

- **Metrics**

Dimensions (W x H x D) 115.0 x 66.2 x 64.2 mm (4.53 x 2.61 x 2.53 inch)

Weight Approx. 392 g with Battery and SD Memory Card (0.86 lb)

Approx. 350 g without Battery and SD Memory Card (0.77 lb)

- **Optics**

Pixels

Camera Effective Pixels 17 Megapixels

Sensor

Sensor Size / Total Pixels / Filter 4/3-inch High Sensitivity MOS Sensor / 21.77 Total Megapixels / Primary Color Filter

Lens

Aperture F1.7 - 2.8 / 9 Diaphragm Blades (F1.7 - 16.0 (W), F2.8 - 16.0 (T))

Optical Zoom 3.1x

Focal Length f = 10.9 - 34mm

(24 - 75mm in 35mm equiv. in 4:3, 3:2, 16:9)

(28 - 88mm in 35mm equiv. in 1:1)

(32 - 100mm in 35mm equiv. in 4:3 in 4K PHOTO)

(31 - 97mm in 35mm equiv. in 3:2 in 4K PHOTO)

(30 - 94mm in 35mm equiv. in 16:9 in 4K PHOTO / 4K video recording)

(34 - 106mm in 35mm equiv. in 1:1 in 4K PHOTO)

Extra Optical Zoom (EZ) 4.3x (4:3 / 8.5M (M)), 6.2x (4:3 / 4M (S))

Intelligent Zoom 6.2x

Lens LEICA DC VARIO-SUMMILUX

11 elements in 8 groups

(5 aspherical lenses / 8 aspherical surfaces / 2 dual-sided aspherical surface ED lenses)

Optical Image Stabilizer POWER O.I.S.

Digital Zoom Max. 4x (When Digital Zoom is used simultaneously with Intelligent Zoom, you can only increase the zoom ratio up to 2x.)

Focus

Focusing Area Normal: Wide 50 cm - infinity

AF Macro / MF / Intelligent Auto / Motion Picture: Wide 3 cm - infinity / Tele 30 cm - infinity

AF Assist Lamp Yes (On / Off)

Focus AF* / AF Macro* / MF *Each available with AFS (Single) / AFF (Flexible) / AFC (Continuous)

Quick AF, Continuous AF (during motion picture recording), Touch AF/AE Function, Touch Shutter, Eye Sensor AF,

Touch Pad AF, MF Assist, Touch MF Assist, AF+MF, Focus Peaking, One Shot AF (Set the Fn button in custom menu to AF-ON), Low Light AF, Starlight AF

Post Focus Yes

Focus Stacking Yes

AF Metering Face/Eye Detection / Tracking / 49-area / Custom Multi / 1-area / Pinpoint (Full area touch is available)

Shutter

Shutter Speed [Still Image] Approx. 60 - 1/4,000 sec (Mechanical Shutter)

Approx. 1 - 1/16,000 sec (Electronic Shutter)

Time (Approx. 30 min)

Shutter Speed [Motion Picture] Approx. 1/30 - 1/16,000 sec

Approx. 1/25 - 1/16,000 sec (in 24p recording)

Approx. 1/2 - 1/16,000 sec (Video M Mode / MF Mode)

- **Recording**

File

File Format Still Image: JPEG (DCF/Exif2.31) / RAW

4K PHOTO: MP4

Motion Picture: AVCHD Progressive, AVCHD (Audio format: Dolby Audio 2ch), MP4 (Audio format: AAC 2ch)

Recording Modes

Recording Mode Intelligent Auto (by iA Button)

P, A, S, M (by Aperture Ring and Shutter Speed Dial)

Filter Expressive / Retro / Old Days / High Key / Low Key / Sepia / Monochrome / Dynamic Monochrome / Rough Monochrome* / Silky Monochrome* / Impressive Art / High Dynamic / Cross Process / Toy Effect / Toy Pop / Bleach Bypass / Miniature Effect / Soft Focus* / Fantasy / Star Filter* / One Point Color / Sunshine* (22 filters) *For photos only.

Burst Shooting Mode (Approx.) [AFS] H: 11 frames/sec, M: 7 frames/sec (with Live View), L: 2 frames/sec (with Live View)

[AFF/AFC] H: 5.5 frames/sec, M: 5.5 frames/sec (with Live View), L: 2 frames/sec (with Live View)

4K Photo Mode (*2) 4K Burst: 30 frames/sec, max. 15 min

4K Burst (S/S): 30 frames/sec, max. 15 min

4K Pre-Burst: 30 frames/sec, approx. 2 sec

Exif Information: Yes (Each JPEG image cropped out of the 4K burst file complies with EXIF.)

Auto Marking Function: Auto / Face Priority / Motion Priority (in 4K Burst mode and 4K Burst (S/S) mode)

Motion Picture Recording (2)

MP4 [4K] 3840x2160 4K/30p: 100Mbps

[4K] 3840x2160 4K/24p: 100Mbps

[Full HD] 1920x1080 FHD/60p: 28Mbps

[Full HD] 1920x1080 FHD/30p: 20Mbps

[HD] 1280x720 HD/30p: 10Mbps

AVCHD [Full HD] 1920x1080 FHD/60p: 28Mbps, 60p recording

[Full HD] 1920x1080 FHD/60i: 17Mbps, 60i recording

[Full HD] 1920x1080 FHD/30p: 24Mbps, 60i recording (sensor output is 30fps)

[Full HD] 1920x1080 FHD/24p: 24Mbps, 24p recording

Continuous Recordable Time (Motion Pictures) (2)

MP4 4K/30p: Approx. 70 min

FHD/60p: Approx. 80 min

AVCHD FHD/60p: Approx. 90 min (rear monitor), 80 min (LVF)

FHD/60i: Approx. 90 min (rear monitor), 80 min (LVF)

Actual recordable Time (Motion Pictures) (2)

MP4 4K/30p: Approx. 35 min

FHD/60p: Approx. 40 min

AVCHD FHD/60p: Approx. 45 min (rear monitor), 40 min (LVF)

FHD/60i: Approx. 45 min (rear monitor), 40 min (LVF)

Exposure Parameters

Exposure Program AE, Aperture Priority AE, Shutter Priority AE, Manual

Exposure Compensation 1/3 EV step, +/-5 EV (when set with the control ring / touch menu) (+/-3 EV for motion picture / 4K PHOTO), +/-3 EV (when set with the dial)

Light Metering Intelligent Multiple / Center Weighted / Spot

ISO Sensitivity Still Image: Auto / i.i.ISO / 100* / 200 / 400 / 800 / 1600 / 3200 / 6400 / 12800 / 25600 *Extended ISO

Motion Picture: Auto / 100* / 200 / 400 / 800 / 1600 / 3200 / 6400 *Extended ISO

(Changeable to 1/3 EV step)

Picture Quality

Still Picture Recording 4:3 4736x3552 (17M) (L) / 3360x2520 (8.5M) (M) / 2368x1776 (4M) (S)

3:2 4928x3288 (16M) (L) / 3504x2336 (8M) (M) / 2496x1664 (4M) (S)

16:9 5152x2904 (15M) (L) / 3840x2160 (8M) (M) / 1920x1080 (2M) (S)

1:1 3552x3552 (12.5M) (L) / 2528x2528 (6.5M) (M) / 1776x1776 (3M) (S)

Image Quality RAW / RAW+Fine / RAW+Standard / Fine / Standard

White Balance AWB / AWBc / Daylight / Cloudy / Shade / Incandescent / Flash / White Set 1, 2, 3, 4 / Color Temperature Setting

(2-axis adjustable)

Photo Style Standard, Vivid, Natural, Monochrome, L. Monochrome, L. Monochrome D, Scenery, Portrait, Custom

Picture Adjustment Contrast, Sharpness, Noise Reduction, Saturation*, Color Tone**, Filter Effect**, Grain Effect**

*Except for Monochrome mode. **For Monochrome mode only.

Bracket

Aspect Bracket Yes

AE Bracket 3, 5, 7 images in 1/3, 2/3 or 1 EV step, Max. +/-3 EV

Aperture Bracket 3, 5 or all positions in 1 EV step

Focus Bracket 1 to 999 images, focus steps can be set in 10 levels

White Balance Bracket 3 images in blue/amber axis or in magenta/green axis

Other

Digital Red Eye Correction (Red-Eye Removal) Yes (On / Off)

Wi-Fi IEEE 802.11b/g/n

2412 MHz - 2462 MHz (1-11 ch)

WPA / WPA2

Infrastructure Mode / WPS

Bluetooth Bluetooth® v4.2 (Bluetooth Low Energy (BLE))

Self Timer 2 sec / 10 sec / 10 sec (3 images)

• Playback

Display

Playback Mode All, Picture Only, Video Only, Slideshow (All / Picture Only / Video Only, duration & effect is selectable), Calendar

Thumbnails / Zoomed Playback 12,30-thumbnails / Yes

Rating / Rotate Image / Protect Yes / Yes / Yes

Show Histogram/ Show Highlights Yes / Yes

Edit

Retouch Clear Retouch

Image Composition Light Composition, Sequence Composition

Creating a Motion Picture from Still Pictures Time Lapse Video, Stop Motion Video

RAW Processing Yes

Resize/ Cropping Yes / Yes

Title Edit / Text Stamp Yes / Yes

Video Divide Yes

Direct Print PictBridge compatible

• **Setup**

OSD language Japanese, English, German, French, Italian, Spanish, Polish, Chinese (Traditional)

• **Others**

Finder

Viewfinder 0.38" LVF (Live View Finder) (2,760k dots equiv.), Field of View: Approx. 100%

Magnification: Approx. 0.7x (35 mm camera equivalent)

Monitor

LCD Monitor 3.0" (7.5cm) TFT Screen LCD Display (1240k dots)

Static Touch Control

Field of View: Approx. 100%, AF Coating

Flash

Flash (Bundled) GN7 ISO100 · m / GN10 ISO200 · m

Auto*, Auto/Red-eye Reduction*, Forced On, Forced On/Red-eye Reduction, Slow Sync., Slow Sync./Red-eye Reduction, Forced Off *For iA, iA+ mode only.

Flash Synchro: 1st / 2nd Slow Sync.

Synchronization for flash dimming and exposure compensation

0.6 - 14.1m (Wide / ISO Auto), 0.3 - 8.5m (Tele / ISO Auto)

Media

Recording Media SD Memory Card, SDHC Memory Card, SDXC Memory Card

(Compatible with UHS-I UHS Speed Class 3 standard SDHC / SDXC Memory Cards)

Built-in Memory -

Audio

Microphone / Speaker Stereo / Mono

Interface

Interface microHDMI typeD (*3), USB2.0 Micro-B

Power

Power Li-ion Battery Pack (7.2V, 1025mAh, 7.4 Wh) (Included)

USB power charging

Battery life (Approx.) Approx. 340 images (rear monitor), 270 images (LVF), 320 images (LVF eco30fps setting) (when not using flash) Approx. 300 images (rear monitor), 240 images (LVF), 280 images (LVF eco30fps setting) (when using flash, CIPA Standard) (*1)

Standard Package

Included Software · The software to edit and playback images on computer is not bundled with this camera. To do this, PHOTOfunSTUDIO is available for download at Panasonic website using computer connected to the Internet.

http://panasonic.jp/support/global/cs/soft/download/d_pfs10ae.html (For Windows)

· The software to process RAW file on computer is not bundled with this camera. To do this, SILKYPIX Developer Studio is available for download at Ichikawa Soft Laboratory's website using computer connected to the Internet.

<http://www.isl.co.jp/SILKYPIX/english/p/> (For Windows / Mac)

Standard Accessories Battery Pack, AC Adaptor, USB Cable, Lens Cap, Lens Cap String, Hot Shoe Cover, External Flash, Flash Storage Bag, Shoulder Strap

· Operating Instructions for advanced features is available for downloaded at Panasonic LUMIX Customer Support Site using PC, smartphone or tablet connected to the Internet.

• **NOTES**

NOTE *1 Recording conditions by CIPA standard

- Temperature: 23 °C (73.4 °F) / Humidity: 50%RH when monitor is on.
- Using a Panasonic SDHC Memory Card
- Using the supplied battery.
- Starting recording 30 seconds after the camera is turned on. (When the optical image stabilizer function is set to [ON].)
- Recording once every 30 seconds with full flash every second recording.
- Rotating the zoom lever from Tele to Wide or vice versa in every recording.
- The number of recordable pictures varies depending on the recording interval time.
- If the recording interval time becomes longer, the number of recordable pictures decreases.
- CIPA is an abbreviation of [Camera & Imaging Products Association].

*2 - Use a card with SD Speed Class with "Class 4" or higher when recording motion pictures.

- Use a card with SD Speed Class with "UHS-I Speed Class 3 (U3)" when recording motion pictures with [MP4] in [4K] or [4K PHOTO].

(SD speed class is the speed standard regarding continuous writing.)

- Recording stops when the continuous recording time exceeds 29 minutes and 59 seconds with [AVCHD].
- Recording stops when the continuous recording time exceeds 15 minutes with [MP4] in [4K].
- When using an SDHC memory card: You can continue recording without interruption even if the file size exceeds 4 GB, but the motion picture file will be divided and recorded/played back separately.
- When using an SDXC memory card: You can record a motion picture in a single file.
- Recording stops when the continuous recording time exceeds 29 minutes and 59 seconds with [MP4] in [FHD] and [HD].

You can continue recording without interruption even if the file size exceeds 4 GB, but the motion picture file will be divided and recorded/played back separately.

- These are standard times taken at a temperature of 23 °C (73.4 °F) and a humidity of 50%RH.
 - The time available for recording varies depending on the environment, the interval between recordings, and the manner of use.
 - Actual recordable time is the time available for recording when repeating actions such as switching the power supply [ON] / [OFF], starting/stopping recording, zoom operation etc.
- *3 For [4K] video output, use an HDMI cable that has the HDMI logo on it, and that is described as "4K compatible".

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