Waterproof Freezeproof Rugged LUMIX Digital Camera DC-FT7

Metrics		Dimensions (W x H x D)	116.7 x 76.1 x 37.3 mm (4.59 x 2.99 x 1.46 inch)
		Weight	Approx. 319 g with Battery and SD Memory Card (0.70 lb)
		Weight	Approx. 293 g without Battery and SD Memory Card (0.65 lb)
Optics	Pixels	Camera Effective Pixels	20.4 Megapixels
	Sensor	Sensor Size / Total Pixels / Filter	1/2.3-inch High Sensitivity MOS Sensor / 21.1 Total Megapixels / Primary Color Filter
	Lens	Aperture	F3.3 - 5.9 / 2-step (F3.3 / 10(W), F5.9 / 18(T))
		Optical Zoom	4.6x
		Focal Length	f=4.9 - 22.8mm (28 - 128mm in 35mm equiv.)
		Focal Length	(30-140mm in 35mm equiv. in video recording)
		Extra Optical Zoom (EZ)	6.4x (4:3 / 10M (M)), 9x (4:3 / 5M (S))
		Intelligent Zoom	9.1x
		Lens	LUMIX DC VARIO
		Lens	8 elements in 10 groups
		Lens	(5 aspherical lenses / 6 aspherical surfaces)
		Optical Image Stabilizer	POWER O.I.S. (On / Off)
		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: 30 cm - infinity
		Focusing Area	AF Macro / Intelligent Auto / Motion Picture: Wide 5 cm - infinity / Tele 30 cm - infinity
		AF Assist Lamp	Yes (On / Off)
		Focus	AF / AF Macro / Macro Zoom
		Focus	Continuous AF (during motion picture recording)

		Post Focus	Yes
		Focus Stacking	-
		AF Metering	Face Detection / Tracking / 49-area / 1-area / Spot
	Shutter	Shutter Speed [Still Image]	Approx. 4 - 1,300 sec (Shutter Type: Mechanical Shutter)
		Shutter Speed [Still Image]	Approx. 4 - 1/16,000 sec (Shutter Type: Auto)
		Shutter Speed [Motion Picture]	Approx. 1/30 - 1/16,000 sec
	Finder	Viewfinder	0.2" LVF (Live View Finder) (1,170k dots equiv.), Field of View: Approx. 100%
		Viewfinder	Magnification: Approx. 2.53x / 0.45x (35 mm camera equivalent)
Recording	File	File Format	Still Image: JPEG (DCF/Exif2.31)
		File Format	4K PHOTO: MP4
		File Format	Motion Picture: MP4 (Audio format: AAC 2ch)
	Recording Modes	Recording Mode	Intelligent Auto, P, M, Scene Guide, Creative Control, Sports, Snow, Beach&Surf, Underwater, Panorama Shot
		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) *For photos only.
		Scene Guide	Clear Portrait / Silky Skin / Backlit Softness / Clear in Backlight / Relaxing Tone / Distinct Scenery / Bright Blue Sky / Romantic Sunset Glow / Vivid Sunset Glow / Glistening Water* / Clear Nightscape / Cool Night Sky / Warm Glowing Nightscape / Glittering Illuminations* / Handheld Night Shot / Clear Night Portrait / Soft Image of a Flower* / Appetizing Food / Cute Dessert / Freeze Animal Motion / Monochrome *For photos only.
		Burst Shooting Mode (Approx.)	H: 10 frames/sec, M: 5 frames/sec*, L: 2 frames/sec*
		Burst Shooting Mode (Approx.)	*AF Tracking
		4K Photo Mode (*2)	4K Burst: 30 frames/sec
		4K Photo Mode (*2)	4K Burst (S/S): 30 frames/sec
		4K Photo Mode (*2)	4K Pre-Burst: 30 frames/sec, approx. 2 sec
		4K Photo	Exif Information: Yes (Each JPEG image cropped out of the 4K burst file complies with EXIF.)

	Mode (*2)	
Motion Picture Recording (*2)	MP4	[4K] 3840x2160
	MP4	4K/30p: 100Mbps
	MP4	4K/25p: 100Mbps
	MP4	4K/24p: 100Mbps
	MP4	[Full HD] 1920x1080
	MP4	FHD/60p: 28Mbps
	MP4	FHD/50p: 28Mbps
	MP4	FHD/30p: 20Mbps
	MP4	FHD/25p: 20Mbps
	MP4	[HD] 1280x720
	MP4	HD/30p: 10Mbps
	MP4	HD/25p: 10Mbps
	AVCHD	-
	High Speed Video(*2)	[HD] 1280x720 FHD/25p (Sensor Output is 100fps)
Continuous Recordable Time (Motion Pictures) (*2)	Continuous Recordable Time (Motion Pictures) (*2)	FHD/50p: Approx. 80 min (rear monitor), 75 min (LVF)
Actual recordable Time (Motion Pictures) (*2)	Actual recordable Time (Motion Pictures) (*2)	FHD/50p: Approx. 60 min (rear monitor), 60 min (LVF)
Exposure Parameters	Exposure	Program AE, Manual
	Exposure Compensation	1/3 EV step, +/-5 EV (+/-3 EV for motion picture / 4K PHOTO)
	Light Metering	Intelligent Multiple / Center Weighted / Spot
	ISO Sensitivity	Auto / i.ISO / 80 / 100 / 200 / 400 / 800 / 1600 / 3200 / 6400* *Extended ISO
Picture Quality	Still Picture Recording	4:3 5184x3888 (20M) (L) / 3712x2784 (10M) (M) / 2624x1968 (5M) (S)
	Still Picture	3:2 5184x3456 (17M) (L) / 3712x2480 (9M) (M) / 2624x1752 (4.5M) (S)

		Recording	
		Still Picture Recording	16:9 5184x2920 (14.5M) (L) / 3840x2160 (8M) (M) / 1920x1080 (2M) (S)
		Still Picture Recording	1:1 3888x3888 (14.5M) (L) / 2784x2784 (7.5M) (M) / 1968x1968 (3.5M) (S)
		Image Quality	Fine / Standard
		White Balance	AWB / Daylight / Cloudy / Shade / Incandescent / Flash / White Set
		White Balance	(White Balance Adjustment)
		Photo Style	Standard, Vivid, Natural, Monochrome, Scenery, Portrait
		Picture Adjustment	Contrast, Sharpness, Noise Reduction, Saturation*, Color Tone**, Filter Effect**
		Picture Adjustment	*Except for Monochrome mode. **For Monochrome mode only.
	Bracket	AE Bracket (Auto Bracket)	3, 5, 7 images in 1/3, 2/3 or 1 EV step, Max. +/-3 EV
	Other	Digital Red Eye Correction (Red-Eye Removal)	Yes (On / Off)
		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
		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
		Show Histogram/ Show Highlights	Yes / -
	Edit	Creating a	Time Lapse Video

		Motion Picture from Still Pictures	
		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, Chinese (Traditional), Chinese (Simplified)
Others	Monitor	LCD Monitor	3.0" (7.5cm) TFT Screen LCD Display (1040k dots)
		LCD Monitor	Field of View: Approx. 100%
	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
		Built- in-Flash	0.3 - 5.6m (Wide / ISO Auto), 0.3 - 3.1m (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 (3.6V, 1250mAh, 4.5 Wh) (Included)
		Power	USB power charging
		Battery life (Approx.)	Approx. 300 images (rear monitor), 250 images (LVF) (*1)
	Standard Package	Included Software	・ The software to edit and playback images on computer 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
		Standard Accessories	・ Operating Instructions for advanced features is available for downloaded at Panasonic LUMIX Customer Support Site using PC, smartphone or tablet connected to the Internet.
NOTE			*1 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 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 - 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] [High Speed Video] or [4K PHOTO].
NOTE	(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 [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 except [4K].
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 For [4K] video output, use an HDMI cable that has the HDMI logo on it, and that is described as"4K compatible".