LUMIX Digital Camera DC-FZ80

Metrics		Dimensions (W x H x D)	130.2 x 94.3 x 119.2 mm
		Dimensions (W x H x D)	(5.13 x 3.71 x 4.69 inch)
		Weight	Approx. 616 g with Battery and SD Memory Card (1.36 lb)
		Weight	Approx. 572 g without Battery and SD Memory Card (1.26 lb)
Optics	Pixels	Camera Effective Pixels	18.1 Megapixels
	Sensor	Sensor Size / Total Pixels / Filter	1/2.3-inch High Sensitivity MOS Sensor / 18.9 Total Megapixels / Primary Colour Filter
	Lens	Aperture	F2.8 - 5.9 / Multistage Iris Diaphragm (F2.8 - 8.0 (W), F5.9 - 8.0 (T))
		Optical Zoom	60x
		Focal Length	f = 3.58 - 215mm
		Focal Length	(20 - 1200mm in 35mm equiv. in 4:3)
		Focal Length	(21 - 1260mm in 35mm equiv. in 3:2)
		Focal Length	(22 - 1320mm in 35mm equiv. in 16:9)
		Focal Length	(23 - 1380mm in 35mm equiv. in 1:1)
		Focal Length	(28 - 1680mm in 35mm equiv. in 4K PHOTO recording)
		Focal Length	(28 - 1680mm in 35mm equiv. in 4K video recording)
		Focal Length	(22 - 1320mm in 35mm equiv. in FHD / HD video recording)
		Extra Optical Zoom (EZ)	84x (4:3 / 9M (M)), 122x (4:3 / 4.5M (S))
		Intelligent Zoom	120x
		Lens	LUMIX DC VARIO
		Lens	14 elements in 12 groups
		Lens	(6 aspherical lenses / 9 aspherical surfaces / 3 ED lenses)
		Optical Image Stabiliser	POWER O.I.S. (On with Active Mode (only for motion picture) / Off)

		Digital Zoom	Max. 4x (When Digital Zoom is used simultaneously with Intelligent Zoom, you can only increase the zoom ratio up to 2x.)
		Conversion Lens Compatibility	Yes
	Focus	Focusing Area	Normal: Wide 30 cm - infinity / Tele 150 cm - infinity
		Focusing Area	AF Macro / MF / Intelligent Auto / Motion Picture: Wide 1 cm - infinity / Tele 150 cm - infinity
		AF Assist Lamp	Yes (On / Off)
		Focus	AF / AF Macro / Macro Zoom * Each available with AFS (Single) / AFF (Flexible) / AFC (Continuous)
		Focus	Quick AF, Continuous AF (during motion picture recording), Touch AF/AE Function, Touch Pad AF, Touch Shutter, 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
		AF Metering	(Full area touch is available)
	Shutter	Shutter Speed [Still Image]	Still Image:
		Shutter Speed [Still Image]	Approx. 4 - 1/2,000 sec (Mechanical Shutter)
		Shutter Speed [Still Image]	Approx. 1 - 1/16,000 sec (Electronic Shutter)
		Shutter Speed [Still Image]	Artistic Nightscape (Approx. 60 sec)
		Shutter Speed [Motion Picture]	Motion Picture:
		Shutter Speed [Motion Picture]	Approx. 1/25 - 1/16,000 sec
		Shutter Speed [Motion Picture]	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
		Viewfinder	Magnification: Approx. 2.59x / 0.46x (35 mm camera equivalent)
Recording	File	File Format	Still Image: JPEG (DCF/Exif2.3) / RAW, DPOF

		File Format	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 Colour, 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: 6 frames/sec (with Live View), L: 2 frames/sec (with Live View)
		Continuous Shooting Mode (Approx.)	[AFC] H: 6 frames/sec, M: 6 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 Photo Mode (*2)	4K Burst (S/S): 30 frames/sec, max. 15 min
		4K Photo Mode (*2)	4K Pre-Burst: 30 frames/sec, approx. 2 sec
		4K Photo Mode (*2)	(Depending on memory card size and battery power)
		4K Photo Mode (*2)	Exif Information: Yes
		4K Photo Mode (*2)	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)
		4K Video	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)
		HD Video	1920 x 1080 pixels, 50i (FHD: 24Mbps / AVCHD) (Sensor Output is 25fps) (Dolby)
		HD Video	1920 x 1080 pixels, 50i (FHD: 17Mbps / AVCHD) (Sensor Output is 50fps) (Dolby)
		HD Video	1920 x 1080 pixels, 60p (FHD: 28Mbps / MP4) (Sensor Output is 60fps) (AAC)
		HD Video	1920 x 1080 pixels, 50p (FHD: 28Mbps / MP4) (Sensor Output is 50fps) (AAC)
		HD Video	1920 x 1080 pixels, 30p (FHD: 20Mbps / MP4) (Sensor Output is 30fps) (AAC)

	HD Video	1920 x 1080 pixels, 25p (FHD: 20Mbps / MP4) (Sensor Output is 25fps) (AAC)
	HD Video	1280 x 720 pixels, 30p (HD: 10Mbps / MP4) (Sensor Output is 30fps) (AAC)
	HD Video	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)
	High Speed Video	640 x 480 pixels, 25p (VGA: MP4) (Sensor Output is 200fps)
Continuous Recordable Time (Motion Pictures) (*2)	AVCHD	FHD/60p, FHD/50p: Approx. 100 min
	AVCHD	FHD/60i, FHD/50i: Approx. 100 min
	MP4	4K/30p, 4K/25p: Approx. 80 min
	MP4	FHD/60p, FHD/50p: Approx. 100 min
Actual recordable Time (Motion Pictures) (*2)	AVCHD	FHD/60p, FHD/50p: Approx. 50 min
	AVCHD	FHD/60i, FHD/50i: Approx. 50 min
	MP4	4K/30p, 4K/25p: Approx. 40 min
	MP4	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 / Centre Weighted / Spot
	ISO Sensitivity	Still Image: Auto / i.ISO / 80 / 100 / 200 / 400 / 800 / 1600 / 3200 / 6400 (Extended ISO)
	ISO Sensitivity	Motion Picture: Auto / 80 / 100 / 200 / 400 / 800 / 1600 / 3200
	ISO Sensitivity	(Changeable to 1/3 EV step)
Picture Quality	Still Picture Recording	4896x3672 (18M) (L) / 3456x2592 (9M) (M) / 2400x1800 (4.5M) (S)
	Still Picture Recording	4896x3264 (16M) (L) / 3456x2304 (8M) (M) / 2400x1600 (4M) (S)
	Still Picture Recording	4896x2752 (13.5M) (L) / 3840x2160 (8M) (M) / 1920x1080 (2M) (S)
	Still Picture Recording	3664x3664 (13.5M) (L) / 2592x2592 (7M) (M) / 1824x1824 (3.5M) (S)
	Image Quality	RAW / RAW+Fine / RAW+Standard / Fine / Standard
	White	Auto / Daylight / Cloudy / Shade / Incandescent / Flash / White Set1 / White Set2 / White Set3 / White

		Balance	Set4 / Colour Temperature
		White Balance	(2-axis adjustable)
		Photo Style	Standard, Vivid, Natural, Monochrome, Scenery, Portrait, Custom
		Picture Adjustment	Contrast, Sharpness, Noise Reduction, Saturation*, Colour Tone**, Filter Effect**
		Picture Adjustment	* Except for Monochrome mode. ** For Monochrome mode only.
	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
		Wi-FI	2412 MHz - 2462 MHz (1-11 ch)
		Wi-FI	WPA / WPA2
		Wi-FI	Infrastructure Mode / WPS
		NFC	-
		Zoom in Motion Picture	Yes
		Self Timer	2 sec / 10 sec / 10 sec (3 images)
Playback	Display	Playback Mode	All, Slideshow, Filtering Play (Picture Only, Video Only, 4K PHOTO, Post Focus, Category Selection, Favourite), Calendar
		Thumbnails / Zoomed Playback	12,30-thumbnails / Yes
		Set Favourites / Rotate Image	Yes / Yes
		Show Histogram/ Show Highlights	Yes / Yes
		DPOF Print Setting / Set	Yes / Yes

		Protection	
	Edit	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 / Favourites
Setup		OSD language	Japanese, English, German, French, Italian, Spanish, Chinese (Traditional), Chinese (Simplified)
Others	Monitor	LCD Monitor	3.0" (7.5cm) TFT Screen LCD Display (1040k dots)
		LCD Monitor	Static Touch Control
		LCD Monitor	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.
		Built- in- Flash	1st Curtain Sync., 2nd Curtain Sync.
		Built- in- Flash	0.3 - 14.1m (Wide / ISO Auto), 1.5 - 6.1m (Tele / ISO Auto)
	Media	Recording Media	SD Memory Card, SDHC Memory Card, SDXC Memory Card
		Recording Media	(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, 895mAh, 6.5 Wh) (Included)
		Power	USB Power Charging
		Battery life (Approx.)	Approx. 330 images (rear monitor), 240 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.

		Included Software	· The Operating Instructions for advanced features is available for downloaded at Panasonic LUMIX Customer Support Site using PC, smartphone or tablet connected to the Internet.
		Included Software	· 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, Shoulder Strap, Lens Cap, Lens Cap String
NOTE			*1
NOTE			Recording conditions by CIPA standard
NOTE			- Temperature: 23 oC (73.4 oF) / 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 stabiliser 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] in [FHD/50p] [FHD/50i]..
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/60p] [FHD/50p] and High Speed motion pictures. 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			- MP4 motion pictures with [MP4] in [FHD/30p] [FHD/25p] [HD]: You can continue recording without interruption even if the file size exceeds 4 GB or 30 minutes in length, 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".