



Clifton Cameras Product Specification

Panasonic Lumix DC-TZ90 Digital Camera

Specifications

Metrics

Dimensions (W x H x D):	112.0 x 67.3 x 41.2 mm/(4.41 x 2.65 x 1.62 inch)
Weight:	Approx. 322 g with Battery and SD Memory Card (0.71 lb)/Approx. 280 g without Battery and SD Memory Card (0.62 lb)

Pixels

Camera Effective Pixels:	20.3 Megapixels
--------------------------	-----------------

Sensor

Sensor Size / Total Pixels / Filter:	1/2.3-type High Sensitivity MOS Sensor / 21.1 Total Megapixels / Primary Colour Filter
--------------------------------------	--

Lens

Aperture:	F3.3 - 6.4 / Multistage Iris Diaphragm (F3.3 - 8.0 (W), F6.4 - 8.0 (T))
Optical Zoom:	30x
Focal Length:	f = 4.3 - 129mm/(24 - 720mm in 35mm equiv. in 4:3)/(25 - 750mm in 35mm equiv. in 3:2)/(26 - 780mm in 35mm equiv. in 16:9)/(28 - 840mm in 35mm equiv. in 1:1)/(35 - 1050mm in 35mm equiv. in 4K PHOTO recording)/(35 - 1050mm in 35mm equiv. in 4K video recording)/(26 - 780mm in 35mm equiv. in 16:9 video recording / O.I.S. Off / Level Shot function Off)/(28 - 840mm in 35mm equiv. in 16:9 video recording / O.I.S. On / Level Shot function Off)/(30 - 900mm in 35mm equiv. in 16:9 video recording / O.I.S. On / Level Shot function On)
Extra Optical Zoom (EZ):	41.8x (4:3 / 10M (M)), 59.2x (4:3 / 5M (S))
Intelligent Zoom:	60x
Lens:	LEICA DC VARIO-ELMAR/12 elements in 9 groups/(5 Aspherical Lenses / 10 Aspherical surfaces)
Optical Image Stabilizer:	5-Axis HYBRID O.I.S. +*/5-Axis compensation works in video recording except for 4K video or high-speed video recording.
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 / Tele 200 cm - infinity/AF Macro / MF / Intelligent Auto / Motion Picture: Wide 3 cm - infinity / Tele 200 cm - infinity
----------------	---



AF Assist Lamp:	Yes (On / Off)
Focus:	AF / AF Macro / Macro Zoom * 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
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. 4 - 1/2,000 sec (Mechanical Shutter)/Approx. 1 - 1/16,000 sec (Electronic Shutter)/Artistic Nightscape (Approx. 30 sec)
Shutter Speed [Motion Picture]:	Approx. 1/25 - 1/16,000 sec/Approx. 1/2 - 1/16,000 sec (Creative Video M Mode / MF Mode)

Finder

Viewfinder:	0.20" LVF (Live View Finder) (1,166k dots equiv.), Field of View: Approx. 100%, Lens 19.6x/Magnification: Approx. 2.59x / 0.46x (35 mm camera equivalent)
-------------	---

File

File Format:	Still Image: JPEG (DCF/Exif2.3) / RAW, DPOF/Motion Picture: AVCHD Progressive, AVCHD, MP4
--------------	---

Recording Modes

Mode Dial:	Intelligent Auto, P, A, S, M, Creative Video, C (Custom), Panorama Shot, Scene Guide, Creative Control
Creative Control mode:	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)
Still Image Scene Guide:	Clear Portrait, Silky Skin, Backlit Softness, Clear in Backlight, Relaxing Tone, Sweet Child's Face, Distinct Scenery, Bright Blue Sky, Romantic Sunset Glow, Vivid Sunset Glow, Glistening Water, Clear Nightscape, Cool Night Sky, Warm Glowing Nightscape, Artistic Nightscape, Glittering Illuminations, Handheld Night Shot, Clear Night Portrait, Soft Image of a Flower, Appetizing Food, Cute Dessert, Freeze Animal Motion, Clear Sports Shot, Monochrome
Continuous Shooting Mode (Approx.):	[AFS] H: 10 frames/sec, M: 5 frames/sec (with Live View), L: 2 frames/sec (with Live View)/[AFC] H: 5 frames/sec, M: 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/Marking Function: Yes (in 4K Burst (S/S) mode)

Motion Picture Recording (*2)



4K Video:	3840 x 2160 pixels, 30p (4K: 100Mbps / MP4) (Sensor Output is 30fps) (AAC)/3840 x 2160 pixels, 25p (4K: 100Mbps / MP4) (Sensor Output is 25fps) (AAC)
HD Video:	1920 x 1080 pixels, 50p (FHD: 28Mbps / AVCHD) (Sensor Output is 50fps) (Dolby)/1920 x 1080 pixels, 50i (FHD: 24Mbps / AVCHD) (Sensor Output is 25fps) (Dolby)/1920 x 1080 pixels, 50i (FHD: 17Mbps / AVCHD) (Sensor Output is 50fps) (Dolby)/1920 x 1080 pixels, 60p (FHD: 28Mbps / MP4) (Sensor Output is 60fps) (AAC)/1920 x 1080 pixels, 50p (FHD: 28Mbps / MP4) (Sensor Output is 50fps) (AAC)/1920 x 1080 pixels, 30p (FHD: 20Mbps / MP4) (Sensor Output is 30fps) (AAC)/1920 x 1080 pixels, 25p (FHD: 20Mbps / MP4) (Sensor Output is 25fps) (AAC)/1280 x 720 pixels, 30p (HD: 10Mbps / MP4) (Sensor Output is 30fps) (AAC)/1280 x 720 pixels, 25p (HD: 10Mbps / MP4) (Sensor Output is 25fps) (AAC)
High Speed Video:	1280 x 720 pixels, 25p (HD: MP4) (Sensor Output is 100fps)/640 x 480 pixels, 25p (VGA: MP4) (Sensor Output is 200fps)

Continuous Recordable Time (Motion Pictures) (*2)

AVCHD:	FHD/50p: Approx. 100 min/FHD/50i: Approx. 100 min
MP4:	4K/30p, 4K/25p: Approx. 90 min/FHD/60p, FHD/50p: Approx. 100 min

Actual recordable Time (Motion Pictures) (*2)

AVCHD:	FHD/50p: Approx. 50 min/FHD/50i: Approx. 50 min
MP4:	4K/30p, 4K/25p: Approx. 45 min/FHD/60p, FHD/50p: Approx. 50 min

Exposure Parameters

Exposure:	Program AE, Aperture Priority AE, Shutter Priority AE, Manual
Exposure Compensation:	1/3 EV step, +/-5 EV (+/-3 EV for motion picture)
Light Metering:	Intelligent Multiple / Center Weighted / Spot
ISO Sensitivity:	Still Image: Auto / i.ISO / 80 / 100 / 200 / 400 / 800 / 1600 / 3200 / 6400 (Extended ISO)/Motion Picture: Auto / 80 / 100 / 200 / 400 / 800 / 1600 / 3200/(Changeable to 1/3 EV step)

Picture Quality

Still Picture Recording:	5184x3888 (20M) (L) / 3712x2784 (10M) (M) / 2624x1968 (5M) (S)/5184x3456 (17M) (L) / 3712x2480 (9M) (M) / 2624x1752 (4.5M) (S)/5184x2920 (14.5M) (L) / 3840x2160 (8M) (M) / 1920x1080 (2M) (S)/3888x3888 (14.5M) (L) / 2784x2784 (7.5M) (M) / 1968x1968 (3.5M) (S)
Image Quality:	RAW / RAW+Fine / RAW+Standard / Fine / Standard
White Balance:	Auto / Daylight / Cloudy / Shade / Incandescent / Flash / White Set1 / White Set2 / White Set3 / White Set4 / Color Temperature/(2-axis adjustable)
Photo Style:	Standard, Vivid, Natural, Monochrome, Scenery, Portrait, Custom
Picture Adjustment:	Contrast, Sharpness, Noise Reduction, Saturation*/* Except for Monochrome mode.

Self Shot:



Self Shot Mode: Yes (Single, Self timer: 1, 2, 3 or 4 images, 4K PHOTO, Panorama)

Shutter: Shutter Button, Touch, Face Shutter, Buddy Shutter

Effect: Soft Skin: 10 levels, Filter Select: Expressive / Retro / High Key / Monochrome / Toy Effect, Background Control: Defocus / Clear, Slimming Mode: 10 levels

Bracket

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

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

Other

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

GPS: -

Wi-Fi: IEEE 802.11b/g/n/2412 MHz - 2462 MHz (1-11 ch)/WPA / WPA2/Infrastructure Mode / WPS

NFC: -

Zoom in Motion Picture: Yes

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

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

Set Favorites / Rotate Image: Yes / Yes

Show Histogram/ Show Highlights: Yes / Yes

DPOF Print Setting / Set Protection: Yes / Yes

Edit

Retouch: Beauty Retouch, Clear Retouch

RAW Processing: Yes

Resize/ Cropping: Yes / Yes

Title Edit / Text Stamp: Yes / Yes

Video Divide: Yes

PictBridge Support: Single / Multi / All / DPOF / Favorites

Setup



OSD language: Japanese, English, German, French, Italian, Spanish

Monitor

LCD Monitor: 7.5cm (3.0") TFT Screen LCD Display (1040k dots), Tilttable monitor/Static Touch Control/Field of View: Approx. 100%, Wide Viewing-angle, AF Coating

Flash

Built-in Flash: 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./0.6 - 5.6m (Wide / ISO Auto), 2.0 - 2.9m (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. 380 images (rear monitor), 250 images (LVF) (*1)

Standard Package

Included Software:

- The software to process RAW file on PC is not bundled with this camera. To do this, SILKYPIX Developer Studio is available for download at Ichikawa Soft Laboratory's website using PC connected to the Internet./
- The Operating Instructions for advanced features is available for download at Panasonic LUMIX Customer Support Site using PC, smartphone or tablet connected to the Internet./
- The software for PC is not bundled with this camera. Please use the software pre-installed to the PC or other general image viewing software to browse pictures.

Standard Accessories: Battery Pack, AC Adaptor, USB Cable, Hand Strap

NOTE *1

NOTE Recording conditions by CIPA standard

NOTE - Temperature: 23 °C (73.4 °F) / Humidity: 50%RH when monitor is on.

NOTE - Using a Panasonic SDHC Memory Card

NOTE - Using the supplied battery.



- NOTE - Starting recording 30 seconds after the camera is turned on. (When the optical image stabilizer function is set to [ON].)
- NOTE - Recording once every 30 seconds with full flash every second recording.
- NOTE - Rotating the zoom lever from Tele to Wide or vice versa in every recording.
- NOTE - The number of recordable pictures varies depending on the recording interval time.
- NOTE - If the recording interval time becomes longer, the number of recordable pictures decreases.
- NOTE - CIPA is an abbreviation of [Camera & Imaging Products Association].
- NOTE *2
- NOTE - Use a card with SD Speed Class with "Class 4" or higher when recording motion pictures.
- NOTE - 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.)
- NOTE - Recording stops when the continuous recording time exceeds 29 minutes and 59 seconds with [AVCHD].
- NOTE - Recording stops when the continuous recording time exceeds 15 minutes with [MP4] in [4K].
- NOTE - 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.
- NOTE - When using an SDXC memory card: You can record a motion picture in a single file.
- NOTE - Recording stops when the continuous recording time exceeds 29 minutes and 59 seconds with [MP4] in [FHD] [HD] and High Speed motion pictures.
- NOTE 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.
- NOTE - These are standard times taken at a temperature of 23 oC (73.4 oF) and a humidity of 50%RH.
- NOTE - The time available for recording varies depending on the environment, the interval between recordings, and the manner of use.
- NOTE - 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.
- NOTE *3
- NOTE For [4K] video output, use an HDMI cable that has the HDMI logo on it, and that is described as "4K compatible".