LUMIX TS7 Waterproof Tough Camera, 20.4 Megapixels, 4.6X Zoom Lens - BLUE - DC-TS7A DC-TS7A

- **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 inc the zoom ratio up to 2x.)

  - Conversion Lens Compatibility N/A

  - *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

  - Mode Dial N/A

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

  - Scene Guide Clear Portrait / Silky Skin / Backlit Softness / Clear in Backlight / Relaxing Tone / Distinct Sc / Bright Blue Sky / Romantic Sunset Glow / Vivid Sunset Glow / Glistening Water* / Clear Nightscape / Cc Night Sky / Warm Glowing Nightscape / Glittering Illuminations* / Handheld Night Shot / Clear Night Po / Soft Image of a Flower* / Appetizing Food / Cute Dessert / Freeze Animal Motion / Monochrome *For pl 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 Mode (*2) Exif Information: Yes (Each JPEG image cropped out of the 4K burst file complies w EXIF.)

- *Motion Picture Recording (*2)*
- MP4 [4K] 3840x2160
- MP4 4K/30p: 100Mbps
- MP4 4K/24p: 100Mbps
- MP4 [Full HD] 1920x1080
- MP4 FHD/60p: 28Mbps
- MP4 FHD/30p: 20Mbps
- MP4 [HD] 1280x720
- MP4 HD/30p: 10Mbps
- AVCHD -
- High Speed Video(*2) [HD] 1280x720 HD/30p (Sensor Output is 120fps)
- *Continuous Recordable Time (Motion Pictures) (*2)*
- Continuous Recordable Time (Motion Pictures) (*2) FHD/60p: Approx. 80 min (rear monitor), 75 min (LV
- *Actual recordable Time (Motion Pictures) (*2)*
- Actual recordable Time (Motion Pictures) (*2) FHD/60p: 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 Recording 3:2 5184x3456 (17M) (L) / 3712x2480 (9M) (M) / 2624x1752 (4.5M) (S)
- 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
- Aperture Bracket N/A
- Focus Bracket N/A

- White Balance Bracket N/A
- *Other*
- Digital Red Eye Correction (Red-Eye Removal) Yes (On / Off)
- GPS N/A
- Wi-FI IEEE 802.11b/g/n   2412 MHz - 2462 MHz (1-11 ch) WPA / WPA2 Infrastructure Mode / WPS
- Bluetooth N/A
- NFC N/A
- Zoom in Motion Picture N/A
- Self Timer 2 sec / 10 sec / 10 sec (3 images)
- *Self Shot*
- Self Shot Mode N/A
- Shutter N/A
- Effect N/A

- **Playback**
  - *Display*
  - Playback Mode All, Picture Only, Video Only, Slideshow (All / Picture Only / Video Only, duration & effect selectable), Calendar
  - Thumbnails / Zoomed Playback 12,30-thumbnails / Yes
  - Rating / Rotate Image / Protect - / - / Yes
  - Set Favorites / Rotate Image N/A
  - Show Histogram/ Show Highlights Yes / -
  - DPOF Print Setting / Set Protection N/A
  - *Edit*
  - Retouch N/A
  - Image Composition N/A
  - Creating a Motion Picture from Still Pictures Time Lapse Video
  - RAW Processing N/A
  - Resize/ Cropping Yes / Yes
  - Title Edit / Text Stamp Yes / Yes
  - Video Divide Yes
  - Direct Print PictBridge compatible
  - PictBridge Support N/A

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

- **Others**
  - *Monitor*
  - LCD Monitor 3.0" (7.5cm) TFT Screen LCD Display (1040k dots) Field of View: Approx. 100%

- *Flash*

- Built- in- Flash Auto, Auto/Red-eye Reduction, Forced On, Forced On/Red-eye Reduction, Slow Sync., Slo 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) 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 cam 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 ・ 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

  - 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 pictu 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 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 [4

- 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 switchin 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 a compatible".

- - **UPC**885170341869