 3.5 stops or less (Excludes AF operation time).

Built in Flash

Type
Auto pop-up, retractable, built-in flash in the pentaprism

Guide Number
Approx. 39.4 ft./12m (at ISO 100)

Flash Coverage
Up to 17mm focal length (equivalent to approx. 27mm in 135 format)

Flash Exposure Compensation
Up to ±3 stops in 1/3- or 1/2-stop increments

External Speedlite

Flash Metering
E-TTL II autoflash (evaluative flash metering and average flash metering), FE lock

Flash Exposure Compensation
±3 stops in 1/3- or 1/2-stop increments

FE Lock
Provided

External Flash Settings
(1) External flash function setting

* Flash firing, E-TTL II auto flash system, flash mode, wireless master, zoom, sync setting, flash exposure compensation, FEB, and clear setting.

* With the 600EX-RT and ST-E3-RT, radio wireless transmission control is possible.

(2) External flash C.Fn setting

* The actual setting options for (1) and (2) will differ depending on the Speedlite used.

Drive System

Drive Modes
(1) Single shooting

(2) High-speed continuous shooting

(3) Low-speed continuous shooting

(4) Silent single shooting

(5) Silent continuous shooting

(6) 10-sec. self-timer/Remote control

(7) 2-sec. self-timer/Remote control

Continuous Shooting Speed
High-speed continuous shooting: Max. approx. 7.0 fps

* At 1/500 sec. or faster shutter speed, and at the maximum aperture (varies depending on the lens)

Low-speed continuous shooting: Max approx. 3.0 fps.

Silent continuous shooting: Max approx. 3.0 fps.

Maximum Burst

Based on 8GB memory Card:
JPEG Large/Fine: Approx. 40 Shots
RAW: Approx. 15 Shots
RAW+JPEG Large/Fine: 8 Shots

Based on 8GB UHS-I memory card:
JPEG Large/Fine: Approx. 65 Shots
RAW: Approx. 16 Shots
RAW + JPEG Large/Fine: 8 Shots
* Figures are based on Canon's testing standards (ISO 100 and Standard Picture Style).
* At ISO 12800, maximum burst will greatly decrease due to internal processing.

Live View Functions

Shooting Modes
Still photo shooting and video shooting

Focusing

(1) AF operation with Dual Pixel CMOS AF, One-shot AF

1. Face Detection plus Tracking AF
2. FlexiZone - Multi

    * 31 zones
    * AF at the touched zone

3. FlexiZone - Single

(2) TTL secondary image-forming, phase-difference detection with AF operation, One-shot AF

1. Manual selection: Single point AF
2. Manual selection: Zone AF
3. Auto selection: 19-point AF

    * Automatically set in Basic Zone modes
(3) Manual focus

    * Manual focusing by enlarging images by approx. 5 to 10 times

Metering Modes
Real-time evaluative metering with image sensor.
(1) Evaluative metering (315 zones)

(2) Partial metering (approx. 10.3% of Live View screen)

(3) Spot metering (approx. 2.6% of Live View screen)

(4) Center-weighted average metering
* AE lock possible. The active metering time can be changed.

Metering Range
EV 1-18 (with Dual Pixel CMOS AF at 73°F/23°C and ISO 100)

Grid Display
Three grids provided:
(1) Grid 1: 3 vertical and 3 horizontal lines

(2) Grid 2: 6 vertical and 4 horizontal lines

(3) Grid 3: 3 vertical and 3 horizontal lines + diagonal

Exposure Simulation
Provided

Silent Shooting
Provided (Mode 1 and Mode 2)

Video Shooting

File Format
MOV:

Movie: MPEG-4 AVC / H.264

* Variable (average) bit rate

Audio: Linear PCM

*Meta information is embedded in the MOV file (no separate THM file)

File Size
Recording Size:

[Full HD]

1920 x 1080 (30 fps/25fps/24fps):

235 MB/min. with IPB compression

685 MB/min. with All-I compression

[HD]

1280 x 720 (60 fps/50 fps):

205 MB/min. with IPB compression

610 MB/min. with All-I compression

[SD]

640 x 480 (30 fps/25 fps):

78 MB/min. with IPB compression

* If the file size exceed 4GB, a new file will be automatically created.
** See following section for actual frame rates.

Frame Rates
1920 x 1080 (Full HD): 30p (29.97) / 25p / 24p (23.976)

1280 x 720 (HD): 60p (59.94) / 50p

640 x 480 (SD): 30p (29.97) / 25p

Continuous Shooting Time
Based on 8GB Memory Card

[1920 x 1080]

30 fps / 25 fps / 24 fps:

32 min. with IPB compression

11 min. with All-I compression

[1280 x 720]

60 fps / 50 fps:

37 min. with IPB compression

12 min. with All-I compression

[640 x 480]

30 fps / 25 fps:

97 min. with IPB or All-I compression

* The maximum recording time is limited to 29 min. 59 sec.
** See Frame Rates section for actual frame rates

Focusing
Dual Pixel CMOS AF

(1) One-shot AF

(2) Servo AF

(3) Manual Focus
*Magnify the image by approx. 5x or approx. 10x and focus manually.

AF using AF point selection:

1. Face Detection plus Tracking AF
2. FlexiZone - Multi

   * 31 zones
   * AF at the touched zone

3. FlexiZone - Single

Exposure Control
(1) Program AE for movie shooting

* In Basic Zone modes, P, Av, and Tv modes
* Shutter speed 1/30 - 1/4000 sec. (Signal accumulation time), aperture, and ISO speed automatically set.

(2) Manual exposure

* Shutter speed (signal accumulation time), aperture, and ISO speed (auto/manual) manually set. The shutter speed (signal accumulation time) is limited to 1/4000 sec. at the maximum and to 1/30 sec. at the minimum for 24/25/30 fps or 1/60 sec. or higher for 50/60 fps.

Exposure Compensation

Provided (±3 stops in 1/3-stop increments)

* For movies, exposure compensation will not be applied beyond ±3 stops even if the exposure compensation has been set beyond ±3 stops.

* For still photo shooting, the exposure compensation can be set and applied up to ±5 stops.

LCD Monitor

Type
TFT color, liquid-crystal monitor with Touch Panel LCD (capacitive type)

Monitor Size
Wide 3.0-inch (Screen aspect ration of 3:2)
7.7cm diagonal (6.37cm wide, 4.25cm high)

Pixels
Approx. 1,040,000 dots

Coverage
Approx. 100%

Brightness Control
Adjustable to one of seven levels

Coating
Anti-smudge, anti-reflection coating

Interface Languages
25 (English, German, French, Dutch, Danish, Portuguese, Finnish, Italian, Norwegian, Swedish, Spanish, Greek, Russian, Polish, Czech, Hungarian, Romanian, Ukrainian, Turkish, Arabic, Thai, Simplified/Traditional Chinese, Korean, Japanese)

Tilt Display

On LCD Monitor

- Single image display
- Single image, basic information, detailed information, histogram
- Index display
- 4-image index, 9-image index
- Jump display
- 1/10/100 images, by date, by folder, movies only, stills only, by rating

Playback

Highlight Alert
With single-image display (Info.) and single-image display, overexposed highlight areas will blink

Histogram
Brightness / RGB

Quick Control Function

Items

When you press the Quick Control function button under the following conditions, you can set the functions below:
* The settable functions depend on the shooting mode.

1. Viewfinder shooting:

   Shutter speed, aperture, ISO speed, exposure compensation/ AEB, flash exposure compensation, Picture Style, White balance, White balance correction/White balance bracketing, Auto Lighting Optimizer, Metering mode, AF operation, Drive mode/Self-timer, image-recording quality, Flash firings, Ambience-based shots, Light/scene-based shots, Special scene modes, and wireless LAN connection.

2. Live View shooting:

   Scene Setting, AF method, Drive mode, Metering mode, Image-recording quality, White balance, Picture Style, Auto Lighting Optimizer, Creative Filters, Flash firing, Ambience-based shots, Light/scene-based shots, and Background blurring/sharpening.

3. Movie shooting:

   AF Method, Drive mode, Movie-recording size, Digital zoom, White Balance, Picture Style, Auto Lighting Optimizer and Video Snapshot.

When you press the Quick Control function button under the following conditions, you can set the functions below:

1. During still photo playback:

   Image protect, image rotate, rating, Creative Filters, resize, Cropping, and image jump with Main Dial

2. During movie playback:

   Image protect, rating, and image jump with Main Dial

Image Protection and Erase

Protection
Erase protection can be applied / canceled for a single image, all images in a folder, or all images on the card

Erase
Erase single image, erase selected images, erase all images in folder, erase all images on a card, or erase only unprotected images

Direct Printing

Compatible Printers
PictBridge-compatible printers

Printable Images
RAW, JPEG, and RAW+JPEG images complying to Design rule for Camera File System

* Movies cannot be printed.

DPOF: Digital Print Order Format

DPOF
Complies to DPOF Version 1.1

Direct Image Transfer

Compatible Images
Not Provided

Customization

Custom Functions
23 Custom Functions settable with camera

Custom Controls
The following camera controls can be customized by assigning the desired function: Shutter button halfway pressing, AF-ON button, AE lock button, Depth-of-field preview button, Lens AF Stop button, SET button, Main Dial, Quick Control Dial, and Multi-controller

My Menu Registration
Up to six items from top-tier menu options and Custom Function settings can be registered

Interface

USB Terminal

- For personal computer communication and PictBridge (Hi-Speed USB)

- Audio (stereo)/video (NTSC/PAL) output

- To connect a GP-E2 GPS Receiver
* When connected via interface cable, GP-E2 cannot be used with Wi-Fi® functions simultaneously.

*When GP-E2 is connected via hot shoe, Wi-Fi® functions and GP-E2 can be used simultaneously.

* PC communication and direct printing cannot be performed when Wi-Fi® functions are used.

Video Out Terminal
HDMI Type C (Switches automatically to suit the resolution)

Video output: 1080/60i, 1080/50i, 480/60p, 576/50p

*Switches automatically to 1, 2, 3, or 4 to suit the TV

Power Source

Battery
Battery Pack LP-E6 x1

*With the AC Adapter Kit ACK-E6, AC power is possible.

*With Battery Grip BG-E14, it is possible to use two Battery Pack LP-E6 units.

Number of Shots

Temperature	Shooting Conditions	
	AE 100%	50% use of built-in flash
At 73° F/23° C	approx. 1000	approx. 800
At 32° F/0° C	approx. 900	approx. 750
Live View shooting at 73°F/23°C	approx. 230	approx. 220
Live View shooting at 32°F/0°C	approx. 220	approx. 210

Battery Life

(1) Camera Body Only, LP-E6 x1

Shooting Method	Temperature	Possible Shots (Approx.)	
		AE 100%	AE 50%, FA 50%
Viewfinder Shooting	73°F / 23°C	1300	920
	32°F / 0°C	1200	850
Live View Shooting	73°F / 23°C	230	210
	32°F / 0°C	210	200

(2) Using Battery Grip BG-E14

Shooting Method	Power Source	Temperature	Possible Shots (Approx.)	
			AE 100%	AE 50%, FA 50%
Shooting	LP-E6 x1	Same as (1)		
	LP-E6 x2	73°F /23°C	2600	1840
		32°F / 0°C	2400	1700
	Size-AA/LR6 Alkaline Batteries	73°F / 23°C	490	320
		32°F / 0°C	90	50
Live View Shooting	LP-E6 x1	Same as (1)		
	LP-E6 x2	73°F / 23°C	460	420
		32°F / 0°C	420	400
		73°F / 23°C	-	-

	Size-AA/LR6 Alkaline Batteries	32°F / 0°C	-	-

Battery Check
Automatic battery level check when power is turned ON

Battery level indicated in 6 levels.

Power Saving
Power turns off after the set time of non-operation elapses

*[Auto power off] settable to 1 min., 2 min., 4 min., 8 min., 15 min., 30 min., or disable

Date/Time Battery
Built-in secondary battery

It is not replaceable by the user. It recharges when LP-E6 is loaded or when the AC adapter is connected. Without any recharging, the backup battery can maintain the date/time for approx. 3 months. The backup battery taxes approx. 8 hours to be fully recharged.

Start-up Time
Approx. 0.15 sec. (Based on CIPA testing standards)

Dimensions and Weight

Dimensions (W x H x D)
Approx. 5.5 x 4.1 x3.1 in.

Approx. 139.0 x 104.3 x 78.5mm

Weight
Approx. 26.7 oz. / 755g (W Model: CIPA standard)
Approx. 23.8 oz. / 675g (W Model: Body only)

Operating Environment

Working Temperature Range
32-104°F/0-40°C

Working Humidity Range
85% or less